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Summative Evaluation Report of the Managed Care (MC) Component of North Carolina's 1115 Waiver

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Executive Summary

The goal of the NC 1115 Waiver is to improve Medicaid beneficiary health outcomes through the implementation of a new delivery system, to enhance the viability and sustainability of the NC Medicaid program by maximizing the receipt of high-value care, and to reduce the burden from substance use disorders statewide. The demonstration consists of two major elements: components to restructure Medicaid and Health Choice delivery system and benefit structure in NC, and components to address the opioid use epidemic and general substance use treatment needs in the State. This report evaluates changes in measures reflecting quality of care, process of care, and health outcomes, focused on the first two goals of the 1115 waiver related to system transformation. The Healthy Opportunities Pilots were evaluated in a separate Summative Evaluation Report, although Pilot participants are included in the analyses for the overall waiver evaluation. The report presents two driver diagrams developed for the Evaluation Design document that convey the pathways by which waiver goals would be achieved. These diagrams led to testable hypotheses and research questions, which were developed and tested below. In this Report, we focus on Goals 1&2 of the waiver and test research questions from several data sources including Medicaid enrollment, claims and encounters, and state-level public data sources such as the Behavioral Risk Factor Surveillance System.

The evaluation study period for the Summative Evaluation Report runs from November 1, 2019 – November 30, 2024. Standard Plans (SPs), a major component of the 1115 waiver, launched on July 1, 2021, and most analyses in this report compare the trends in metrics before and after the launch of SPs, controlling for important observable variables, such as comorbidities and demographic characteristics. A major and potentially confounding event occurred during the SP implementation period: the Public Health Emergency from the COVID-19 pandemic began with stay-at-home orders in March 2020 and ended in May 2023. We developed a novel method of identifying the “return-to-normal” dates in our data. Additionally, North Carolina Medicaid expanded on December 2023; although we account for this in our models, there are some results that appear quite sensitive to this change in population.

There were two main components to the managed care launch. On July 1, 2021, SPs were launched, transitioning the care for 1.6 million of the approximately 2.6 million Medicaid beneficiaries into one of five Standard Plans. On July 1, 2024, approximately 220,000 of the 3 million Medicaid beneficiaries were enrolled into Tailored Plans (TPs). These beneficiaries qualified for a TP due to significant behavioral health needs such as an intellectual or developmental disability, severe substance use disorder, serious mental illness, or traumatic

brain injury. We refer to these plans throughout this document as SP or TP, and collectively as "managed care" or prepaid health plans (PHPs).

Per our proposed evaluation design, we developed a driver diagram to help organize the evaluation approach. Four secondary drivers – addressing social determinants of health, using care management and advanced medical homes, providing state oversight and incentives, and using alternative payment models (APMs) led to three primary drivers: delivering care with a whole person orientation, increasing access to high quality providers, and increasing the use of alternative payment models. This led to two goals: an improvement in health outcomes and maximizing high-value care to ensure a sustainable Medicaid program.

The design used a mixed-method approach. A Quantitative Team used statistical techniques to analyze secondary data useful for measuring progress. We use interrupted time series models to examine the trends in most metrics before the start of both SP and TP implementation. These models control for changes due to other factors such as the COVID-19 Public Health Emergency (PHE), month effects, county effects, and beneficiary-level controls for age, race/ethnicity, sex, and the Chronic Disease Payment System (CDPS-Rx) risk score. The ITS analysis does not incorporate a comparison group that was not exposed to the NC Medicaid transformation and thus the models will attribute any remaining factors that occurred during the SP and TP implementation periods to the SP and TP launch; accordingly, findings should be interpreted as associations with implementation timing rather than definitive causal effects. We take this into account when describing results. In separate analyses, we compare beneficiaries in Level 3 Advanced Medical Homes (AMH) to those attributed to Levels 1-2 AMHs using difference-in-differences analyses that compare the rate of change by AMH type from before to after the launch of SPs. A Qualitative Team conducted interviews with providers, plans, and beneficiaries throughout the study period and tracked not only their perspectives, but how they changed over time. The two teams synthesized their interim findings regularly, improving each team's design and developing new areas to consider.

There are a large number of metrics examined that capture multiple aspects of the healthcare system and health of the population – from births to deaths, quality of care, engagement with care, and expenditures. The number and diversity of metrics means that there are multiple stories that can be told; one can tell a story of great success from the transformation, as well as major challenges, from the metrics selected. It can be difficult to identify patterns and form overall conclusions, and we endeavored to identify broad, cross-cutting patterns of note. The confounding of the COVID-19 pandemic and Medicaid expansion, as well as limited follow-up for Tailored Plans specifically, means that the conclusions are based on our best

statistical approaches – most of which were approved by CMS in the original design submitted in 2019, notably predating both the pandemic and expansion. One important caveat is that in these analyses, there is no control population outside North Carolina – unknown factors other than the Transformation that affect the entire country may be "attributed" to managed care. Some results potentially attributable to managed care, especially those that happen immediately after launch, may indeed be data artifacts, such as billing, attribution and assignment challenges, or other short-lived disruptions to data.

Hypotheses

Hypotheses were organized by Goal. Here, for brevity, we provide a concise version of each hypothesis; the exact wording is available in Chapter 3. There were five hypotheses associated with the goal of improving outcomes. **Hypothesis 1.1** expected that managed care would improve measures of access to health care, quality of care, and health outcomes. **Hypothesis 1.2** predicted that managed care would increase the appropriate use and quality of behavioral health services. **Hypothesis 1.3** predicted that treatment for opioid use disorder would increase and lead to reductions in long-term opioid use. **Hypothesis 1.4** was that Advanced Medical Homes would lead to increased care management, improved quality of care, and improved health outcomes. **Hypothesis 1.5** was that the transformation would improve health equity. The second goal of generating high-value care led to four additional hypotheses. **Hypothesis 2.1** predicted that managed care would reduce the use of high-cost settings such as inpatient and emergency department. **Hypothesis 2.2** expected increased use of care management. **Hypothesis 2.3** predicted a decrease in healthcare expenditures. (It is important to note that while the budget neutrality and formal cost analysis is not conducted by the evaluation team, we did examine trends in per-member per-month expenditures by Medicaid and the Plans for expenditure components.) **Hypothesis 2.4** expected provider participation and satisfaction to increase.

Findings

The complete report is long, detailed, and exhaustive in most respects. Interested readers can find details on data sources, methodological approaches, limitations, assumptions and robustness checks, and results for over 100 metrics and the interviews in the body of the main report and appendices.

Standard Plans

At a high level, there were ten main findings related to Standard Plans.

1. **Standard Plans were associated with lower use of high cost services.** Implementation of Standard Plans coincided with significant reductions in rates of emergency department use, inpatient admissions, and avoidable ED visits relative to pre-managed-care trends. Furthermore, the average length of stay among those who were admitted also decreased. Providers and plans attributed this finding to improved care coordination and outreach. This is arguably one of the strongest and most unequivocal findings of the evaluation.
2. **Improvement for wellness and prevention-based services was mixed.** Many measures showed a marked decline at the time of SP launch, as providers and beneficiaries reported disruption due to attribution and assignment. Many measures recovered through the post-launch period, and some ultimately exceeded the value expected in the absence of the waiver. Once beneficiaries accessed care, however, they reported high-quality primary care.
3. **Maternal health measures demonstrated uneven improvement.** Postpartum visits increased post-launch, although clearly other policy elements (the postpartum extension and Medicaid expansion) likely contributed. Interviewees reported increased engagement in maternal health over this period and reported a higher quality of care resulting from relationships with providers. Contraception rates, and postpartum care for members under age 21, were unchanged or declined.
4. **None of the measures reflecting delivery of chronic care improved.** Some measures increased at SP launch, but these improvements were not sustained. For example, pharmaceutical management of COPD using bronchodilators or corticosteroids increased substantially initially, but by the end of the study period, were below the expected rate. Statin use for people with cardiovascular disease or diabetes did not change after SP launch, but decreased substantially by the end of the Demonstration period. An important caveat is that Medicaid expansion was associated with lower quality in some cases, potentially reflecting different characteristics of the expansion population. These **overall** results were consistent with providers and beneficiaries reporting challenges in referral to and access of specialists.
5. **Behavioral health services have generally improved under Standard Plans**. It is important to note that beneficiaries in Standard Plans may have some behavioral health needs, but not as many as those in Tailored Plans. Initiation and engagement in Treatment in multiple types of substance use treatment improved across the board.
6. **Metrics measuring connections to SUD management saw declines post launch.** After a hospitalization or other acute events, timely follow up with primary care and specialty mental health care providers were less likely post-launch. This may be due to data sharing challenges and/or prior authorization challenges reported by providers.

7. **Expenditures on services that may lead to lower costs, such as outpatient and prescription medications, increased after SP launch.** This is consistent with the observed pattern of decreased use of high-cost settings. Interviewed respondents reported the value of continued pharmacotherapy in managing and stabilizing their health.
8. **Advanced Medical Homes Tier 3 practices did not outperform Tier 1–2 practices.** After controlling rigorously for selection and timing, Tier 3 AMHs did not demonstrate meaningful improvements over lower-tier practices on the metrics examined. The reasons for this are complex and multifaceted. Provider interviews revealed that providing Tier 3 services were perceived as not worth the increased revenue, but also pointed to other factors, such as the flow of information and data to practices, and sustained investment in frontline care management capacity. Given the central role of AMH Tier 3 in the managed care design, as seen through the driver diagram, and its associated infrastructure investments, the lack of consistent Tier-3-specific performance gains has important implications for expectations about practice-driven, care management-focused quality improvement.
9. **Benefits from managed care were not spread equally across populations.** While some disparities narrowed, differences by rurality, race/ethnicity, disability status, and age persist, and in some cases, disparities were exacerbated by the transformation. For example, by the end of the Demonstration period, well-child visits among 15–30-month-old infants were higher than predicted absent the implementation of managed care plans overall, but were lower than anticipated for rural populations, Native American and Pacific Islanders.
10. **Provider participation, satisfaction, and payment reform impacts remain uncertain.** Provider participation and satisfaction were generally positive, but value-based payment models are still too early or immature to assess their effects reliably. Interviews stressed the value of primary care as a central element of Medicaid delivery.

Tailored Plans

The post-launch time period from July – November 2024 and smaller samples sizes make the strength of evidence from the Tailored Plans more limited. There are a few early, preliminary takeaways:

1. Given the very short timeframe following TP launch, it is probably more appropriate to **interpret estimated TP effects as "disruptions" rather than "policy effects."** TPs are unlikely to have "found their footing" in just a few months and providers may still be adjusting to the new design. Similar to Standard Plans, there is some evidence that TPs led to decline in the use of care in high-cost settings such as inpatient and emergency department. Unlike SPs,

there was no concurrent increase in outpatient use. The increase in prescription drug expenditures may be part of the driver of reduced use in high cost settings.

2. Across other domains, there was **little change in measures** , although improvement in engagement with SUD services among those initiating care was encouraging.
3. There is **enthusiasm and support for the TP model** : providers believe it is an important strategy for managing the health of those with behavioral health needs. But continued monitoring will be necessary to ensure improvements in care.

Overall, the report's findings suggest that North Carolina's managed care transition was associated with reduced use of high-cost services and selective improvements in some domains, while many quality, equity, and care management outcomes remain mixed and will require continued monitoring as the system matures.

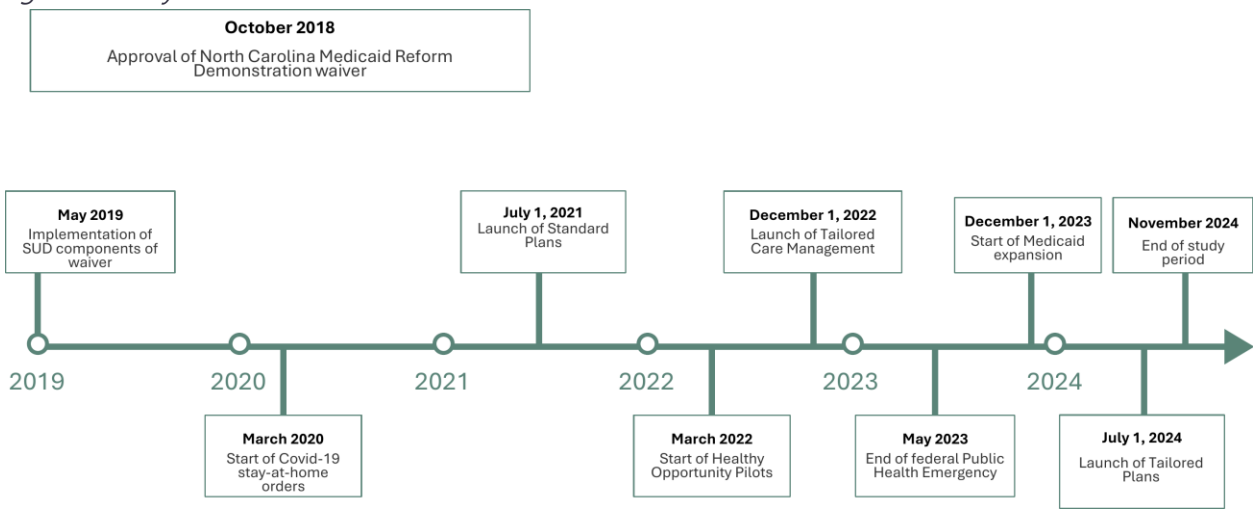
Background

This document is the Summative Evaluation Report (SER) of the managed care components of North Carolina's 1115 waiver. It is one of three SERs submitted for the Demonstration Evaluation (with the Healthy Opportunities Pilots and the SUD evaluation being the other two). The purpose of the NC 1115 Waiver is to improve Medicaid beneficiary health outcomes through the implementation of a new delivery system, to enhance the viability and sustainability of the NC Medicaid program by maximizing the receipt of high-value care, and to reduce the burden of substance use disorders statewide. North Carolina's 1115 waiver, entitled "North Carolina Medicaid Reform Demonstration," was approved by the Centers for Medicare & Medicaid Services (CMS) on October 24, 2018. The demonstration consists of two major elements: components to address the opioid use epidemic and general substance use treatment needs in the state of North Carolina, and other components to restructure Medicaid and Health Choice delivery system and benefit structure in NC.

The delivery and payment system components of the Waiver consist of several important policy changes. First, the State transitioned most NC Medicaid and Health Choice enrollees from a fee-for-service system into a capitated model of care. This shift happened in phases, by eligible populations. The first group transitioned to Standard Prepaid Health Plans (Standard Plans or SPs) on July 1, 2021. This group includes individuals statewide who are not excluded from enrollment in SPs and do not qualify for behavioral health intellectual/developmental disability Tailored Plans (hereinafter referred to as "Tailored Plans", or "TPs") or Children and Families Specialty Plan (CFSP), described below. In addition, beneficiaries who are members of a federally recognized tribe [should be "federally recognized tribe"][Sheps AA: Adjusted] or eligible to receive services from the Indian Health Service in a 11-county area can opt into the Eastern Band of Cherokee Indians Tribal Option (referred to as the "Tribal Option") instead of a capitated plan.

Medicaid enrollees with severe SUD, severe mental illness (SMI), intellectual or developmental disabilities (I/DD), and/or traumatic brain injuries (TBI) who meet criteria established by the NC Department of Health and Human Services (DHHS) were enrolled in separate capitated plans with specialized features that have enhanced behavioral health benefits, called BH I/DD Tailored Plans. The transition to Tailored Plans was initially scheduled to occur earlier in the demonstration but ultimately launched July 1, 2024. (See Figure 1) below for a timeline of key implementation dates across waiver components. The organizations (LME/MCOs) that administered Tailored Plans offered Tailored Care Management (care management services offered to most beneficiaries who are eligible for Tailored Plans) beginning on December 1, 2022, which may have increased screenings and referrals to services.

Figure 1: Study Period Timeline for SUD Waiver Evaluation



While most Medicaid enrollees are now covered under a capitated plan under the demonstration, several groups are excluded from participation, including most Medicaid enrollees who are dually eligible[1], Medicaid enrollees who are eligible through the Medically Needy program, those with limited eligibility such as through family planning waivers, those presumptively eligible for Medicaid, and prison inmates receiving Medicaid covered inpatient services. In addition, Medicaid-only beneficiaries receiving long-stay nursing home services and Community Alternatives Program for Children and Community Alternatives Program for Disabled Adult enrollees are also excluded. These beneficiaries remain in fee-for-service Medicaid, now called NC Medicaid Direct.

One of the major elements of Standard Plans revolves around the Advanced Medical Home (AMH) program. Expanding upon its pre-existing primary care case-management initiative, which was in place prior to the Waiver implementation, the State introduced the AMH program as a central method for providing and coordinating care management services within managed care. There were initially three tiers of AMHs, each with increasing care management obligations and criteria. As defined in the AMH manual for primary care providers[2], "AMH Tier 1 and 2 were designed to provide continuity with pre-managed care launch programs, such as Carolina ACCESS. In the AMH program, Tier 1 and 2 practices must continue to meet the same requirements Carolina ACCESS required prior to Medicaid Transformation. The AMH Tier 1 and 2 practices that contract for services with multiple health

[1] Medicaid-only beneficiaries in foster care under age 21, children in adoptive placements and former foster youth who aged out of care up to age 26.

[2] https://medicaid.ncdhhs.gov/documents/providers/advanced-medical-home-provider-manual/open

plans interface and coordinate with each of those health plans' care management programs for high need patients." AMH Tier 1 and 2 practices receive medical home fees of $5.00 PMPM for Tailored Plan members and those in the Aged / Blind / Disabled Medicaid eligibility category and $2.50 PMPM for all other members.

AMH Tier 3 is a more advanced phase for practices ready to take on care management responsibility, either alone or as part of a network of practices affiliated with a Clinically Integrated Network (CIN). SPs will provide oversight for care management delivered in or on behalf of AMH Tier 3 practices but will otherwise delegate day to day care management responsibilities to the AMH Tier 3 practice or the system or CIN/partners with which they are affiliated." AMH Tier 3 practices receive the same AMH fees as Tiers 1-2 as described above but also negotiate with the SPs for an additional care management fee. Participation in the program is optional for primary care practices, allowing them the flexibility to apply for recognition at a specific Tier level or to opt out entirely.

Medicaid has also begun encouraging value-based payments (VBPs) through the Medicaid transformation process. VBPs are "payment arrangements between health plans and providers that fall within Levels 2 through 4 of the multi-payer Health Care Payment (HCP) and Action Network (LAN) Alternative Payment Model (APM) framework."[3] Under NC Medicaid's contracts with managed care plans, plans are encouraged to adopt VBP components in their contracts with providers that are consistent with the State's Quality Strategy[4]. PHPs are required to offer performance incentive arrangements to AMH Tier 3 providers and are encouraged to offer value-based payment arrangements to other Medicaid providers. Value-based approaches may be customized to specific populations, such as pediatrics, maternity care, behavioral health, or pharmacy. As the VBP models mature and have more post-implementation data, an evaluation of their impact will be conducted.

[3] https://medicaid.ncdhhs.gov/reports/quality-management-and-improvement/value-based-payments

[4] https://medicaid.ncdhhs.gov/reports/quality-management-and-improvement/value-based-payments

Evaluation Questions and Hypotheses

There are three stated goals of the demonstration:

- Measurably improve health outcomes via a new delivery system.
- Maximize high-value care to ensure sustainability of the Medicaid program.
- Reduce the burden of substance use disorder

All three goals can be used as a lens through which the delivery and payment system components of the Waiver are evaluated, although the first two are the focus of this report. The primary and secondary drivers or pathways through which these goals are theorized to be achieved are diagrammed below. (Figure 2, Figure 3)

The primary and secondary drivers, or pathways through which these goals will be achieved, are diagrammed below in Figure 2. Goal 3 is additionally broken out in more detail in Figure 3. Although the third Goal is less relevant for the managed care components of the waiver, it is included for context because there may be some effect of the SUD waiver on non-SUD services and/or populations as well as on the SUD measures examined in the context of changes from managed care.

The primary drivers for Goals 1 and 2 include an increased use of alternative payment models (APMs), providing care with a whole person orientation, enhanced access to care, and more use of evidence-based practices and medicines. According to the NC Medicaid's Managed Care Quality strategy, the use of APMs is expected to increase through the use of prepaid health plans (PHPs) including SPs and TPs[5]. SPs are encouraged to use APMs to pay providers and are incentivized to move along the Health Care Payment Learning and Action Network's APM Framework[6] towards more population-based models of payment and accountability. With the use of value-based payments (VBPs), SPs and TPs have more ability to place incentives upon providers to meet quality expectations. These pre-paid health plans are held to quality expectations and other oversight/compliance by the State; this puts more emphasis on quality and value than existed prior to the waiver.

It is well known that medical care is only responsible for a fraction of a person's health; other factors like social determinants of health (SDOH) and the broader environment are also considerable drivers. An increased emphasis on a whole-person orientation will improve beneficiary outcomes. Several managed care initiatives specifically address SDOH; these include the Healthy Opportunities Pilots, the resource platform linking needs to local social

[5] https://medicaid.ncdhhs.gov/nc-medicaid-2023-quality-strategy/download?attachment

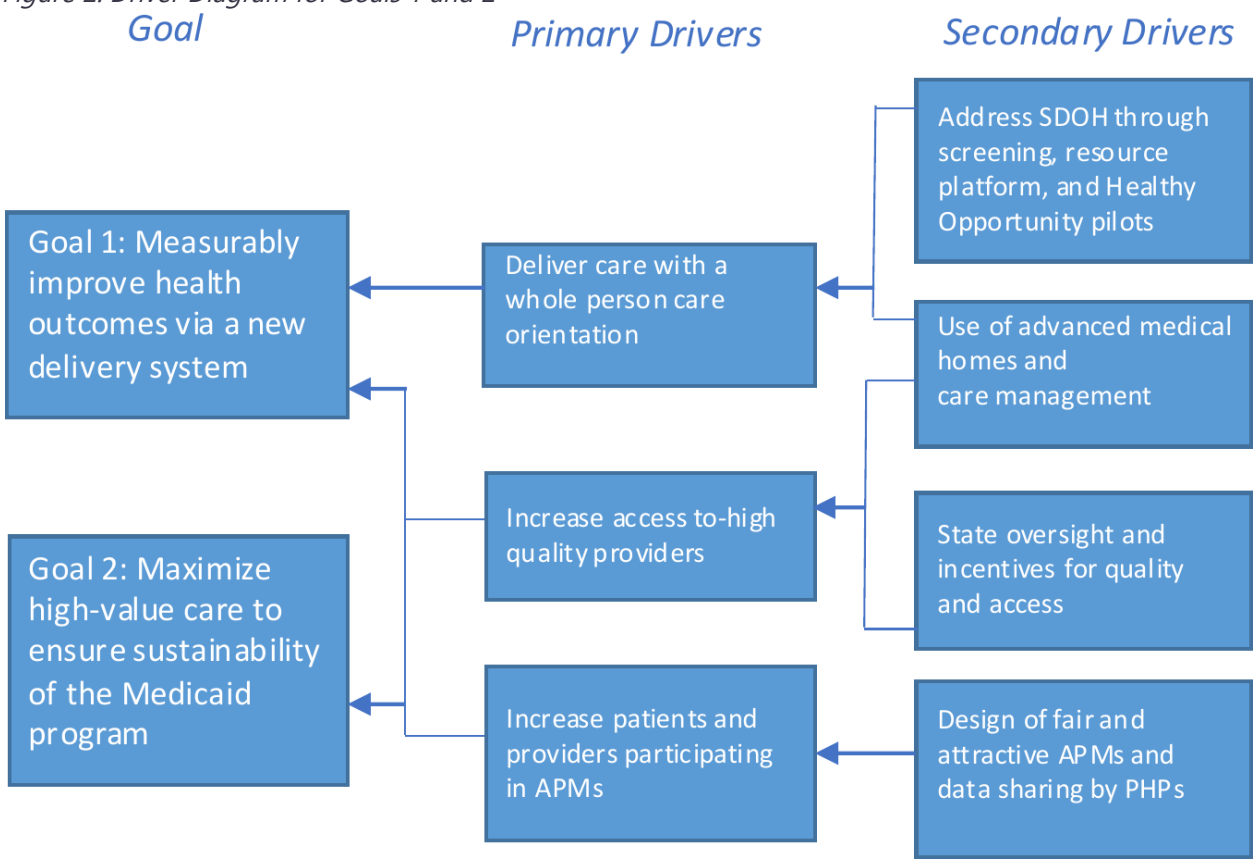
[6] https://hcp-lan.org/apm-framework/

service organizations (called NCCare360), and mandated screening for patients' SDOH-related needs.

Multiple secondary drivers are hypothesized to improve the use of evidence-based practices (EBP). This driver is deliberately worded to account for both the recommendation of EBPs by providers as well as the ability and willingness of patients to participate in EBPs, including patients' ability to access recommended care (e.g., transportation needs met), trust in the provider's recommendation through shared decision-making, and adherence to the recommended treatment (e.g., medication). Some of the secondary drivers are focused on providers (e.g., quality improvement activity and shared data/transparency) while others are more focused on the patient and family (patient engagement, use of advanced medical homes). Likewise, oversight of the PHPs and providers will increase the use of EBPs, and access to the resource platform will attenuate social barriers inhibiting patients' abilities to access evidence-based practices.

Finally, these primary drivers also improve the ability of patients to access care more generally. These will improve provider satisfaction and willingness to treat and manage Medicaid beneficiaries. As providers become more satisfied with the Medicaid program, more providers will be willing to serve Medicaid beneficiaries, and many will increase the number of Medicaid beneficiaries they are able to serve.

Figure 2: Driver Diagram for Goals 1 and 2

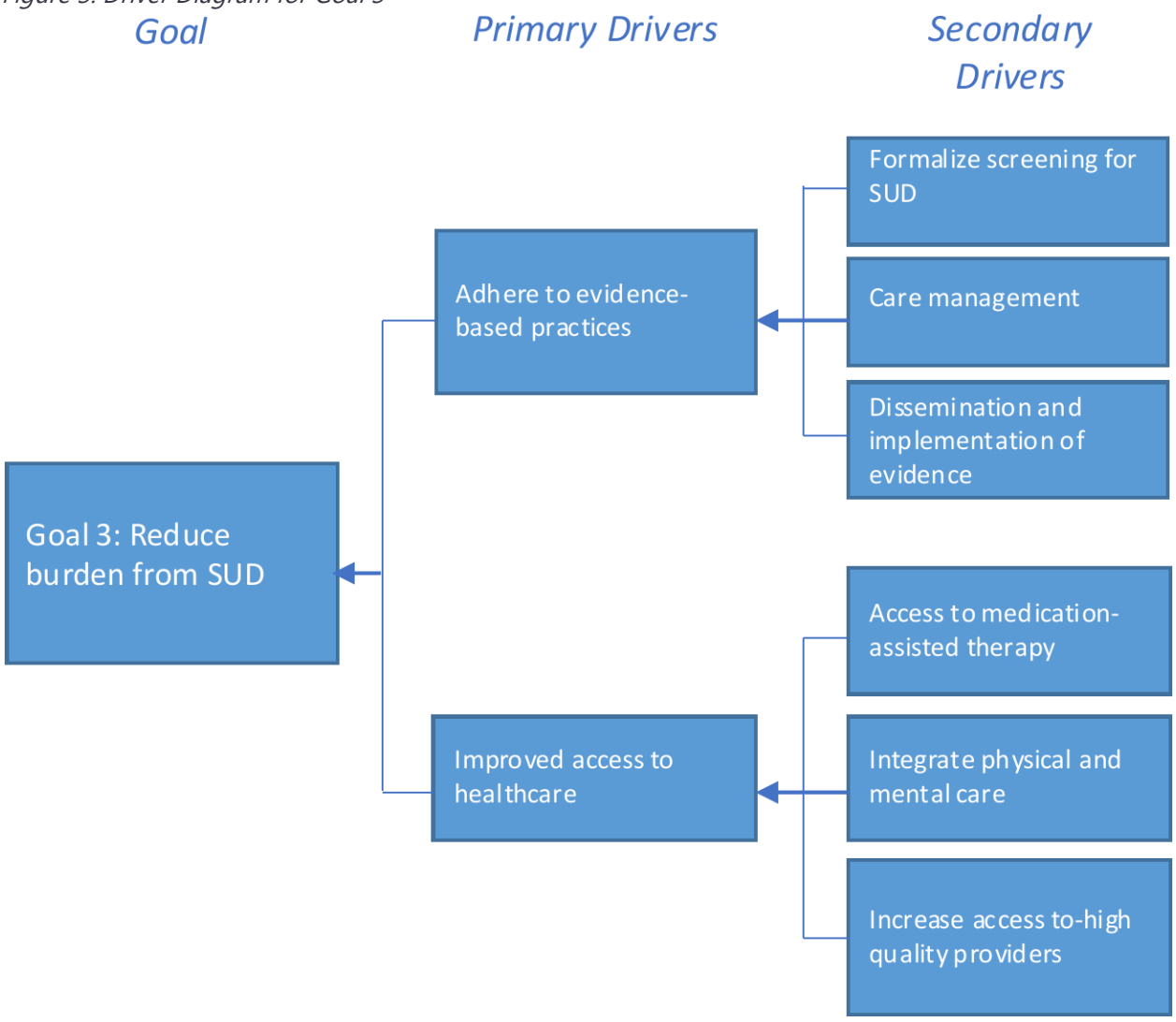


Goal 3 is "reduce the burden of substance use disorder." In Figure 3 we provide additional detail on this goal, which includes reducing the burden of SUD in terms of both reductions in mortality and morbidity. The primary intention of the SUD components of the waiver is to provide beneficiaries with SUD the high-quality care they need, and to reduce excessive and long-term use (i.e., greater than 90 days) of opioids. Secondary drivers include formalized screening for SUD, better care management, dissemination and implementation of evidence, an increase in prescribers of medications for opioid use disorders (MOUD, sometimes referred to as Medication Assisted Therapies [MAT]),[7] integration between physical and behavioral health, and increased access to high-quality providers. The secondary drivers lead to treatment being provided in the most appropriate care setting, adherence to medications and SUD services (including, as above, the notion that providers need to be recommending

[7] We use both terms in this report: MOUD is the currently preferred term while MAT is the traditional name and is included here only when it is the name of specific outcome metrics or interventions. They are not perfectly synonymous – MAT includes therapies beyond medication, and MOUD is specific to opioid use disorders –but for most purposes in this document they are sufficiently similar.

EBPs as well), and improving rates of treatment and engagement with SUD treatment and providers.

Figure 3: Driver Diagram for Goal 3



Each of the goals leads to several hypotheses which will be tested in the demonstration evaluation through the related research questions. Our focus in this report is on the delivery and payment system components of the Waiver that have been currently implemented, which lead to the following research questions and hypotheses[8]:

[8] Research questions about the Children and Families Specialty Plan (originally referred to as specialized foster care plans) have been omitted from this report since this Plan was not implemented in the first Demonstration period.

Goal 1: Measurably improve health outcomes via a new delivery system.

Hypothesis 1.1 The implementation of Medicaid managed care will increase access to health care and improve the quality of care and health outcomes.

- Research question 1.1.a Does the implementation of Standard Plans increase *access to health care* for those in the target population?
- Research question 1.1.b Does the implementation of Standard Plans improve the *quality of health care* received by the target population?
- Research question 1.1.c Does the implementation of Standard Plans improve *health outcomes* for those in the target population?
- Research question 1.1.d Does the implementation of BH I/DD Tailored Plans *increase access to health care* for those in the target population?
- Research question 1.1.e Does the implementation of BH I/DD Tailored Plans improve the *quality of health care* received by the target population?
- Research question 1.1.f Does the implementation of BH I/DD Tailored Plans improve *health outcomes* for those in the target population?

Hypothesis 1.2: The implementation of Medicaid managed care will increase the rate of use of behavioral health services at the appropriate level of care and improve the quality of behavioral health care received.

- Research question 1.2.a Does the implementation of Standard Plans increase the rate of use of behavioral health services at the appropriate level of care for those in the target population?
- Research question 1.2.b Does the implementation of Standard Plans improve the quality of behavioral health care received for those in the target population?
- Research question 1.2.c Does the implementation of BH I/DD Tailored Plans increase the rate of use of behavioral health services at the appropriate level of care for those in the target population?
- Research question 1.2.d Does the implementation of BH I/DD Tailored Plans improve the quality of behavioral health care received for those in the target population?

Hypothesis 1.3: The implementation of Medicaid managed care will increase the use of medication-assisted treatment (MAT) and other opioid treatment services and decrease the long-term use of opioids.

- Research question 1.3.a Does the implementation of Standard Plans increase the use of MAT for those in the target population?
- Research question 1.3.b Does the implementation of Standard Plans increase the use of non-medication opioid treatment services for those in the target population?

- Research question 1.3.c Does the implementation of Standard Plans decrease the probability of long-term use of opioids?
- Research question 1.3.d Does the implementation of BH I/DD Tailored Plans increase the use of MAT for those in the target population?
- Research question 1.3.e Does the implementation of BH I/DD Tailored Plans increase the use of non-medication opioid treatment services for those in the target population?
- Research question 1.3.f Does the implementation of BH I/DD Tailored Plans decrease the probability of long-term use of opioids?

Hypothesis 1.4: Implementation of Advanced Medical Homes (AMHs) will increase the delivery of care management services and will improve quality of care and health outcomes.

- Research question 1.4.a Does the implementation of AMHs increase the probability of receiving care management services?
- Research question 1.4.b Does the implementation of AMHs improve the quality of care received?
- Research question 1.4.c Does the implementation of AMHs improve health outcomes?

Hypothesis 1.5: The implementation of Medicaid managed care will reduce disparities (increase equity) in the quality of care received across rurality, age, race/ethnicity, and disability status.

- Research question 1.5.a Does the implementation of Standard Plans increase equity in the quality of care for those in the target population?
- Research question 1.5.b Does the implementation of BH I/DD Tailored Plans increase equity in the quality of care for those in the target population?

Goal 2: Maximize high-value care to ensure the Medicaid program's sustainability.

Hypothesis 2.1: The implementation of Medicaid managed care will decrease the use of emergency departments for non-urgent use and hospital admissions for ambulatory sensitive conditions.

- Research question 2.1.a Does the implementation of Standard Plans decrease the use of emergency departments for non-urgent use?
- Research question 2.1.b Does the implementation of Standard Plans decrease the use of hospital admissions for ambulatory sensitive conditions?
- Research question 2.1.c Does the implementation of BH I/DD Tailored Plans decrease the use of emergency departments for non-urgent use?

- Research question 2.1.d Does the implementation of BH I/DD Tailored Plans decrease the use of hospital admissions for ambulatory sensitive conditions?

Hypothesis 2.2: The implementation of Medicaid managed care will increase the number of enrollees receiving care management, overall and during transitions in care.

- Research question 2.2.a Does the implementation of Standard Plans increase the number of enrollees receiving care management?
- Research question 2.2.b Does the implementation of Standard Plans increase the number of enrollees receiving care management during transitions in care?
- Research question 2.2.c Does the implementation of BH I/DD Tailored Plans increase the number of enrollees receiving care management?
- Research question 2.2.d Does the implementation of BH I/DD Tailored Plans increase the number of enrollees receiving care management during transitions in care?

Hypothesis 2.3: The implementation of Medicaid managed care will reduce Medicaid program expenditures.

- Research question 2.3.a Does the implementation of Standard Plans reduce Medicaid program expenditures?
- Research question 2.3.b Does the implementation of BH I/DD Tailored Plans reduce Medicaid program expenditures?

Hypothesis 2.4: The implementation of Medicaid managed care will increase provider satisfaction and participation in the Medicaid program.

- Research question 2.4.a Does the implementation of Standard Plans increase provider satisfaction?
- Research question 2.4.b Does the implementation of Standard Plans increase provider participation in the Medicaid program?
- Research question 2.4.c Does the implementation of BH I/DD Tailored Plans increase provider satisfaction?
- Research question 2.4.d Does the implementation of BH I/DD Tailored Plans increase provider participation in the Medicaid program?

Evaluation Measures

This Summative Evaluation Report assesses the degree to which the Demonstration has been effective in achieving its goals and examines the processes, facilitators and barriers experienced during the initial Demonstration period using a set of metrics relevant to beneficiaries transitioning to Standard or Tailored Plans that measure the quality of care, the process of care, and the outcomes of care.

Table 1 details the quantitative measures that were used to test each hypothesis, the source or custodian of each measure, the sample or population to which the measure is relevant, and the proposed data sources. Measures were generated from the CMS-required metrics for SUD 1115 waiver demonstrations, PHP Quality Metrics,[9] the Managed Care Quality Strategy,[10] and other public sources. Several of these measures were employed for multiple hypotheses, to examine the effect of different components of the waiver on outcomes or in different Medicaid populations. The data sources and analytic methods are further described below. For most of these measures, we used claims and encounter data, which includes a) fee-for-service (FFS) claims data prior to July 1, 2021 as well as remaining populations or services subject to FFS payments after July 1, 2021; b) local management entity – managed care organization (LME/MCO) encounter data including TP encounters; and c) SP encounter data. Unless otherwise stated, metrics are examined only for fully eligible beneficiaries (excluding anyone with partial eligibility such as through the family planning waiver) and for the entire age profile.

[9] BH I/DD Tailored Plan Quality Metrics. Available at: https://files.nc.gov/ncdma/4---Addendum-3-RFA-30-2020-052-DHB-Section-VII-Attachments-A-P.pdf

[10] NC Medicaid Managed Care Quality Strategy. Available at: https://medicaid.ncdhhs.gov/transformation/quality-management-and-improvement

Table 1: Included Measures

Measure (Abbreviation)	Hyp	Measure Custodian	Numerator	Denominator	Type
Hypothesis 1.1: The implementation of Medicaid managed care will increase access to health care and improve the quality of care and health outcomes.					
Asthma Medication Ratio (AMR)	1.1	NQF#:1800 / NCQA-HAC	Medication ratio >=50%	Beneficiaries age 5-64 with persistent asthma	P
Breast Cancer Screening (BCS)	1.1	NQF#:2372 / NCQA-HA	Coded as receiving breast cancer screening	Women 50-74 years of age	P
Cervical Cancer Screening (CCS)	1.1	NQF#:0032 / NCQA-HAC	Coded as receiving cervical cancer screening	Women 21-64 years of age	P
Contraceptive Care: Postpartum (CCP)	1.1	NQF#:2902 / OPA / HA	Provided a most or moderately effective or long-acting reversible method of contraception (LARC) within 3 and 90 days of delivery	Women ages 21-44 who had a live birth	P
Contraceptive Care All Women (CCW)	1.1	NQF#:2903 / OPA / AC	Provided a most or moderately effective method of contraception with 3 and 90	Women ages 21-44 who are at risk of unintended pregnancy	P

			days of delivery		
Women's Preventive Care: Screening for Pregnancy Risk	1.1	NC Administrative Measure	Coded as receiving screening for pregnancy risk	Women ages 14-44 with a viable pregnancy	P
Prenatal and Postpartum Care (PPC): Postpartum Care Visit among Women under 21	1.1, 1.4	NQF#:1517 / NCQA-HA	Coded as receiving a postpartum visit	Members under age 21 with live births	P
Prenatal and Postpartum Care (PPC): Postpartum Care Visit among Women 21+	1.1, 1.4	NQF#:1517 / NCQA-HA	Coded as receiving a postpartum visit	Women age 21 and older with live births	P
Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members under 21	1.1, 1.4	NQF#:1517 / NCQA-HA	Coded as receiving a prenatal care visit in the first trimester	Members under age 21 with live births	P
Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care among Women 21 and older	1.1, 1.4	NQF#:1517 / NCQA-HA	Coded as receiving a prenatal care visit in the first trimester	Women age 21 and older with live births	P

Low-Risk Cesarean Delivery (LRCD)	1.1, 1.6	CDC / C	Percentage of Cesarean deliveries	All first live, cephalic, singleton births at greater than or equal to 37 weeks gestation	O
Low Birth Weight (LBW)	1.1	NQF#:1382 / CDC (NC Modification)	Percentage of live births that weighed less than 2,500 grams at birth	All live births	O
Neonatal Mortality	1.1	NCHS/CDC	Death within 27 days of birth	All live births with mothers who were enrolled on a SP or TP at time of delivery	O
Infant Mortality	1.1	NCHS/CDC	Death within 364 days of birth	All live births with mothers who were enrolled on a SP or TP at time of delivery	O

Child Immunization Status (CIS)	1.1, 1.4	NQF#:0038/ NCQA-HC	Children who received 4 DTaP, 3 polio, 1 MMR, 3 HiB, 3 Hep B, 1 VZV, 4 PCV, 1 Hep A, and 2-3 rotavirus vaccines by their second birthday (Combo 7)	Children who turn 2 years of age during the measurement year	P
Immunization for Adolescents (IMA)	1.1, 1.4	NQF#1407/ NCQA-H	Persons 13 years of age who had 1 meningococcal vaccine, 1 Tdap, and have completed the human papillomavirus (HPV) vaccine series by their 13th birthday (Combo 2)	Adolescents who turn 13 years of age during the measurement period	P
Child and Adolescent Well-Care Visits (WCV)	1.1, 1.4	NQF#:1516 / NCQA-HC	One or more well-care visits	Children age 3-21	P
Well-Child Visits in the First 30 Months (W30)	1.1, 1.4	NQF#:1392 / NCQA-HC	Six or more well-child visits (0-15 months); Two or more well-child visits (15-30 months)	Children who are 15 months; Children who are 30 months	P

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC)	1.1, 1.4	NQF#:0024 / NCQA-HC	Coded as having Weight Assessment and Counseling for Nutrition and Physical Activity	Beneficiaries 3-17 who had an outpatient visit with a PCP or OB/GYN	P
Monthly Dental Visit (ADV)	1.1	NQF#:1388 / NCQA-H	Coded as receiving 1 or more outpatient dental visit	Beneficiaries 2 years of age or older	P
Appropriate Testing for Pharyngitis (CWP)	1.1	NQF#:0002 / NCQA-H	Coded as receiving a strep test	Children age 3-18 diagnosed with pharyngitis and dispensed an antibiotic	P
Appropriate Treatment for Upper Respiratory Infection (URI)	1.1, 1.5	NQF#:0069 / NCQA-H	Coded as receiving appropriate treatment	Children 3 months – 18 years given a diagnosis of URI	P
Avoidance of Antibiotic Treatment in Children with Acute Bronchitis/Bronchiolitis (AAB)	1.1	NQF#:0058 / NCQA-H	Coded as not receiving antibiotics	Children 3 months - 17 years with a diagnosis of acute bronchitis	P

Avoidance of Antibiotic Treatment in Adults with Acute Bronchitis/Bronchiolitis (AAB)	1.1	NQF#:0058 / NCQA-H	Coded as not receiving antibiotics	Adults age 18-64 with a diagnosis of acute bronchitis	P
Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Bronchodilator	1.1	NQF#:2856 / NCQA-H	Coded as receiving pharmacotherapy management	Beneficiaries age 40+ with an acute inpatient discharge or ED visit	P
Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid	1.1	NQF#:2856 / NCQA-H	Coded as receiving pharmacotherapy management	Beneficiaries age 40+ with an acute inpatient discharge or ED visit	P
Statin Therapy for Patients with Cardiovascular Disease (SPC)	1.1	NQF#:0543 / NCQA-H	Coded as receiving statin therapy	Men age 21-75 and women age 40-75 with atherosclerotic cardiovascular disease	P
Statin Therapy for Patients with Diabetes (SPD)	1.1	NQF#:0547 / NCQA-H	Coded as receiving statin therapy	Beneficiaries age 40-75 with diabetes and without atherosclerotic cardiovascular disease	P

Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP)	1.1	NQF#:0052 / NCQA-H	Coded as receiving 1+ imaging procedure	Beneficiaries with a diagnosis of low back pain	P
Chlamydia Screening in Women (CHL)	1.1, 1.4	NQF#:0033 / NCQA-HAC	Coded as receiving chlamydia screening	Women 16-24 years of age identified as sexually active	P
Plan All-Cause Readmissions (PCR): Observed	1.1, 1.4	NQF#:1768 / NCQA-HA	Readmission within 30 days of discharge	Inpatient hospital stays for beneficiaries age 18+	P
Access to Preventive/Ambulatory Health Services (AAP)	1.1, 1.4, 1.5, 1.6, 2.5	NCQA-H	Had an ambulatory or preventative care visit	Adult beneficiaries	P

Prevention Quality Indicators Composite (PQI-90)	1.1, 1.4	PDI-15 / AHRQ	Beneficiaries that have an admision for short-term diabetes complications (PQI01), long-term diabetes complications (PQI03), COPD or asthma (PQI05 and PQI15), hypertension (PQI07), heart failure (PQI08), community-acquired pneumonia (PQI11), urinary tract infection (PQI12), uncontrolled diabetes (PQI14), lower-extremity amputation among patients with diabetes (PQI16)	Beneficiaries ages 18 and older	O

Unhealthy days	1.1	BRFSS	Number of days during the past 30 days when mental or physical health was not good	--	O
Alcohol Use	1.1	BRFSS	Number of times during the past 30 days having 5 or more drinks for men or 4 or more drinks for women	--	O
Obesity	1.1	BRFSS	Adults who have a body mass index greater than 25.00	--	O
Tobacco use	1.1	BRFSS	Adults who are current smokers	--	O
Death Rate by Group: Death Rate for people ever with an SMI	1.1	--	Beneficiaries who died	Adult beneficiaries who ever had an SMI	O
Death Rate by Group: Death Rate for people ever with an SUD	1.1	--	Beneficiaries who died	Adult beneficiaries who ever had an SUD	O

Death Rate within 12 months Post-Prison Release	1.1	--	Beneficiaries who died	Adult beneficiaries in the PHP population released from prison	O
Hypothesis 1.2: The implementation of Medicaid managed care will increase the rate of use of behavioral health services at the appropriate level of care and improve the quality of behavioral health care received.					
Follow-up Care for Children Prescribed ADHD Medication (ADD)	1.2, 1.4, 1.5	NQF#:0108 / NCQA-HC	Evidence of outpatient visit in the appropriate time frame	Children newly prescribed ADHD medications	P
Antidepressant Medication Management (AMM)	1.2, 1.4	NQF#:0105 / NCQA-HA	Beneficiaries who remained on antidepressant treatment for at least 84 days or at least 180 days	Beneficiaries ages 18 and older who filled at least one prescription for antidepressant medication	P
Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)	1.2	NQF#:2801 / NCQA-HC	Documentation of psychosocial care	Children and adolescents ages 1 to 17 who had a new prescription for antipsychotic medication	P

Adherence to Antipsychotic Medications for Individuals with Schizophrenia (SAA)	1.2; 1.5	NQF#:1879 / NCQA-HAC	PDC >=80% and at least two Rx claims	Adults with an administrative diagnosis of Schizophrenia; during time periods not hospitalized	P
Follow-up After Hospitalization for Mental Illness (FUH-AD)	1.2, 1.4	NQF#:0576 / NCQA-HAC	Evidence of outpatient visit within 7 and 30 days after discharge with specified provider types	Beneficiaries ages 18 and older who were hospitalized for treatment of selected mental illnesses	P
Follow-up After Hospitalization for Mental Illness (FUH)	1.2, 1.4	NQF#:0576 / NCQA-HAC	Evidence of outpatient visit within 7 and 30 days after discharge with any provider	Children ages 6-17 who were hospitalized for treatment of selected mental illnesses	P
Follow-Up After Emergency Department Visit for Mental Illness (FUM-AD)	1.2	NQF#:3489 / NCQA-HA	A follow-up visit with any practitioner within 7 and 30 days of the ED visit	ED visits for beneficiaries ages 13-17 and older or 18 and older with a principal diagnosis of mental illness or intentional self-harm	O

Use of Behavioral Health Care for People with SMI/SUD/SED	1.2	--	Evidence of behavioral health care use	Children and adults with a SMI, SUD, or SED diagnosis	P
Any SUD Treatment	1.2	CMS	Beneficiaries receiving at least one SUD treatment or pharmacy claim	Beneficiaries with a SUD diagnosis	O
Access to Preventive/Ambulatory Health Services among beneficiaries with SUD (SUD32)	1.2	NCQA-H / CMS	Had an ambulatory or preventative care visit	Adult beneficiaries age 20+ with a SUD diagnosis	P
Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET)	1.2	NQF#:0004/ NCQA-HA	Beneficiaries who initiated AOD treatment within 14 days of the diagnosis and who were engaged in ongoing AOD treatment within 34 days of the initiation visit	Adult beneficiaries with a new episode of SUD	P

Initiation and Engagement of Alcohol Abuse or Dependence Treatment (IET-AD)	1.2	NQF#:0004 / NCQA-HA	Beneficiaries who initiated treatment for alcohol dependence within 14 days of the diagnosis and who were engaged in ongoing treatment within 34 days of the initiation visit	Adult beneficiaries with a new episode of alcohol use disorder (AUD)	P
Initiation and Engagement of Other Drug Abuse or Dependence Treatment (IET-AD)	1.2	NQF#:0004 / NCQA-HA	Beneficiaries who initiated treatment for other drug dependence within 14 days of the diagnosis and who were engaged in ongoing treatment within 34 days of the initiation visit	Adult beneficiaries with a new episode of SUD	P
Emergency Department Visits for SUD (SUD23)	1.2	NCQA-HA	Beneficiaries with an ED visit for a SUD-related diagnosis	Beneficiaries with a SUD diagnosis	P

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence (FUA-AD)	1.2	NQF#:3488 / NCQA-HA	A follow-up visit with any practitioner within 7 and 30 days of the ED visit	ED visits for beneficiaries ages 18 and older with a principal diagnosis of AOD abuse or dependence	O
Inpatient Admissions for SUD	1.2	NCQA-H	Beneficiaries with an inpatient discharge for a SUD-related stay	Beneficiaries with a SUD diagnosis	P
30-day Hospital Readmissions Among Beneficiaries with SUD (SUD25)	1.2	NCQA-H	Readmission for any reason within 30 days of discharge	Beneficiaries with a SUD diagnosis who also have an inpatient discharge	P
Incarceration of Adults with Drug Related Charges	1.2	--	Beneficiaries with a drug-related incarceration or post-release supervision in the last 12 months	Adults with SUD	O
Hypothesis 1.3 The implementation of Medicaid managed care will increase the use of medication-assisted treatment (MAT) and other opioid treatment services and decrease the long-term use of opioids.					

Use of Pharmacotherapy for Opioid Use Disorder (OUD)	1.3	CMS	Beneficiaries who have a claim for a MOUD dispensing event for any of the following medications: methadone, buprenorphine, injectable naltrexone, oral naltrexone	Adult beneficiaries 18 years of age and older with an OUD diagnosis	O
Medication Assisted Treatment	1.3	NCQA-H	Beneficiaries who have a claim for a MAT dispensing event for OUD	Beneficiaries with an OUD diagnosis	O
Continuity of Pharmacotherapy for OUD for 180 days or more (SUD22)	1.3	NQF#:3175 / USC / HEDIS	At least 180 days of continuous pharmacotherapy use	Adult beneficiaries 18 years of age and older with OUD and at least one claim for pharmacotherapy	P

Concurrent Use of Opioids and Benzodiazepines (COB-AD/SUD21)	1.3	NQF#:3389 / PQA / A	Received concurrent prescriptions for opioids and benzodiazepines	Adults beneficiaries with two or more prescriptions of opioids on different service dates and with a cumulative days' supply of 15 or more days	P
Use of Opioids at High Dosage in Persons without Cancer (OHD-AD/SUD18)	1.3	NQF#:2940 / PQA / A	Beneficiaries who received prescriptions for opioids with an average daily dosage of ≥90 morphine milligram equivalents (MME) over a period of 90 days or more	Adults with two or more prescription claims for opioids filled on different service dates and with a cumulative days' supply of 15 or more days	O
Use of Opioids from Multiple Providers in Persons Without Cancer (OMP/SUD19)	1.3	NQF#:2950 / PQA	Evidence of opioid prescription claims from 4 or more prescribers AND 4 or more pharmacies within 180 days	Adults with two or more prescription claims for opioids filled on different service dates and with a cumulative days' supply of 15 or more days	O

Use of Opioids at High Dosage and from Multiple Providers in Persons without Cancer (OHDMP/SUD 20)	1.3	NQF#:2951 / PQA	Beneficiaries who received prescriptions for opioids with an average daily dosage of ≥90 MME AND who received prescriptions for opioids from ≥4 prescribers AND ≥4 pharmacies	Adults with two or more prescription claims for opioids filled on different service dates and with a cumulative days' supply of 15 or more days	O
Hypothesis 1.4: Implementation of Advanced Medical Homes (AMHs) and Health Homes (HHs) will increase the delivery of care management services and will improve quality of care and health outcomes.					
Number of providers that contract with an SP by AMH level	1.4	--	AMH Tier 3 practices	Practices	P
Percent of Enrollees Receiving Care Management	1.4	--	Evidence of care management receipt	All	O
Number of Enrollees Attributed to an AMH	1.4	--	Enrollees attributed to an AMH	All	P

Childhood Immunization Status (CIS)	1.1, 1.4	NQF#:0038 / NCQA-HC	Children who received 4 DTaP, 3 polio, 1 MMR, 3 HiB, 3 Hep B, 1 VZV, 4 PCV, 1 Hep A, and 2-3 rotavirus vaccines by their second birthday (Combo 7)	Children who turn 2 years of age during the measurement year	P
Immunizations for Adolescents (IMA)	1.1, 1.4	NQF#:1407 / NCQA-H	Persons 13 years of age who had 1 meningococcal vaccine, 1 Tdap, and have completed the human papillomavirus (HPV) vaccine series by their 13th birthday (Combo 2)	Adolescents who turn 13 years of age during the measurement period	P
Child and Adolescent Well-Care Visits (WCV)	1.1, 1.4	NQF#:1516 / NCQA-HC	One or more well-care visits	Children age 3-21	P
Well-Child Visits in the First 30 Months (W30)	1.1, 1.4	NQF#:1392 / NCQA-HC	Six or more well-child visits (0-15 months); Two or more well-child visits (15-30 months)	Children who are 15 months; Children who are 30 months	P

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC)	1.1, 1.4	NQF#:0024 / NCQA-HC	Coded as having Weight Assessment and Counseling for Nutrition and Physical Activity	Beneficiaries 3-17 who had an outpatient visit with a PCP or OB/GYN	P
Cervical Cancer Screening (CCS)	1.1, 1.4	NQF#:0032 / NCQA-HA	Coded as receiving cervical cancer screening	Women 21-64 years of age	P
Chlamydia Screening in Women (CHL)	1.1, 1.4	NQF#:0033 / NCQA-HAC	Coded as receiving chlamydia screening	Women 16-24 years of age identified as sexually active	P
Prenatal and Postpartum Care (PPC): Postpartum Care Visit	1.1, 1.4	NQF#:1517 / NCQA-HA	Coded as receiving a postpartum visit	Women with live births	P
Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care	1.1, 1.4	NQF#:1517 / NCQA-HA	Coded as receiving a prenatal care visit in teh first trimester	Women with live births	P
Access to Preventive/Ambulatory Health Services (AAP)	1.1, 1.4, 1.5, 1.6, 2.5	NCQA-H	Had an ambulatory or preventative care visit	Adult beneficiaries	P
Asthma Medication Ratio (AMR)	1.1, 1.4	NQF#:1800 / NCQA-HACs	Medication ratio >=50%	Beneficiaries age 5-64 with persistent asthma	P

Plan All-Cause Readmissions (PCR)	1.1, 1.4	NQF#:1768 / NCQA-HA	Readmission within 30 days of discharge	Inpatient hospital stays for beneficiaries age 18+	P
Follow-up Care for Children Prescribed ADHD Medication (ADD)	1.2, 1.4, 1.5	NQF#:0108 / NCQA-HC	Evidence of outpatient visit in the appropriate time frame	Children newly prescribed ADHD medications	P
Antidepressant Medication Management (AMM): Acute and Continuation	1.2, 1.4	NQF#:0105 / NCQA-HA	Beneficiaries who remained on antidepressant treatment	Beneficiaries ages 18 and older who filled at least one prescription for antidepressant medication	P
Follow-up After Hospitalization for Mental Illness (FUH)	1.2, 1.4	NQF#:0576 / NCQA-HAC	Evidence of outpatient visit within 7 and 30 days after discharge	Beneficiaries ages 6 and older who were hospitalized for treatment of selected mental illnesses	P
Hypothesis 2.1: The implementation of Medicaid managed care will decrease the use of emergency departments for non-urgent use and hospital admissions for ambulatory sensitive conditions.					
Emergency Department Visits per Member-Month	2.1	-	Number ED visits	All beneficiaries	O

Avoidable or Preventable Emergency Department Visits	2.1	Oregon Health	Proportion of members with an avoidable ED visit	All beneficiaries	O
Hospital Admissions	2.1	--	Hospital Admissions	All beneficiaries	O
Hypothesis 2.2: The implementation of Medicaid managed care will increase the number of enrollees receiving care management, overall and during transitions in care.					
Time to first SDOH Screening Completion from PHP Attribution	2.2		Days to screening after PHP attribution	All beneficiaries	P
Time to first SDOH Contact Attempt from PHP Attribution	2.2		Days to contact after PHP attribution	All beneficiaries	P
Transitions of Care (TRC)	2.2	NCQA-H	Evidence of medication reconciliation	Beneficiaries discharged from a long hospital, rehab, or residential care	P
Hypothesis 2.3: The implementation of Medicaid managed care will reduce Medicaid program expenditures.					
Per Member Per Month Total Medicaid Service Expenditures	2.3, 3.3	--	Total Medicaid service expenditures	All beneficiaries	O

Proportion of beneficiaries with an expenditure	2.3, 3.3	--	Beneficiaries who had a Medicaid service expenditure	All beneficiaries	O
Total Medicaid Service Expenditures for beneficiaries	2.3, 3.3	--	Total Medicaid service expenditures	All beneficiaries	O
Per Member Per Month Medicaid Service Inpatient Expenditures	2.3, 3.3	--	Total Medicaid inpatient expenditures	All beneficiaries	O
Proportion of beneficiaries with an inpatient expenditure	2.3, 3.3	--	Beneficiaries who had an inpatient expenditure	All beneficiaries	O
Total Medicaid expenditures for beneficiaries who had an inpatient services expenditure	2.3, 3.3	--	Total Medicaid inpatient expenditures	All beneficiaries	O
Per member Per Month Medicaid Service ER Expenditures	2.3, 3.3	--	Total Medicaid ER expenditures	All beneficiaries	O

Proportion of beneficiaries with an ER expenditure	2.3, 3.3	--	Beneficiaries who had an ER expenditure	All beneficiaries	O
Total Medicaid service expenditures for beneficiaries who had an ER expenditure	2.3, 3.3	--	Total Medicaid ER expenditures	All beneficiaries	O
Per Member Per Month Medicaid Service Outpatient Expenditures	2.3, 3.3	--	Total Medicaid outpatient expenditures	All beneficiaries	O
Proportion of beneficiaries with an outpatient expenditure	2.3, 3.3	--	Beneficiaries who had an outpatient expenditure	All beneficiaries	O
Total Medicaid service expenditures for beneficiaries who had an outpatient expenditure	2.3, 3.3	--	Total Medicaid outpatient expenditures	All beneficiaries	O
Per Member Per Month Medicaid Service Outpatient E&M Expenditures	2.3, 3.3	--	Total Medicaid outpatient E&M expenditures	All beneficiaries	O

Proportion of beneficiaries with an outpatient E&M expenditure	2.3, 3.3	--	Beneficiaries who had an outpatient E&M expenditure	All beneficiaries	O
Total Medicaid service expenditures for beneficiaries who had an outpatient E&M expenditure	2.3, 3.3	--	Total Medicaid outpatient E&M expenditures	All beneficiaries	O
Proportion of beneficiaries with a behavioral health expenditure	2.3, 3.3	--	Beneficiaries who had a behavioral health expenditure	All beneficiaries	O
Acute Care Crisis Expenditures Per Member Per Month	2.3, 3.3	--	Total Medicaid behavioral health expenditures	All beneficiaries	O
Proportion of beneficiaries with an acute care crisis expenditure	2.3, 3.3	--	Beneficiaries who had an acute care crisis expenditure	All beneficiaries	O
Acute Care Crisis Expenditures among users	2.3, 3.3	--	Total Medicaid expenditures	All beneficiaries	O

Per Member Per Month Medicaid Service Prescription Expenditures	2.3, 3.3	--	Total Medicaid expenditures	All beneficiaries	O
Proportion of beneficiaries with a prescription expenditure	2.3, 3.3	--	Beneficiaries who had a prescription expenditure	All beneficiaries	O
Total Medicaid service expenditures for beneficiaries who had a prescription expenditure	2.3, 3.3	--	Total Medicaid expenditures	All beneficiaries	O
Per Member Per Month Medicaid Service Dental Expenditures	2.3, 3.3	--	Total Medicaid expenditures	All beneficiaries	O
Proportion of beneficiaries with a dental expenditure	2.3, 3.3	--	Beneficiaries who had a dental expenditure	All beneficiaries	O
Total Medicaid service expenditures for beneficiaries who had a dental expenditure	2.3, 3.3	--	Total Medicaid expenditures	All beneficiaries	O

Hypothesis 2.4: The implementation of Medicaid managed care will increase provider satisfaction and participation in the Medicaid program.					
Provider Participation in Medicaid	2.4	--	Number of Medicaid enrollees	Medicaid Providers	O

P = Process
O = Outcome
HAC = HEDIS / Adult & Child Core Sets
HA = HEDIS / Adult Core Sets
HC = HEDIS / Child Core Sets
AC = Adult & Child Core Sets
A = Adult Core Set
C = Child Core Set
USC = University of Southern California

Methods

Overview

This report uses both *quantitative* (i.e. analysis of administrative data such as claims and enrollment using statistical methods) and *qualitative* (i.e. analysis of first-hand accounts of stakeholder perspectives, opinions, and experiences) through interviews and focus groups) analytic methods. Quantitative and qualitative analyses complement each other by providing different but equally important forms of evidence about program performance. Quantitative analyses are well-suited for identifying trends, measuring changes over time, and assessing patterns across larger populations. Qualitative analyses are particularly valuable for understanding how stakeholders experience, interpret, and respond to program activities within specific contexts.

Importantly, qualitative findings are not limited to determining whether stakeholder perceptions are "correct" in a technical sense. Participants may misunderstand aspects of the formal program design or implementation intent; however, these perceptions remain highly consequential because they shape engagement with the program and influence how services are delivered, received, and sustained. In this way, qualitative analyses can identify barriers and facilitators to effective implementation that may not be visible in quantitative analyses alone.

Together, these approaches provide a more complete understanding of program performance. Quantitative analyses can help identify whether outcomes changed and where variation exists, whereas qualitative analyses can help explain how contextual factors, stakeholder beliefs, and implementation processes contribute to those patterns. For example, qualitative examination of a smaller set of cases may reveal why a program activity is implemented inconsistently across settings or why certain populations experience the program differently than intended. These insights can help identify opportunities to strengthen implementation and improve program effectiveness over time.

There are examples where the primary takeaways from the two approaches may appear to conflict; as an example, although the quantitative analyses identify improvement in inpatient and emergency department use, the qualitative analysis identify challenges in effective avoidance of care in these high-cost settings. Both can be true at the same time: the transformation has improved appropriate use, and there are remaining barriers inhibiting further improvements. Likewise, provider interviews reported perceived challenges in the accuracy of beneficiary assignment to primary care providers. It may be that these challenges, more common in the early period of the transformation, have been largely resolved. That being said, a *perception* among providers that assignment challenges continue

may suggest, for example, that a communications strategy to providers could be effective in eliminating such perceptions.

Quantitative Methods

This section contains two key concepts. The first is how to interpret the quantitative results. The second deals with technical details of the specific statistical design, and contains a number of details such as methodological assumptions, robustness tests, and specification decisions in the interest of transparency. Readers uninterested in the technical details can skip the second portion.

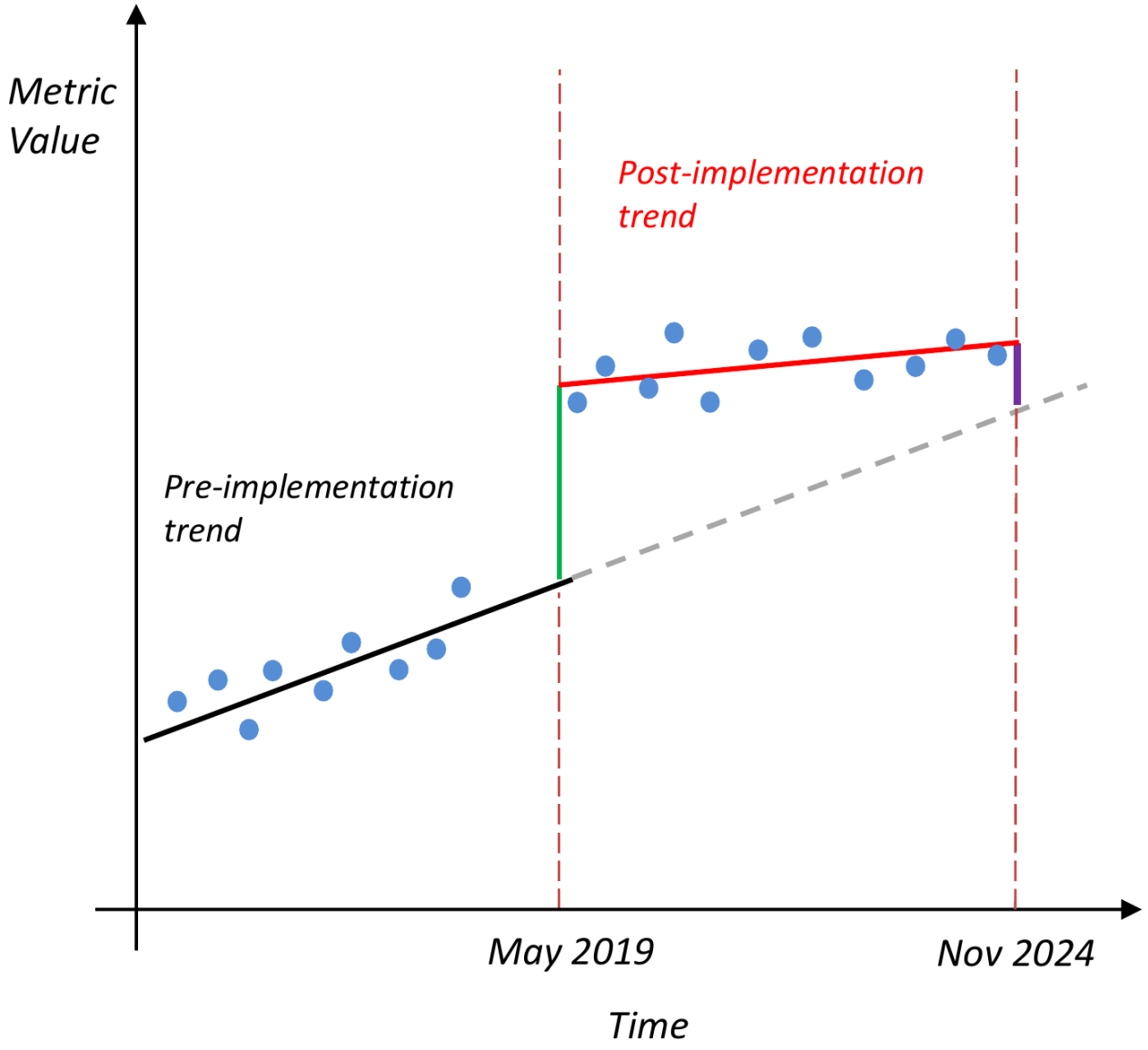
How to Read the Results

Progress due to the implementation of managed care was defined for monthly metrics as metrics improving beyond what would have occurred without the implementation of the managed care components of the waiver. The challenge in this construct, as it is with all analytic studies, is identifying "what it would have been in the absence of managed care" – also known as the *counterfactual*. Using an interrupted time series (ITS) analysis, we compared pre- and post-implementation trends while controlling for factors like beneficiaries' chronic disease burden, demographics, seasonality, Medicaid expansion, and COVID effects. If improvements slowed after managed care implementation, we considered that a deficiency, since the waiver aimed to accelerate progress in health care access, quality, and outcomes. Thus, the "effect" of the waiver is defined as the difference between the observed rates and those we estimate would have occurred without the implementation of managed care. The counterfactual will usually be different from the values at the time of managed care implementation. Technically speaking, our analyses are not "causal" in the sense that we can explicitly and unambiguously tie any changes to the transformation *per se*. There are other events happening throughout the study period, and it is impossible to detach such events from the non-experimental nature of public policy initiatives. While we endeavor to avoid making claims of "causality", there may be occasions in this SER where we inadvertently suggest a causal relationship. Our study design does its best to approach a causal design, but a truer interpretation would avoid such claims.

These effects can be viewed graphically in Figure 4 (for illustration purposes, COVID effects are not shown). Blue dots represent average monthly values. The black line represents the pre-implementation trend. The green line represents the average "jump" in metric value at the time of policy change (effect #1). The red line shows the time trend post-implementation. The difference in slope between the black (pre-implementation) and red (post-implementation) lines represents how trends changed after managed care (SP or TP) implementation (effect #2). The grey dotted line extends the pre-implementation trend forward to November 2024;

this represents the best estimate for what metrics would have been in the absence of implementation. The combination of the initial "jump" and the difference in trend means that the post-implementation estimate differs from the best estimate of what the metric would have been if the implementation had not occurred. The difference between the predicted outcomes with and without managed care implementation at the end of the study period (Nov 2024) is shown by the purple line (effect #3).

Figure 4: Simplified Example of Interrupted Time Series

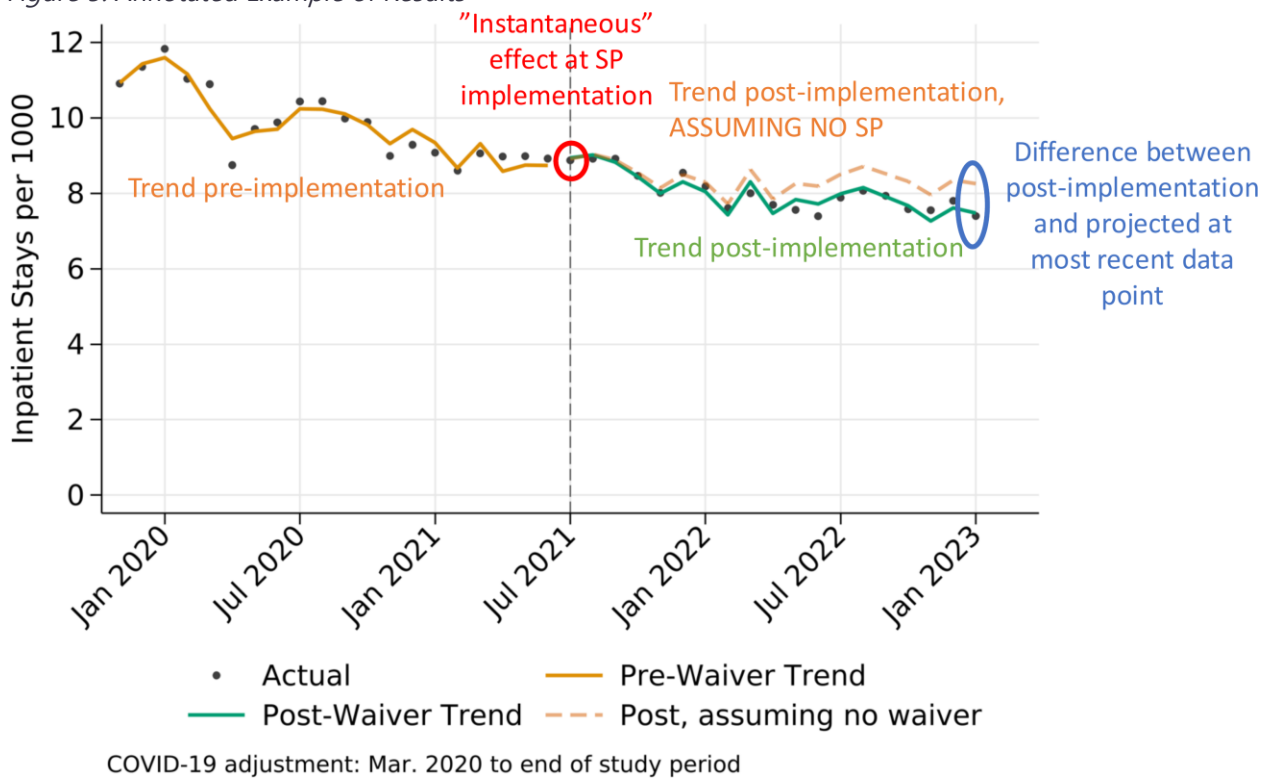


In practice, the figures in the Results section are more complicated because they account for changes in diagnoses and seasonal effects (e.g. increased flu diagnoses in the winter). But at their core, the "effects" of the waiver are described with these three perspectives: an effect at

launch, a slope/trend difference over the period since managed care implementation, and the resulting difference in "current" values.

The image above (Figure 4) shows the "simplified concept"; the image below (Figure 5) is an annotated example of the actual results. This result in Figure 5 shows almost no "instantaneous effect" shown by the red circle – the green and orange lines in July 2021 are nearly identical. Post-implementation, the green line generally slopes down more than the orange; this leads to a difference in November 2024 (blue circle) where the green line lies below the orange line. The conclusion here, ignoring statistical significance, is that post-implementation this measure is less than the measure would have been in the same month if managed care had NOT been implemented.

Figure 5: Annotated Example of Results



Each metric includes a table with the format shown below. The shading of the cells below aligns with the color in (Figure 5. Orange represents the "baseline" (pre-implementation) slope. Green denotes the post-implementation slope. Red denotes the "instantaneous" difference. Blue refers to the difference in the last data point. The row below each point estimate provides the 95 percent confidence interval around the estimate. Those 95% confidence intervals that do not contain zero have statistical evidence of a difference. For

example, suppose the instantaneous difference is -217.38 with a confidence interval of (-317.67, -117.08); which does not contain zero and thus there is statistical evidence of a difference. In contrast, the difference at the final data point is -40.03 with a confidence interval (CI) of (-282.99, 202.94), which does contain zero and thus there is no statistical evidence of an effect. Not shown explicitly in Figure 5 is the difference in slopes; that is denoted by 4.43 (-0.27, 9.14) and thus there is not statistical evidence of a difference in slope for the two periods.

Table 2: Example of Table Included with each Metric

	Baseline	TP Implementation	Difference
Predicted Average Outcome 44378	1494.40 (1398.05, 1590.76)	1277.03 (1218.27, 1335.78)	-217.38* (-317.67, -117.08)
Slope	7.95* (0.19, 15.71)	12.38* (5.27, 19.50)	4.43 (-0.27, 9.14)
Predicted Average Outcome Nov 2024	1812.43 (1455.69, 2169.18)	1772.41 (1489.99, 2054.83)	-40.03 (-282.99, 202.94)
N			10,897,117

Identifying SP eligibles prior to SP implementation

An important part of this approach is identifying the correct population affected by the implementation of each managed care plan. For example, for the Standard Plan analysis, the post period only included beneficiaries covered through a SP. In order to understand what care looked like prior to managed care plan implementation, we also needed to identify the relevant population in the pre period. Some natural candidates – e.g. take the SP population in July 2021 and follow them earlier in time – were not feasible in a program with constant enrollment and disenrollment. Therefore, we had to estimate the population of beneficiaries who would have been enrolled in an SP prior to the launch of SPs. Initially, and for the results presented for the Interim Evaluation Report, we used a two-proxy method. DHB had developed an indicator for such beneficiaries that was intended to capture those beneficiaries who would have been eligible for SP, thus excluding those that would have been eligible for a Tailored Plan. This variable is only available from November 2019 – June 2021. The Sheps team thus had to create another proxy variable for prior to November 2019, extending backwards in time until the start of the study period. During our review, we discovered that the results, especially for behavioral health metrics, were highly sensitive to the method of approximating SP eligibility in the pre-implementation period. We determined that the SP mandatory eligibility flag included too many "likely TP-eligible" beneficiaries in its early iterations.

Since 2019, the Tailored Plan eligibility framework has undergone multiple refinements, though the underlying statutory populations have remained constant (individuals with SMI, SED, SUD, I/DD, or TBI as defined in Session Law 2018-48). Changes primarily reflected updates to DHHS policy guidance on how statutory criteria were to be operationalized for eligibility determination and auto-enrollment, including revisions to diagnosis code sets, qualifying services, diagnosis positioning, and lookback periods applied to claims data. These updates were implemented incrementally as the program transitioned from policy design to operational readiness and launch. The implication of this is that the mandatory SP definition changed during the study period, meaning that it identified different populations prior to SP launch, thus potentially affecting the pre-launch slope.

To assess which approach to use (Sheps SP proxy only or a combined Sheps SP proxy from 11/2016-10/2019 and mandatory SP from 11/2019-6/2021), we took advantage of an overlap period (11/2019–6/2021) when both definitions were available. For members observed during this overlap, we evaluated several behavioral health metrics (e.g., FUH, SUD6, SUD32, IET) and general health metrics (e.g., PCR, PCE, CCP, TRC, ED Visits, Hospitalizations) to determine which definition more accurately distinguished those who ultimately enrolled in an SP once enrollment data became available in July 2021 and later.

This validation showed that:

- For behavioral health metrics, the mandatory SP definition in its earlier iterations captured many members who ultimately did not enroll in an SP, particularly those resembling TP-eligible populations. As a result, the Sheps SP proxy more accurately reflected true SP enrollment patterns for these outcomes and was used consistently across the entire pre-period (11/2016–6/2021).
- For non–behavioral health metrics, we used a two-part approach based on data availability: the Sheps SP proxy prior to November 2019, followed by the mandatory SP flag once it became available and demonstrated better alignment with subsequent SP enrollment. While both the Sheps SP proxy and mandatory SP were equally good at identifying people who would enroll in an SP, for the non-behavioral health metrics, Sheps SP proxy identified more people who did not ultimately enroll in an SP than the mandatory SP definition.

Ultimately, our study team decided that two approaches based on metric type led to more accurate identification of the beneficiaries who were likely to have been eligible for SP, had SPs been offered prior to July 2021. For behavioral health metrics we use Sheps SP proxy from November 2016 to June 2021. For non-behavioral health metrics we use Sheps SP proxy from November 2016 to October 2019 and mandatory SP from November 2019 to June 2021 (when the variable became available). This approach led to a more homogenous sample throughout the study period, leading to more accurate results.

Identifying Provider AMH Tier Prior to SP Launch

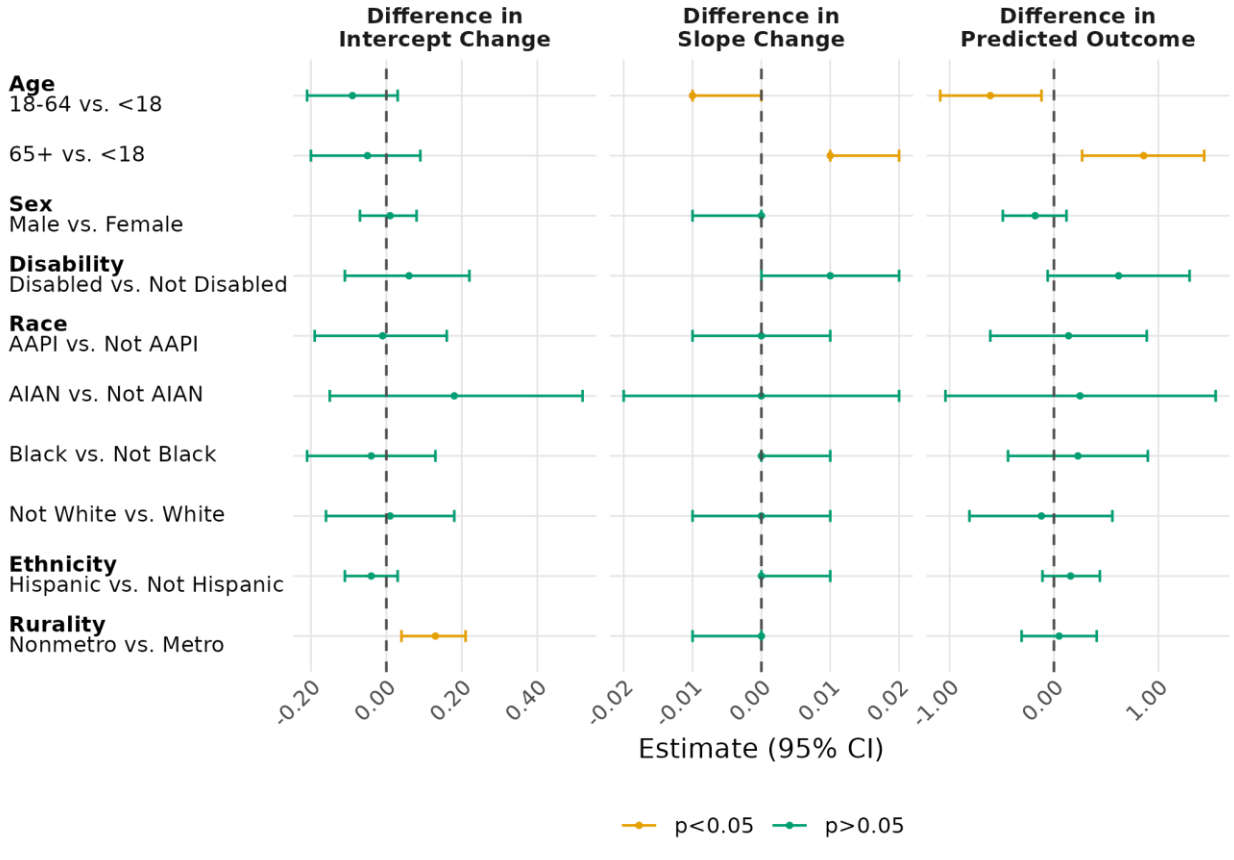
We also examined the impact of AMHs which required using the same SP population as defined above and their corresponding AMH Tier. After SP launch, we mapped AMH Tier levels according to the DHB-recorded AMH Tier level for that NPI and SP pair each month. Prior to SP launch, providers and practices could begin developing contract levels with SPs in October 2018. We used these contract levels prior to implementation and mapped them to the member's PCP prior to SP launch for the given month. There was a very large shift in Tier levels across providers before February 2019 and then a fairly consistent proportion of providers in each tier after that date. Therefore, we began all AMH analyses on February 2019. Beneficiaries were linked to providers via Medicaid membership files in order to identify which beneficiaries participated in each AMH level each month. A small percent (approx. 6%) of Medicaid beneficiaries did not have a PCP of record and were excluded from the AMH analyses (but were retained for the rest of the analyses).

Heterogeneity analysis

We also conducted analyses on a number of subpopulations for some of the metrics. To summarize results from the subgroup analyses, metrics supporting such analyses contain a figure ("forest plot") such as shown in Figure 6. It presents the three estimates of interest: the differences in the immediate effect (labeled "intercept change"), the difference in the slope or trend over the managed care implementation period (or "slope change"), and the difference in the effect of managed care implementation at the end of the study period between the two groups reported in each row of the figure. Statistically significant differences are shown in orange. For the example metric in the figure below, there was no immediate difference in the estimated effect of implementing managed care between 65+ and 18–64 year-olds, but those in the 65+ population had a higher slope resulting from the launch, which also led to a positive difference in the effect of managed care at the end of the study period. There was little evidence of a difference in effects between men and women and most of the subgroups examined, except for age and rurality.

The direction of the estimated managed care effect between any two subgroups depends on the overall effect in the referent group. For example, if managed care is estimated to have a negative effect on an outcome, and the forest plot shows a negative difference between a specific group (e.g., non-metro) and the referent group (in this case, metro), then that indicates that managed care had a larger, negative effect on the outcome for the specific group (non-metro) than for the referent group (metro). If the forest plot shows a positive difference, but the effect on the referent population was negative, then this means that the effect was dampened (less negative or even positive) in the specific group. However, we note that the more orange segments there are in the forest plot means that there was greater diversity of the effect of managed care implementation on outcomes by subgroups. Note that differences in effects is a different consideration than how the groups compare at the end of the study period; we do not report how Group A's value compares to Group B's value, but rather whether the groups responded differently to the policy. We provide specific interpretations of the forest plot results throughout the document.

Figure 6: Example of Subgroup Plot



Finally, we note that while we evaluated both the launch of Standard and Tailored Plans on outcomes using the above techniques, most of our analysis is conducted for Standard Plans. Tailored Plans did not launch until July 2024, five months before the end of the Demonstration period, thus we had an inadequately short time period to observe Tailored Plan effects during the first Demonstration Period. We will continue to monitor the effect of Tailored Plans on outcomes during the second Demonstration period.

Evaluation Design

The evaluation design in this Summative Evaluation Report focused on the trends in and analysis of the measures outlined in Table 1. We conducted analyses of metrics on a monthly or annual basis. Some of these results have already been reported to NC DHHS through data dashboards developed as part of the Evaluation and through verbal and written reports.

Evaluation Period

The evaluation study period for the Summative Evaluation Report was from October 1, 2015 – November 30, 2024. The figures display "Jan 2025" because we display January and July for each of the years. The baseline period (October 1, 2015 – June 30, 2021) was adjusted to start after the launch of ICD-10 codes. Monthly metrics are reported for the full study period unless a washout period or lag is required. Annual measures consist of both calendar-year metrics (baseline begins January 1, 2016) or Demonstration Year metrics (baseline begins November 1, 2015).

Important Confounders during Waiver Implementation

Several major events occurred during the Waiver implementation period. First, the PHE from the COVID-19 pandemic began with stay-at-home orders in March 2020. The PHE dramatically reduced the use of most Medicaid-funded health care services and resulted in several policies implemented to attempt to reduce the impact on Medicaid beneficiaries and providers; likewise, continuous enrollment meant that some beneficiaries who would have rolled off of Medicaid (e.g. children who age into adults and thus would no longer have been eligible; some mothers more than 90 days post-partum) remained covered during this period. The PHE ended in May 2023, although different types of service returned to normal at different times during the PHE. We developed a novel method of identifying the return-to-normal dates in our data, as described below. Our estimation analysis included the relevant COVID period as identified in our return-to-normal analysis.

Second, there were a number of changes to Medicaid eligibility and payment policy throughout this period, which may confound some of the analyses. The SUD Waiver was implemented incrementally across a number of months, and between the SUD Waiver, the SP and TP launch, and other changes to payment and eligibility policy (e.g. the American Rescue Plan postpartum extension extended postpartum coverage to 12 months from 60 days beginning on April 1, 2022) may complicate some of the interpretation. When appropriate, we mention potential confounders in discussions.

North Carolina implemented Medicaid expansion under the Affordable Care Act on December 1, 2023. The expansion made Medicaid available to low-income adults aged 19 through 64 who earned up to 138% of the federal poverty line. Within the first year, over 600,000 people enrolled in Medicaid under this expansion. The large influx of enrollees may have put pressure on providers and potentially changed the health composition of enrollees. There are a number of metrics that are pretty clearly affected by expansion, and although the expansion is not within the scope of this evaluation, there are cases where we believe the calculated effects of the transformation are affected by expansion, and comment as such.

Finally, Hurricane Helene devastated several western NC counties in late September 2024, at the end of the Demonstration period. Our statistical analysis controls for region-specific differences during the full study period but does not separately control for this natural disaster. Declines in services used during this period could affect the estimates observed here; that being said, only approximately one sixth of Medicaid beneficiaries were in the affected region, so we do not anticipate a large impact on our estimates.

Data Sources

The primary data sources for the quantitative analysis were the NC Medicaid FFS claims and membership files and the LME/MCO TP and SP encounter data. The claims and encounter data include specific information on services paid through the Medicaid program (or its subcontracting MCO or PHP plans), administrative diagnoses received, Medicaid enrollment information, and demographic characteristics. This set of data is referred to as "Medicaid data" below.

Care management data have been received and are used from January 1, 2020 through the end of the study period. This data combines Community Care of North Carolina's (CCNC, the primary care case management model that existed before the implementation of SPs) care management data with the SP, TP, LHD, TCM, and AMH care management data (BCM051). There are known data quality limitations associated with the BCM051 reports. In certain months, SPs or TPs appear to have underreported care management interactions or did not report them through this mechanism. As a result, the reported data likely underestimates the true volume of care management activities. Consequently, observed increases in reported care management are unlikely to be driven by overreporting and can be interpreted as credible evidence of true growth in activity.

Social Determinant of Health (SDOH) Screening are available from July 2021 through the end of the study period. This data combines the SDOH screening reports that capture both contact attempts and completed screenings (statewide) from the SP and TP organizations (BCM026) with NCCare360 data, which captures completed screenings for members receiving care management in the Healthy Opportunity Pilot counties. NCCARE360 records begin in March 2022.

North Carolina Immunization Registry (NCIR) data was used to capture information on child and adolescent immunization rates. Immunization data included any immunizations from 2014 to the end of the study period.

Death certificate data was available to test hypotheses about the reduction in overdose deaths. Birth Certificate data has also been received and linked with Medicaid data, to test

hypotheses about maternal and infant outcomes. Death and Birth Certificate data included births and deaths from 2014 to the end of the study period.

Analysis of Monthly Measures

We prioritized using monthly measures, rather than annual, when possible. This was a deliberate choice. Although industry analyses may prefer annual due to sample size and stability, we specifically chose a monthly approach because it allowed better identification of time-varying effects. For example, since the SP launch happened in July 2021, an annual calendar-year approach renders the 2021 data point difficult to interpret. Instead, a monthly analysis, even if it is "noisier" than annual values, allows the identification of policy effects occurring at a certain time.

Most of the measures analyzed for this report were generated monthly and, thus, had sufficient data points to conduct interrupted time series (ITS) analysis models. ITS is a statistical technique that is used to answer the question: "Did the intervention change the outcome's level or trend compared to what we would have expected if waiver components hadn't been implemented?" For this report, ITS analysis allowed estimation of whether implementation of Managed Care (SP and TP) components of the waiver shifted the outcomes up or down on average, as compared to prior to the implementation of the SP/TP implementation. The ITS analysis also examines differences in the rate of change of the outcomes after the implementation of the MC waiver components as compared to what we would have expected without a waiver.

ITS analysis models took the following form:

$$E(Y_{it}) = f(\beta_0 + \beta_1 Time_t + \beta_2 Post_t + \beta_3 Time_t * Post_t + \beta_4 Z_{it})$$

The expected value of each metric for person in month was estimated as a function of a linear combination of covariates . represents time relative to the start of the baseline period. is an indicator for all person-months after the start of the managed care (MC) components of the waiver on July 1, 2021 for Standard Plans and July 1, 2024 for Tailored Plans. The matrix includes other covariates including month fixed effects, county cluster fixed effects (defined below), and beneficiary-level controls: age in quadratic form, race, ethnicity, sex, disability, Medicaid expansion eligibility, and CDPS-Rx, a set of risk-adjustment terms. The specific functional form of CDPS-Rx used in these models were binary indicators of disease categories from the prior 12 months with at least 0.1% population prevalence, and a count of the number of disease categories to control for complexity.

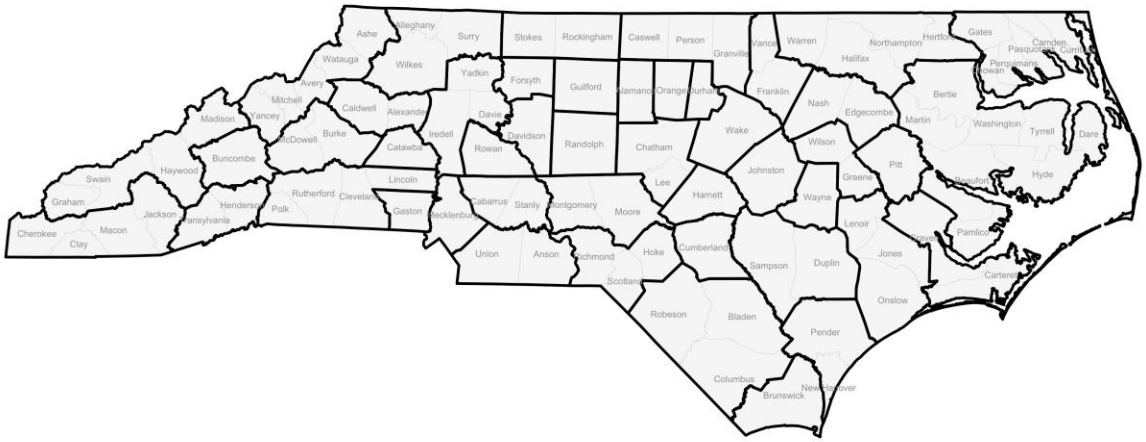
By estimating these models, we examined several different dimensions of changes in quality, process and outcome measures associated with SP implementation:

1. Immediate change: a measure of the immediate effect of the waiver on the metric throughout the implementation period. This value is derived by comparing the outcome value between its level if the implementation had not occurred and the estimated value with the implementation. Note that the "pre-intervention" value for July 2021 is obtained by projecting the baseline trend into the month of July, so it is an estimate of what would have occurred, if the MC components had not been implemented. In the result tables, we present the predicted outcome in July 2021 with MC, in the absence of MC, and the difference of the two, and conduct a Wald test of difference in the marginal predictions.
2. Differences in rate of change: this measures the difference between the pre-MC and the MC rate of change (slope) in the measure. If the waiver was associated with an increase in the slope or trend in the metric, the MC rate of change will be larger than the pre-MC rate of change. For example, if a measure was increasing by 0.25 visits per month prior to MC implementation and increasing by 0.3 visits per month after the relevant MC launch date, the rate of change would have increased by 0.05 and this could be described as a more rapid increase in the measure under MC. Depending on the metric, this could be interpreted as a positive or negative outcome.
3. Difference in predicted outcomes at study endpoint: this measures the difference between the adjusted predicted outcome with MC and without MC at the study endpoint, which is November 2024 in most cases. This estimate summarizes our best understanding of MC effects by November 2024, and combines the information contained in the estimate of immediate and rate of change effects. For example, if we estimate an immediate change of 0.5 and a slope change of 0.05, then MC would be associated with an increase in the outcome, compared to a counterfactual world without MC implementation. Note that to the extent the trends vary, the resulting differences will vary by month; for example, a "negative" instantaneous effect and a "positive" trend effect means that points more distant from implementation will be more likely to have a positive effect.

We sought to account for geographical variation across the state by including region-level fixed effects, with counties merged into "county regions" to account for small samples in less populated counties. We used the GEOCORR 2022 engine from the Missouri Census Data Center to assign North Carolina's 100 counties into the U.S. Census Bureau's 2022 Public Use Microdata Areas (PUMAs). Each county was initially assigned to the PUMA containing the plurality of the county's population. This process led to some PUMAs having a population less than 100,000 people. In those cases, we aggregated contiguous county clusters each had at least 100,000 population. When there were options, we prioritized aggregating clusters that were both less than 100,000 and aggregating "similar" clusters in terms of demographics, rurality, and other relevant characteristics. Each county cluster was designed to have a 2020

population of at least roughly 100,000, yielding 46 distinct clusters (see Figure 7) We included county cluster fixed effects in the statistical models to control for time invariant differences within each cluster and clustered the standard errors on this dimension as well.

Figure 7: County Clusters



Accounting for COVID-19

The covariates also included separate controls for the months during which utilization was affected by COVID-19. COVID-19 affected schooling, employment, and health service use in a multitude of ways that are still being assessed. The period during which COVID-19 can be expected to affect the health service use outcomes measured in the SER is not immediately clear, since different types of health care faced distinct shocks and demands (for example, variation in ease of switching to telehealth as a primary service delivery mode). In our analysis, we sought to separate the impact of MC from the effects of the COVID-19 PHE, which began before SPs were implemented. We developed a method to detect the period during which COVID-19 could be reasonably expected to affect service use patterns, confounding estimates of 1115 Waiver effects. The key idea for this method is to forecast health care utilization among a population exposed to COVID but not exposed to the 1115 Waiver: NC Medicaid beneficiaries never diagnosed with SUD and thus were unaffected by

the implementation of the SUD components of the Waiver in May 2019 and those never eligible for SPs and thus were unaffected by the managed care transition.

The general idea for this method was to: 1) identify individuals who were affected by COVID but not by the 1115 waiver; 2) analyze their healthcare use; 3) determine when their use "returned to normal" – when the anomaly of healthcare use resulting from the global pandemic subsided; and then 4) apply that time period to the 1115 analyses to account for the anomalous healthcare seeking patterns during that time, and thus separating the "COVID effect" from the "1115 effect."

We also excluded beneficiaries enrolled through Medicaid expansion, which was implemented in December 2023. In the analysis of pharmacy utilization, we excluded beneficiary-months in which the beneficiary was currently dual-enrolled in Medicaid and Medicare, as Medicare Part D, rather than Medicaid, is the primary payer for medications for dual enrollees. For analytic tractability, we used a 20% sample of beneficiaries in the first step of the analytic approach (described below).

We defined five types of general care utilization relevant to the monitoring metrics: inpatient utilization, evaluation and management (E&M) outpatient visits, prescription drug fills, emergency department (ED) visits, and dental appointments. Outpatient visits for anything other than E&M were not included in the initial categorization. The outcome for inpatient, outpatient, ED, and dental utilization was the number of visits (or admissions) in the month, while the outcome for pharmacy utilization was any fill within the month.

We took a two-step approach to forecasting utilization in the absence of COVID-19. In the first step, we estimated the average aggregate monthly utilization adjusted for beneficiary characteristics. To do so, we modeled each type of utilization as a function of age in quadratic form, number of months fully eligible within the past 12 months, race (Black, White, Native American, Asian/Pacific Islander, Unknown), ethnicity (Hispanic/Not Hispanic), sex (female vs. male), disability status, indicator variables from the CDPS, the number of CDPS conditions (discretized into 0, 1-2, 3-4, 5+ conditions), a set of indicator variables for calendar months, and an indicator for the county cluster. Then, we estimated the average marginal predictions for each month and saved these for the second step. For the count outcomes (inpatient, outpatient, ED, dental), we used negative binomial models. For the binary outcome (any vs. no pharmacy fills) we used a linear probability model.

In the second step, we used the aggregate monthly predictions to forecast utilization. To do so, we estimated a model with a linear time trend and month fixed effects to account for seasonality on data prior to March 2020, then predicted utilization through November 2024.2 We used the standard error of the forecast to create 95% prediction intervals, which we used

instead of confidence intervals because they indicate uncertainty around each individual predicted value. When actual utilization remained within the predicted utilization bounds for four or more consecutive months, we defined the first month of this series of months as the point at which utilization "returned to normal" (RTN) or systematically returned to pre-COVID-19 utilization. We then incorporated the RTN date in the ITS models used in this report, adjusting for a COVID-19-specific intercept and slope in the period between March 2020 and the month before the return to normal.

To evaluate the performance of this approach, we conducted a simulation study using time series data similar to that used in the second analytic step discussed here. In that study, we assessed the performance of different "rules" about the required number of consecutive months within the prediction interval. We found that, when lengths of time from one month to six months inside the interval were considered, the estimator using four consecutive months was the most accurate estimator of the duration of COVID-19 in terms of percent bias and root mean squared percent error.

We estimated the following RTN dates for each type of utilization, which were used in all monthly ITS models, including those in this report focused on managed care implementation:

- Outpatient services returned to normal on September 2020
- Emergency Department returned to normal on May 2023
- Inpatient utilization returned to normal on May 2020, and
- Pharmacy fills and dental visits had not returned to normal as of November 2024. Care-seeking patterns for these services have been permanently affected by the pandemic.

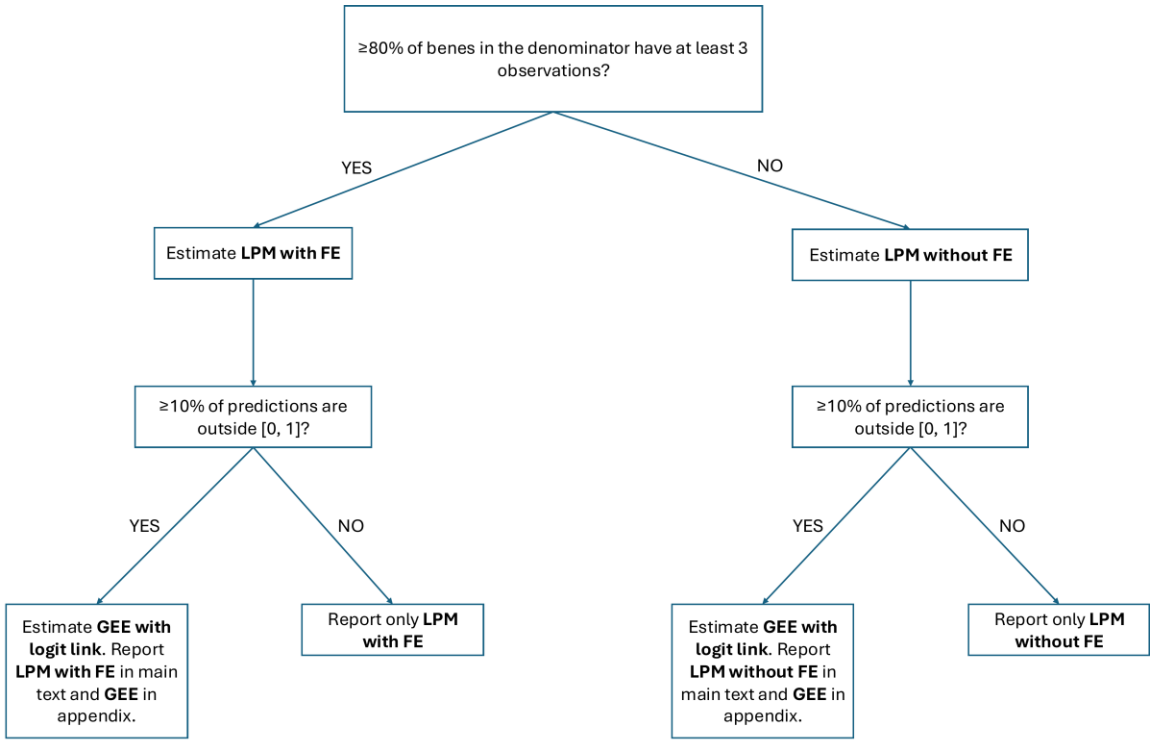
Choice of Functional Form

A major concern was potential confounding from unobserved time invariant heterogeneity at the beneficiary level – factors affecting individual beneficiaries' health and care-seeking that are unobserved by the analysts and do not change over time. Therefore, we prioritized models that could account for such time-invariant heterogeneity, for example using person-level fixed effects. The monthly metrics took one of three forms: binary (yes vs no) indicators, counts (i.e., non-negative integers), or expenditures that were non-negative positive numbers with a few very large values. Because utilization was measured at the person-month, many count and expenditure metrics had a large proportion of zero values. We used the following algorithm to determine the functional form used in the estimation.

For each binary metric, we looked at the degree to which beneficiaries had more than three observations to contribute to the study sample (see Figure 8). If at least 80 percent of beneficiaries had at least three observations, we employed a linear probability model (LPM)

with person-level fixed effects (FE). If less than 80 percent of beneficiaries had at least three observations, we estimated a LPM without person-level fixed effects.

Figure 8: Binary Metrics Decision Flowchart



Note: GEE models will use an exchangeable correlation structure.

For each count metric, we estimated a two-part hurdle model to account for the large proportion of zeros in the outcome. The first part of the model used a binary indicator equal to one for those with positive outcomes and 0 otherwise. We followed the same decision algorithm as the binary metrics for the first part of the hurdle models to decide whether to use person-level fixed effects and whether to use LPM or logit via GEE. For the second part of the hurdle model, we estimated a negative binomial model using a sample of beneficiaries with positive counts for the metric.

The expenditure metrics also used a two-part hurdle model procedure. The main difference was that the second part of the hurdle model used a GEE model with a log link, gamma distribution, and exchangeable covariance. Some of the expenditure models had convergence issues, due to either a) most beneficiaries having non-zero expenditures, and thus the first step was nearly all one, or b) few having non-zero expenditures, meaning there

were few zeros in the first step. Furthermore, outlier amounts affected the ability of some GEE models to converge. For all expenditure models, members with values above the 99th percentile were excluded because they frequently resulted in convergence issues and upon investigation, these were often members with multi-year long admissions, high-cost drugs or treatments for rare or costly conditions, or other costly experiences that were likely to be unaffected by the Waiver. For models that continued to have convergence issues, we removed observations above the 95th percentile or adjusted the CDPS-Rx risk adjustment from binary indicators of disease categories to binary indicators of the disease hierarchies. All regression models clustered standard errors at the county cluster level, except LPMs without fixed effects which were clustered at the person level. We use estimates from these regression models to generate average marginal effects of managed care implementation on 1) the level of each outcome at the time of implementation, 2) the trends in the outcomes, and 3) the predicted outcomes at the end of our analysis period.

Analysis of Annual Measures

A number of the metrics reported are annual, rather than monthly metrics, which limits the number of data points observed. To identify the SP population, we required that members have at least 6 months of SP eligibility or enrollment (annual metrics typically require 12 months of continuous enrollment). For annual metrics, we present adjusted predictions from annual ITS models and, when necessary, plots of unadjusted population estimates to evaluate the trends in annual measures. Annual ITS models are controlled for the same time, geographic, and beneficiary-level covariates as defined for the monthly ITS analysis, as described above. Controls for COVID-19 effects, yearly fixed effects, and other ancillary measures were excluded from the annual ITS models to prevent overfitting of the annual data.

Despite our best efforts to fit annual ITS models, an inadequate number of baseline datapoints prevent us from attributing observed changes in annual outcomes to managed care waiver implementation as we could for monthly measures. For this reason, we do not present estimation tables for annual ITS models, but instead, we plot average predicted estimates for pre- and post-implementation trends. Counterfactual trends are not plotted due to inadequate model fit.

There are a handful of annual measures for which the annual ITS analysis could not be fit. We present unadjusted population rates for these measures, presented as bar graphs and line graphs in the Chapters below.

Annual measures that required a lookback (or “washout”) period for the identification of the eligible population excluded the first year of the baseline period, as described above. For measures drawn from the SUD monitoring report, we applied Version 5.0 of the SUD Technical Specifications to all years of available data at the time of analyses.

Cost of Care

Research question 2.3 examines the costs of care and out-of-pocket costs to beneficiaries. We use actual payments on Medicaid-covered care in our analysis. This means that we are not taking a strictly Medicaid perspective for this analysis, which would only include direct fee-for-service payments and the capitated payments to PHPs but would omit the services delivered through PHPs since those come at no net cost to NC DHHS. For this report, we opted to use payments to reflect the intensity of service use.

Subgroup Analyses

To assess whether waiver effects varied across population subgroups, we conducted subgroup analyses for key measures with person-level data. These analyses examined differences across key demographic and geographic characteristics, including age (<18 vs. 18-64), sex (male vs. female), disability status, race (Asian American/Pacific Islander (AAPI), American Indian/Alaska Native (AIAN), Black, White vs. their respective comparison groups), ethnicity (Hispanic vs. Not Hispanic), and geographic location (nonmetropolitan vs. metropolitan). Note that there are not many beneficiaries age 65 and older included in the analyses, since dually eligibles (Medicare and Medicaid) are not eligible for managed care. Therefore, we did not include results for those age 65+ in the forest plots. Each subgroup variable was interacted with waiver-specific intercept and slope terms to assess whether implementation effects differed across populations. Detailed subgroup results for all available measures are provided in the Appendix.

The race comparisons in particular can be challenging to interpret, as sometimes the results seem to generate internally-inconsistent conclusions. For example, the most common races in North Carolina are White and Black/African-American, and so it is natural to expect that the White vs Non-White and Black/African-American vs Non-Black/African-American would be of opposite sign and equivalent magnitude. There are two main reasons why this may not be the case. First, the “non” portion of each comparison includes a lot of overlapping sample. Consider, for example, those who are not White and not Black/African-American. If they have a very low value for the metric, then the White value may be higher than the Non-White AND the Black/African-American may be higher than the non-Black/African-American. Second, the races are not defined to be mutually exclusive – beneficiaries may be multiple races. This means the thought experiment is more complicated than comparing mutually exclusive groups.

Analysis of Advanced Medical Homes models

We also estimated models that examined outcomes for people attributed to a primary care practice recognized as a Tier 3 Advanced Medical Home (AMH Tier 3 practices) as compared to those attributed to Tiers 1 or 2 AMH practices (AMH Tier 1-2 practices). Our primary model

runs this analysis as a difference-in-differences analysis, comparing the difference in outcomes between AMH tiers after SP implementation to before. We identify AMHs according to their recognized level. The difference-in-difference models run for Hypothesis 1.4 control for the same covariates indicated above for all other monthly outcome models. Additionally, binary indicators for provider types (PCP, OBGYN, Mental Health, Adolescent Well-Care) were included if they had least 0.1% population prevalence. The primary model accounted for NPI-level differences while the secondary model did not account for NPI level fixed effects. Since NPI-level fixed effects are often specific to a county, we replaced county clusters with a binary indicator for whether the member lived in a metropolitan or non-metropolitan area (using the NCHS 2013 Urbanization classification scheme).

Health equity analyses (Hypothesis 1.5)

To test whether the effects of managed care varied by key demographics, we used variable interactions with a variety of beneficiary characteristics, including sex, age category (0-17, 18-64), whether the beneficiary was disabled (based on eligibility), whether the beneficiary lived in a metropolitan or non-metropolitan area, race, and ethnicity to test Hypothesis 1.5 about changes in disparities in care in multiple dimensions.

For some measures, not every subpopulation is included and thus not every comparison is valid (e.g. pregnancy outcomes; adolescent-focused measures). For some of the smaller subpopulations – notably Asian-American/Pacific Islander, American Indian/Alaska Native, and those whose race was not indicated, the size of the subpopulation is sufficiently small to render the interaction results for some analyses effectively useless due to high variability; in some cases, the numbers are such that privacy issues are binding. In the Interim Evaluation Report, we provided representative analyses for each metric; based on feedback on the length of that report, we now report the subgroup analyses using the forest plots described above.

Cumulative incidence function plots (Hypothesis 2.2)

Hypothesis 2.2 examines whether the provision of care management increased after the implementation of managed care. In addition, while not specifically care management *per se*, the time from enrollment into a SP plan to the first screening for social determinants of health (SDOH) was also examined as a measure of "whole person care." Time to SDOH screening was analyzed using cumulative incidence functions within a competing risks framework, stratified by enrollment cohort year. The analytic cohort included all Standard Plan members with an enrollment episode between July 1, 2021, and November 30, 2024. One observation was generated per enrollment episode, with the cohort year assigned based on the enrollment year. Members with multiple episodes contributed one observation per episode, consistent with the contract requirement that a new 90-day screening obligation is triggered

at each enrollment or re-enrollment. Follow-up began at the episode start date, with a 7-day lookback for screenings occurring just prior to formal enrollment and was capped at 365 days, given that the majority of screening activity occurs within the first year of enrollment, and continued follow-up beyond this period adds limited interpretive value. Members were censored at the earlier of disenrollment or the study end date of November 30, 2024.

Two outcomes were examined: time to first contact attempt , drawn from BCM026 only, and time to completed screening, drawn from the union of BCM026 RESPONSE records and NCCARE360 PESA records. A completed screening was defined as a documented member response in BCM026 or a recorded screening submission in NCCARE360, whichever occurred first within the follow-up window. Disenrollment before screening was treated as a competing event. The Aalen-Johansen estimator was used to estimate cumulative incidence. The analysis assumes non-informative censoring; if members who are harder to reach are disproportionately censored, cumulative incidence estimates may be modestly overstated. Cohort year comparisons should also be interpreted in light of differential follow-up time and the March 2022 start of NCCARE360 data, which limits opportunity to capture NCCARE-recorded screenings for the 2021 enrollment cohort during the first eight months of follow-up.

The evaluation design in this summative evaluation report focuses on the analysis of trends in the measures outlined in Table 1. Metrics are reported on either a monthly or annual basis, including some annual metrics that have been converted to a monthly specification. The qualitative evaluation focuses on detailed insights into the experience of healthcare organizations, PHPs, and Medicaid beneficiaries with Medicaid managed care.

Cumulative incidence function plots (Hypothesis 2.2)

Time to SDOH screening was analyzed using cumulative incidence functions within a competing risks framework, stratified by enrollment cohort year. The analytic cohort included all Standard Plan members with an enrollment spell beginning between July 1, 2021, and November 30, 2024. One observation was generated per enrollment episode, with the cohort year assigned based on the enrollment year. Members with multiple episodes contributed one observation per episode, consistent with the contract requirement that a new 90-day screening obligation is triggered at each enrollment or re-enrollment. Follow-up began at the enrollment episode start date, with a 7-day lookback for screenings occurring just prior to formal enrollment and was capped at 365 days, given that the majority of screening activity occurs within the first year of enrollment, and continued follow-up beyond this period adds limited interpretive value. Members were censored at the earlier of disenrollment or the study end date of November 30, 2024.

Two outcomes were examined: time to first contact attempt and time to completed screening, the latter defined as a contact interaction resulting in a documented member

response. Disenrollment before screening was treated as a competing event. The Aalen-Johansen estimator was used to estimate cumulative incidence. The analysis assumes non-informative censoring; if, for example, members who are harder to reach are disproportionately censored, cumulative incidence estimates may be modestly overstated.

Qualitative Methods

The qualitative evaluation includes longitudinal interview data collected between 2021 and 2025 in a combination of cross-sectional and panel designs. We conducted interviews with health care providers and health plans from 2021 to 2025 and interviews with Medicaid beneficiaries from 2023-2025.

Medicaid provider and standard plan data collection

In 2021, we conducted qualitative, semi-structured interviews with 41 healthcare organizations between December 2020 and May 2021, before the July 1, 2021, launch of Standard Plans, and with the 5 participants from SPs between July and October, after the launch. These interviews focused on the awareness of the transition to Medicaid managed care, preparation for the transition, challenges faced during the preparation, support needed, and the impact of the Covid-19 pandemic. In 2022, we interviewed representatives from 26 healthcare organizations between March and July. These interviews focused on the experience of working with SPs and the AMH program, as well as on preparing for Tailored Plans. In 2023, we interviewed representatives from 36 healthcare organizations between February and May. These interviews focused on the experience of working with SPs, value-based contracting, the AMH program, and overall satisfaction with Medicaid managed care. In 2024, we interviewed 10 participants from five SPs between March and July. In 2025, we interviewed representatives from 19 healthcare organizations between August and September, focusing on the role of CINs and their experiences with PHPs (e.g., contracting, claims processing, patient attribution, referrals, communication, and transitioning to a value-based payment model).

Across all waves of data collection, we used multiple sources to identify healthcare organizations for interviews, including Medicaid provider files shared by the NCDHHS and publicly available information (e.g., from web searches). We purposively sampled healthcare organizations based on the proportion of Medicaid beneficiaries, provider specialties (family medicine, pediatrics, OBGYN, behavioral health, etc.), and geographic diversity. We sampled practices with a large share of Medicaid beneficiaries in 2020/2021, as these providers are likely to continue Medicaid participation after the transition to managed care. We selected provider specialties that deliver primary care or behavioral health and were diverse in geographic location (Regions 1 to 6) to account for variability in coverage by health systems

and health plans across regions of the state. We conducted repeat interviews with a subset of the sample (20-30%) in 2022, 2023, and 2025 to examine changes in experiences as the program matured. In 2020/2021, the interviews focused on provider awareness and perceptions of the intent of Medicaid transformation, preparation for the transformation, particularly amid a pandemic, the effects of the transformation on care delivery, and changes related to substance use disorder services. In 2022, interviews focused on early experiences of the transition, including contracting decisions, the Advanced Medical Home Program, and behavioral health services. In 2023, interviews continued focus on experiences of the transition, with the addition of value-based contracting and tailored plans. In 2025, the interviews also focused on experiences with plans, the role of clinically integrated networks, and comparisons between SPs and commercial plans. Table 3 shows the characteristics of participating healthcare organizations.

Table 3: Participating Healthcare Organizations

	2021	2022	2023	2025
Healthcare organization characteristics	N (total 41)	N (total 26)	N (total 36)	N (Total 19)*
Region				
1	5 (12.2%)	1 (3.8%)	6 (16.7%)	5 (27.8%)
2	3 (7.3%)	2 (7.7%)	4 (11.1%)	2 (11.1%)
3	9 (21.9%)	4 (15.3%)	7 (19.4%)	3 (16.7%)
4	14 (34.1%)	5 (19.3%)	7 (19.4%)	3 (16.7%)
5	8 (19.5%)	8 (30.8%)	10 (27.8%)	3 (16.7%)
6	2 (4.8%)	6 (23.1%)	2 (5.6%)	2 (11.1%)
Type of service provided**				
Behavioral Health	15 (36.6%)	-	6 (18.8%)	10 (55.6%)
Family Medicine/Internal Med	11 (26.8%)	5 (19.3%)	11 (34.4%)	14 (77.8%)
Pediatrics	11 (26.8%)	9 (34.7%)	9 (28.1%)	11 (61.1%)
Obstetrics and Gynecology	4 (9.75%)	-	-	8 (44.4%)
Affiliation				
Health Systems***	4 (9.75%)	4 (15.4%)	4 (11.1%)	6 (31.6)
System-affiliated practices	4 (9.75%)	3 (11.5%)	3 (8.3%)	-
Independent practices	28 (68.3%)	11 (42.3%)	11 (34.4%)	8 (42.1%)

Federally Qualified Health Centers	5 (12.2%)	5 (19.2%)	3 (8.3%)	3 (15.8%)
Local Health Departments	-	4 (15.3%)	4 (11.1%)	-
Clinically-integrated systems	-	-	-	2 (10.5%)
Medicaid Beneficiaries				
Less than 25%	8 (19.5%)	4 (15.4%)	9 (25.0%)	9 (47.4%)
25% to 50%	6 (14.6%)	5 (19.2%)	7 (19.4%)	6 (31.6%)
More than 50%	20 (48.8%)	10 (38.5%)	14 (38.9%)	2 (10.5%)
Unsure	7 (17.1%)	7 (26.9%)	6 (16.7%)	1 (5.3%)
Interviewee Characteristics	N (total 43)†	N (total 41)†	N (total 47)†	N (total 19)
Leadership‡	15 (34.9%)	12 (29.3%)	11 (23.4%)	10 (52.6%)
Providers	8 (18.6%)	9 (21.9%)	14 (38.9%)	1 (5.3%)
Facility administrators/staff	20 (46.5%)	20 (48.8%)	22 (46.8%)	8 (42.1%)

**A large CIN serving multiple Medicaid regions is not included in the regional distribution of participants.*

***Most participating organizations provided multiple services, such as primary care, behavioral health, and obstetric services.*

****Some health systems are CINs.*

†More than one person was interviewed at some healthcare organizations to better understand their experience with the transition to Medicaid managed care.

‡Includes providers in leadership roles, for example, Medical Directors, Director of Physician Practices.

Medicaid beneficiary data collection

We began interviewing Medicaid beneficiaries in 2023. For the first year of interviewing beneficiaries, we conducted 21 interviews and one focus group (4 participants) from February to May 2023. The interviews focused on five key areas: awareness of change, SP experience, access to needed care, non-medical benefits of SPs, and care management. Medicaid beneficiaries were identified from provider sites and community-based organizations. We included adult beneficiaries and caregivers of children with Medicaid aged 18 or older who preferred English or Spanish and had Medicaid coverage before and after the transition to managed care. In 2024, we conducted 35 interviews between May and September 2024. The interviews focused on Medicaid eligibility and enrollment, experiences with plans and health care providers, health-related social needs, and care management. We purposely sampled adult beneficiaries from different regions of North Carolina with diverse demographic characteristics, including age, sex, and race. We prioritized outreach to beneficiaries enrolled in Standard Plans, but we also included beneficiaries enrolled in Tailored Plans to capture early experiences during the transition. In 2025, we conducted 43 interviews between August and October 2025. The interviews focused on experiences with plans, life circumstances, the ability to prioritize health, care management, experiences with providers, and the integration of physical and behavioral health. We purposely sampled adult beneficiaries from different regions of North Carolina on diverse demographic characteristics, including age, sex, race, ethnicity, and language. We prioritized our outreach to beneficiaries enrolled in Standard Plans and Tailored Plans. Table 4 shows the characteristics of Medicaid beneficiaries participating in the evaluation study.

Table 4: Participating Beneficiaries

	2023†	2024	2025
Type of participant	(N total 25)	(N 35)	(N 43)
Adult beneficiary	6 (24.0%)	20 (57.1%)	22 (51.2%)
Caregiver	8 (32.0%)	1 (2.9%)	-
Both adult and caregiver*	11 (44.0%)	14 (40.0%)	21 (48.8%)
Participant Primary Language (language in which interviews and focus group conducted)			
English	20 (80.0%)	35 (100%)	39 (90.7%)
Spanish	5 (20.0%)	-	4 (9.3%)
Participant race			
White/Caucasian	-	19 (54.3%)	18 (41.9%)
Black/African American	-	9 (25.7%)	12 (27.9%)
Other‡	-	7 (20.0%)	13 (30.23%)
Participant Ethnicity			
Non-Hispanic or Latin American	-	33 (94.3%)	35 (81.4%)
Hispanic or Latin American	-	2 (5.7%)	7 (16.3%)
Unknown	-		1 (2.3%)
Participant Age			
19 to 33 years	-	10 (28.6%)	12 (27.9%)

31 to 49 years	-	14 (40.0%)	18 (41.9%)
50 to 64 years	-	11 (31.4%)	13 (30.2%)
Participant sex			
Female	-	27 (77.1%)	33 (76.7%)
Male	-	8 (22.9%)	8 (18.6%)
Non-binary/non-confirming	-	-	2 (4.7%)
Participant county of residence**			
Rural	9 (36.0%)	10 (28.6%)	12 (27.9%)
Urban	16 (64.0%)	25 (71.4%)	31 (72.1%)
Medicaid Region			
1	0 (0%)	3 (8.5%)	1 (2.3%)
2	4 (16.0%)	2 (5.7%)	5 (11.6%)
3	3 (12.0%)	9 (25.7%)	7 (16.3%)
4	8 (32.0%)	8 (22.9%)	15 (34.9%)
5	10 (40.0%)	11 (31.4%)	2 (4.7%)
6	0 (0.0%)	2 (5.7%)	1 (2.3%)
Health plan			
Standard Plan	17(68.0%)***	28 (80.0%)	27 (62.8%)
Medicaid Direct	6 (24.0%)	1 (2.9%)	-
Tailored plans	NA****	6 (17.1%)	16 (37.2%)
Unknown	2 (8.0%)	-	-
Prior Insurance Status (before managed care)			

Medicaid****	25 (100%)	12 (34.3%)	15 (34.9%)
Private (e.g., employer-based)	-	8 (22.9%)	14 (32.6%)
Uninsured	-	15 (42.8%)	13 (30.2%)
Unknown	-	-	1 (2.3%)
Number of years with Medicaid coverage			
2 years or less	5 (20%)	23 (75.7%)	22 (51.2%)
More than 2 years	18 (72%)	12 (34.3%)	21 (48.8%)
Unknown	2 (8%)		
Duration on Managed care plan			
One year or less	-	26 (74.3%)	16 (37.2%)
More than a year	-	9 (25.7%)	26 (60.5%)
Unsure	-	-	1 (2.3%)

**Includes adult Medicaid beneficiaries who had children under 18 years of age covered by Medicaid plans.*

†2023 was the pilot data-collection period; therefore, participant demographic data were not collected.

‡Other includes American Indian or Alaskan Native, Asian, Multi-Race, and unknown.

***As designated by NC DHHS*

****Includes count of adults on Medicaid and caregivers of children under 18 years of age on standard plans. It does not include 28 children who were reported by their caregivers to be on standard plans.*

***** Tailored plans launched in July 2024.*

Interview methods

Interviews with healthcare organizations and beneficiaries were conducted via Zoom or phone, lasted 30 to 60 minutes, and were audio-recorded and transcribed. The beneficiary focus group lasted 29 minutes, was audio-recorded, transcribed into Spanish, and translated into English. We conducted a thematic analysis each year to identify the salient findings in the data. In 2022 and 2023, we used a rapid analysis approach1 to identify the major categories in the data, which informed the development of the codebook. A preliminary codebook was developed deductively and revised inductively, drawing on the themes in the data. Each year, two team members independently coded 2 to 5 interview transcripts to assess the adequacy of the codebook, agreement on meanings, and the application of codes. The agreement ranged from 75% to 92% for the first two transcripts, then increased to 90%-95%. Most disagreements concerned the interpretation of codes and the clarity of code definitions. Disagreements between the coders were resolved, sometimes with additional team members included in the discussion, to reach consensus. Following this process, a few minor changes were made to the codebooks, including adding a new code and a few subcodes. The two coders independently coded the remaining transcripts, raising discrepancies for the research team to discuss and reach agreement on interpretations. Two members reviewed and coded the data and analyzed them for emerging themes. The qualitative examination reports detailed insights into the transition to managed care, including perceptions of access to care, experiences working with PHPs, AMH program implementation, emergency room and urgent care use, and provider participation, based on results from 2021 to 2025.

Limitations

While we used the best research practices for conducting this evaluation, several limitations should still be noted. Our analysis approach uses distinct time periods to examine different post waiver activities, although the waiver period is not as distinct as would be ideal. Efforts to implement managed care in the Medicaid program were initiated by North Carolina's General Assembly during the baseline period. If providers' behavior changed due to *expectations* of upcoming changes, our baseline period does not capture a true baseline but rather one under increasing expectation of managed care implementation. Another limitation is the concern about accuracy and completeness of encounter data from managed care plans, given that the incentives for complete reporting are dampened over fee-for-service claims. Any deficits in quality of encounter data would confound the MC analyses since they would be contemporaneous to the implementation of capitated care. The evaluation team has monitored the quality of encounter data during the MC implementation period and have reported any data quality concerns to NC DHHS as soon as they were discovered, in order to improve data quality as the demonstration continues. Regular, semi-monthly technical calls between the evaluation team and NC DHHS have identified, addressed, and resolved multiple issues retrospectively, so despite the expected technical challenges of complex data feeds from the plans to the Department to the evaluation team, differences resulting from data (rather than from the implementation *per se*) have been addressed insofar as they have been identified. An additional limitation, as described in Methods, is that the ITS models are unable to tease out events that happened concurrently with the transformation (e.g. SP and TP launch) but were not part of the transformation strategy, such as changes in medical technology or the use of new diagnostic or procedure codes. In addition, if policies change and/or practices adopt other care delivery models during SP or TP launch, we are not able to identify or isolate changes in metrics that could be due to additional programs. A great example of this is the substantially revised hospital payment rates that were implemented on July 1, 2021, along with Standard Plans. We have continued to compare trends in utilization measures from encounter data to similar measures in NC claims data as well as external data sources (e.g., trends in the BRFSS data), although external sources tend to have a greater lag in availability. Another limitation is that the flag that identifies people eligible for Standard Plans only goes back to November 2019. We created an SP Proxy flag to increase the baseline period, but we know the accuracy is 92% (see discussion in the Methods section). Additionally, the evaluation could not assess all aspects of the Demonstration due either to data or statistical limitations. For example, we do not have information on enrollees' labor market status and thus were not able to evaluate whether improved services increase the ability of enrollees to participate in the labor market.

Finally, the table below (Table 5) lists all measures that were initially proposed in the Evaluation Design document but were not included in this Summative Evaluation Report for several reasons.

Table 5: Excluded Measures

Num	Measure name	Hypothesis	Reason for exclusion
Measures that are obsolete or retired			
18	Adult BMI Assessment	1.1	Retired Measure
29	Annual Monitoring for Patients on Persistent Medications	1.1	Retired Measure
Measures that were not included because of data availability or completeness			
1	Getting Care Quickly	1.1	Linkable (identified) CAHPS data was not available for analysis
2	Getting Needed Care	1.1	Linkable (identified) CAHPS data was not available for analysis
10	Dental Sealants for Children at Elevated Caries Risk	1.1, 1.5	Rates were low
14	Customer Service	1.1	Linkable (identified) CAHPS data was not available for analysis
15	Rating of Health Plan	1.1	Linkable (identified) CAHPS data was not available for analysis
16	Rating of all Health Care	1.1	Linkable (identified) CAHPS data was not available for analysis
17	Rating of Personal Doctor	1.1	Linkable (identified) CAHPS data was not available for analysis

20	Tobacco Use screening and follow-up	1.1	HIEA data was not available in time for analysis
23	Flu vaccine for Adults age 18-64	1.1, 1.4, 1.5	Very low rates of detection, measure deemed not reliable
48	Comprehensive Diabetes Care: HbA1c poor control (>9.0) +	1.1, 1.4	Administrative claims data do not accurately reflect performance and HIEA data is not available for long enough prior to SP and TP implementation.
49. – 57.	Comprehensive Diabetes Care (9 measures)	1.1	HIEA data was not available in time for analysis
59	Controlling High Blood Pressure	1.1, 1.4	Administrative claims data do not accurately reflect performance and HIEA data is not available for long enough prior to SP and TP implementation.
75	Depression screening among those with SUD	1.2	Depression screening is not well populated in claims and HIEA data is not available for long enough prior to SP and TP implementation.
81	Medical Assistance with Smoking and Tobacco Use Cessation	1.2, 1.4	Linkable (identified) CAHPS data was not available for analysis
90	Number of providers with DEA DATA 2000 waivers	1.3, 3.2	DATA 2000 waivers have been discontinued

91	Number of providers with DEA DATA 2000 waivers who have written prescriptions for Medicaid enrollees for MAT	1.3, 3.2	DATA 2000 waivers have been discontinued
105	Coordination of Care (consumer perceptions)	2.2	Linkable (identified) CAHPS data was not available for analysis
108	Medication Reconciliation Post-Discharge	2.2	Medication reconciliation is not well populated in administrative/claims data.
Measures that were not included because of substitutions with other measures			
5. – 8.	Children and Adolescents' Access to Primary Care Practitioners (4 measures)	1.1	Substituted Well-Child Visits
26	Medication Management for People with Asthma	1.1, 1.4	Similar to Asthma Medication ratio, which was included
42	Frequency of Prenatal Care (>=81% of expected visits)	1.1	Replaced with Prenatal and Postpartum Care: Timely Prenatal Care

58	Diabetes Short-term Complication Admission Rate (PQI-01)	1.1, 1.4	Sample sizes were too small for these metrics and were replaced with Prevention Quality Indicator Composite (PQI-90) for the adult SP population. Sample sizes were too small for the TP population and these were excluded.
60	COPD or Asthma in Older Adult Admissions (PQI-05)	1.1, 1.4	Sample sizes were too small for these metrics and were replaced with Prevention Quality Indicator Composite (PQI-90) for the adult SP population. Sample sizes were too small for the TP population and these were excluded.
61	Heart Failure Admissions (PQI-08)	1.1, 1.4	Sample sizes were too small for these metrics and were replaced with Prevention Quality Indicator Composite (PQI-90) for the adult SP population. Sample sizes were too small for the TP population and these were excluded.
62	Receipt of Preventative Dental Services	1.1	Because dental services remained in Medicaid direct, we decided to analyze only one dental measure, Annual Dental Visits

63	Asthma Admissions in Younger Adults (PQI-15)	1.1, 1.4	Sample sizes were too small for these metrics and were replaced with Prevention Quality Indicator Composite (PQI-90) for the adult SP population. Sample sizes were too small for the TP population and these were excluded.
93	Long-Term Use of Opioids	1.3, 3.2	We were unable to find an established metric reflecting this concept but included other measures of opioid use
107	Enrollees Receiving Care Management during transitions in care	2.2	We instead reported a HEDIS measure: Transitions in Care (TRC): engagement in post-discharge care
Measures that were not included for the SP or TP population because of small sample size			
58	Diabetes Short-term Complication Admission Rate (PDI-15)	1.1, 1.4	Sample sizes were too small for the child metrics
64	Gastroenteritis Admissions (PDI-16)	1.1, 1.4	Sample sizes were too small for the child metrics
65	Urinary Tract Infection Admissions (PDI-18)	1.1, 1.4	Sample sizes were too small for the child metrics
Measures that were not included for the TP population because there is not enough data post-implementation or not enough sample size			

21	Breast Cancer Screening	1.1	Annual metrics do not have enough post-TP launch data to make conclusions
22	Cervical Cancer Screening	1.1	Annual metrics do not have enough post-TP launch data to make conclusions
27	Asthma Medication Ratio	1.1	Annual metrics do not have enough post-TP launch data to make conclusions
28	Avoidance of Antibiotic Treatment in Adults with Acute Bronchitis	1.1	Annual metrics do not have enough post-TP launch data to make conclusions
38	Well Child Visits	1.1	Annual metrics do not have enough post-TP launch data to make conclusions
41	Chlamydia Screening in Women	1.1	Annual metrics do not have enough post-TP launch data to make conclusions
58	Diabetes Short-term Complication Admission Rate (PQI-01)	1.1, 1.4	Sample sizes were too small in the TP population
60	COPD or Asthma in Older Adult Admissions (PQI-05)	1.1, 1.4	Sample sizes were too small in the TP population
61	Heart Failure Admissions (PQI-08)	1.1, 1.4	Sample sizes were too small in the TP population

63	Asthma Admissions in Younger Adults (PQI-15)	1.1, 1.4	Sample sizes were too small in the TP population
66	Death rate by group (e.g., SUD, SMI)	1.1	Annual metrics do not have enough post-TP launch data to make conclusions
68	Infant Mortality	1.1	Annual metrics do not have enough post-TP launch data to make conclusions
72	Death rate post prison release	1.1	Annual metrics do not have enough post-TP launch data to make conclusions
82	Continuity of Pharmacotherapy with OUD	1.2	Annual metrics do not have enough post-TP launch data to make conclusions
83	Concurrent Use of Prescription Opioids and Benzodiazepines	1.2	Annual metrics do not have enough post-TP launch data to make conclusions
87	Adherence to Antipsychotic Medications for Individuals with Schizophrenia	1.2, 1.5	Annual metrics do not have enough post-TP launch data to make conclusions
94	Use of Opioids at High Dosage in Persons without Cancer	1.3	Annual metrics do not have enough post-TP launch data to make conclusions

95	Use of Opioids from Multiple Providers in Persons Without Cancer	1.3	Annual metrics do not have enough post-TP launch data to make conclusions

Num is the measure number from the original design document

Results

Standard Plan Evaluation Results

Summary Statistics

Table 6 presents the demographic, geographic, and clinical characteristics of our study population at the time of Standard Plan implementation in July 2021. Because many of the measures in our analysis are presented separately for children and adults, we present sample characteristics separately for each population.

The population was comprised of 2,185,224 Medicaid beneficiaries enrolled in Standard Plans, the majority of which were children (<18 years-old) (N=1,193,013). Adult SP beneficiaries were predominantly female (64.73%) with a median age of 32 years (IQR 23-43); most were working-age adults aged 18-64 (99.50%), with a small proportion over 65 years old (0.50%). Half of SP child beneficiaries were male (50.05%) with a median age of 8 years (IQR 4-13).

The majority of adult SP beneficiaries self-identified as White (57.27%) or Black (40.75%), with smaller proportions identifying as Asian/Pacific Islander (2.97%) and American Indian (1.94%). Racial composition of the SP child population closely reflects that of the adult population. Race categories were not mutually exclusive. A larger proportion of children enrolled in SPs were Hispanic (24.97%) compared to adults (12.72%).

Roughly 8% of adults (1.61% of children) in the SP population had a documented disability, and most resided in metropolitan counties (76.88% of adults and 76.61% of children). The comorbidity burden, measured as the mean number of CDPS categories per beneficiary, was 1.14 (SD 1.66) out of a possible 14 categories in the adult SP population, with over 50% of adult beneficiaries qualifying for zero CDPS diagnostic categories. Comorbidity burdens were even lower for the child population. Among the 14 CDPS diagnostic categories, SP prevalence rates were highest for psychiatric, cardiovascular, pulmonary, gastrointestinal, and skeletal diagnoses: 20.23% (10.64%), 20.39% (2.34%), 9.02% (8.78%), 10.15% (4.11%), and 6.08% (5.55%) for adults (children), respectively.

Table 6: Characteristics of the North Carolina Medicaid population enrolled in Standard Plans at time of SP implementation (July 2021)

	Full SP Population		Child Population (< 18 years old)		Adult Population (18+ years old)	
Variable	**Frequency (N)**	**Percent (%)**	**Frequency (N)**	**Percent (%)**	**Frequency (N)**	**Percent (%)**
Sex						
Male	947,066	43.34%	597,073	50.05%	349,993	35.27%
Female	1,238,158	56.66%	595,940	49.95%	642,218	64.73%
Age (median, IQR)	16	(7-30)	8	(4-13)	32	(23-43)
Age Groups						
< 18	1,193,013	54.59%	1,193,013	100.00%		
18-64	987,290	45.18%			987,290	99.50%
65+	4,921	0.23%			4,921	0.50%
Race†						
White	1,299,236	59.46%	730,952	61.27%	568,284	57.27%
Black	874,904	40.04%	470,570	39.44%	404,334	40.75%
Asian/Pacific Islander	67,250	3.08%	37,733	3.16%	29,517	2.97%
American Indian	44,075	2.02%	24,806	2.08%	19,269	1.94%
Unknown	14,963	0.68%	7,436	0.62%	7,527	0.76%
Hispanic						
Hispanic	424,135	19.41%	297,934	24.97%	126,201	12.72%

Not Hispanic	1,761,089	80.59%	895,079	75.03%	866,010	87.28%
Disabled						
Disabled	101,123	4.63%	19,243	1.61%	81,880	8.25%
Not Disabled	2,084,101	95.37%	1,173,770	98.39%	910,331	91.75%
Rurality						
Nonmetro	508,481	23.27%	279,065	23.39%	229,416	23.12%
Metro	1,676,743	76.73%	913,948	76.61%	762,795	76.88%
Number of CDPS Categories* (mean, SD)	0.77	(1.32)	0.47	(0.83)	1.14	(1.66)
Number of CDPS Categories*						
0	1,319,623	60.39%	805,833	67.55%	513,790	51.78%
1-2	666,373	30.49%	351,331	29.45%	315,042	31.75%
3-4	142,654	6.53%	31,322	2.63%	111,332	11.22%
5+	56,574	2.59%	4,527	0.38%	52,047	5.25%
Top 5 CDPS Diagnostic Categories						
Psychiatric	327,637	14.99%	126,946	10.64%	200,691	20.23%
Cardiovascular	230,163	10.53%	27,889	2.34%	202,274	20.39%
Pulmonary	194,272	8.89%	104,799	8.78%	89,473	9.02%

Gastrointestinal	149,719	6.85%	49,024	4.11%	100,695	10.15%
Skeletal	126,600	5.79%	66,270	5.55%	60,330	6.08%
Total sample size (Beneficiaries enrolled in SPs in July 2021)	2,185,224		1,193,013		992,211	

†Race categories are not mutually exclusive. Beneficiaries are counted in each race category they identify with. Category sums will exceed the sample total and proportions will exceed 100%.

**Total Number of CDPS categories (out of 14). CDPS = Chronic Illness and Disability Payment System.*

Hypothesis 1.1: The implementation of Medicaid managed care will increase access to health care and improve the quality of care and health outcomes.

Quantitative Findings

Because of the broad focus on access, quality and outcomes, Hypothesis 1.1 has more metrics than any other hypothesis. Several of the metrics examined also apply to subsequent hypotheses; when this happens, we discuss them in the "earliest" hypothesis (e.g. 1.1 vs 1.2) covered in the report. Many measures were analyzed but not specifically discussed, although the results are available in the Appendices. Here, we cover measures with notable results as exemplars of themes we saw across multiple measures.

Wellness and Prevention

At the time of SP implementation, we observed a decrease in the use rate of several preventative health measures, such as Well-Child Visits in the months 15-30 (W30) and Immunizations for Adolescents (IMA) (Figure 9 and Figure 11). The immediate decline in care [11] at the time of implementation could be attributable to transition factors[12]. This immediate decrease aligns with prior literature showing a short-term decline in routine visits and immunization coverage while providers adopt the new system requirements. Furthermore,

[11] Allen, E. H., Johnston, E. M., Courtot, B., Caraveo, C. A., Gonzalez, D., & Long, J. (2022). North Carolina Medicaid's transition to risk-based managed care: findings from the preimplementation period. Urban Institute.

[12] Schillaci, M. A., Waitzkin, H., Carson, E. A., López, C. M., Boehm, D. A., López, L. A., & Mahoney, S. F. (2004). Immunization coverage and Medicaid managed care in New Mexico: a multimethod assessment. The Annals of Family Medicine, 2(1), 13-21.

the qualitative findings identified that although beneficiaries viewed their PCP as core to their healthcare seeking strategy, some beneficiaries and providers experienced a learning period during plan launch, which may have contributed to temporary disruptions in preventive care use.

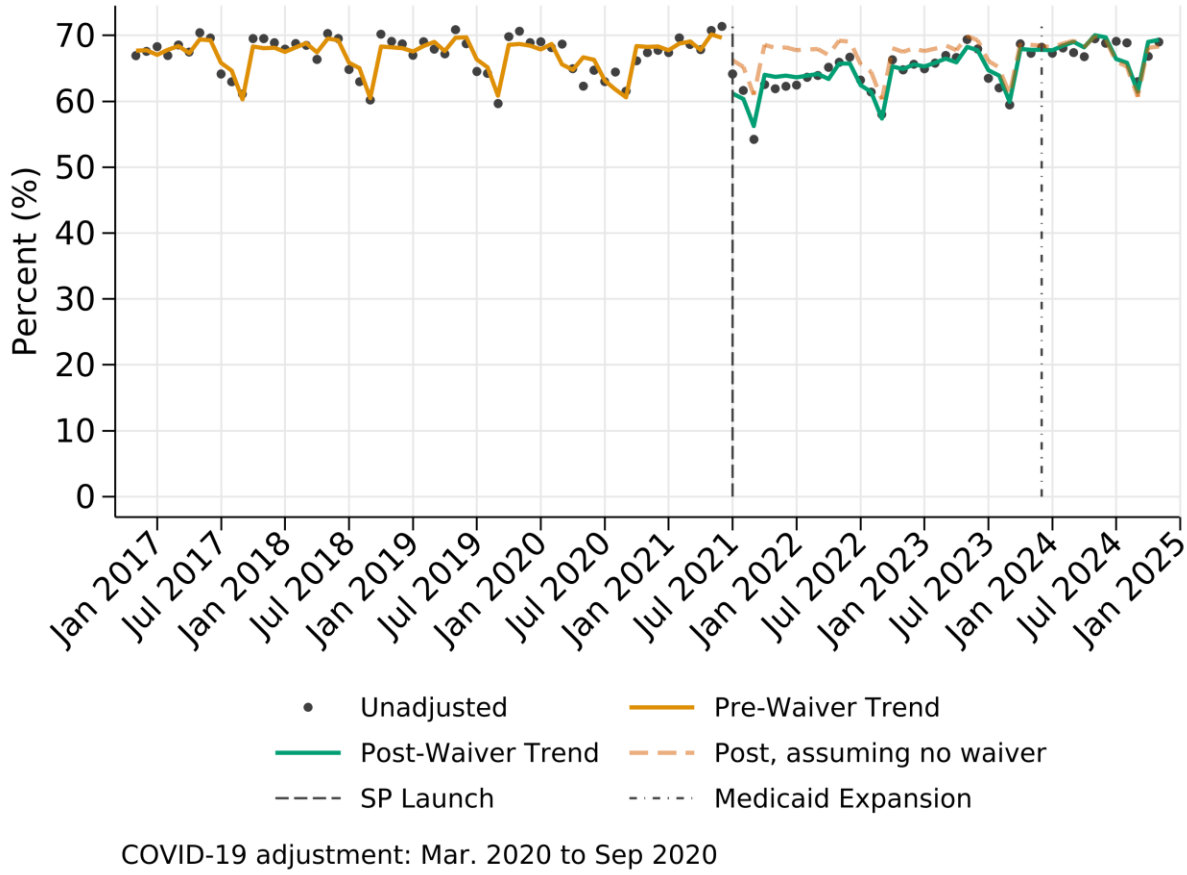
Following SP implementation, there was an increase in the monthly trend compared to what we would have expected if Standard Plans had not been implemented (we refer to this as the "counterfactual"). By the end of the study period, we observe a higher predicted average utilization rate with SPs than we would have estimated had pre-SP implementation trends continued. The specific magnitudes of these changes vary somewhat by metric.

Well-Child Visits in the First 30 Months of Life (W30)

The W30 metric includes two rates: 6 or more well-child visits during the first 15 months of life and 2 or more well-child visits during months 15–30. In this analysis, we focused on the months 15–30 rate, which is a critical indicator of pediatric preventive care access and measures whether a child received the recommended wellness visits in months 15- 30, an important strategy for prevention.

We observe a regular seasonal pattern (Figure 9), with rates peaking in the summer months and being lowest during winter. At the time of SP implementation in July 2021, we observed an initial decline in pediatric well-child visits, with the predicted average outcome dropping by 5.0 percentage points compared to the baseline counterfactual. Following implementation, the monthly trend increased by 0.15 percentage points per month compared to the counterfactual trend (Table 7). By the end of the Demonstration period in November 2024, the predicted average outcome was 1.05 percentage points higher than we would have estimated without SP implementation. This showed that the implementation of SPs led to a higher rate of well-child visits for infants aged 15-30 by the study's endpoint than would have been expected without SPs. That being said, it is important to note that the highest values post-transformation didn't quite reach the well-child rates that occurred immediately prior to SP launch.

Figure 9: Trends in Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 30 month olds) in the NC Medicaid population as determined in the metric specifications.

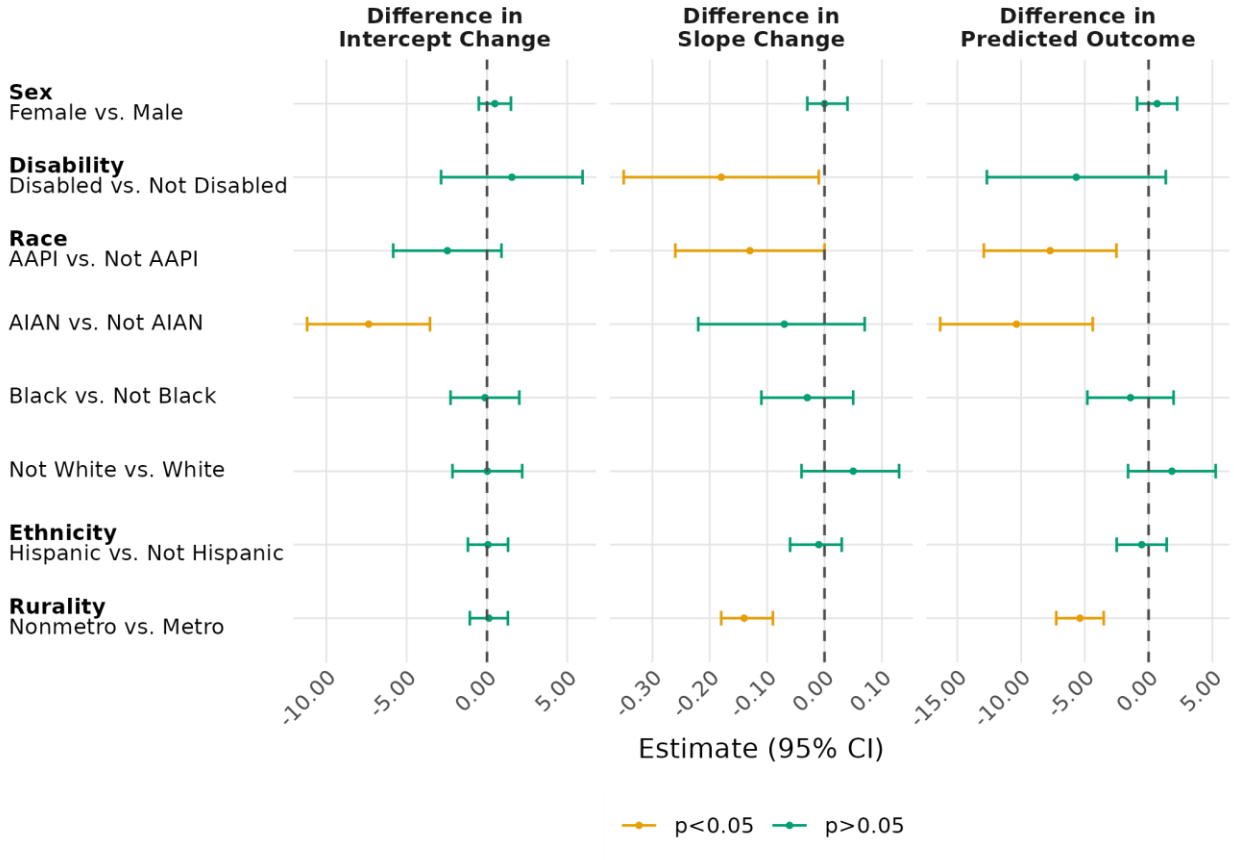
Table 7: Interrupted time series estimates of Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life

	Baseline	SP Implementation	Difference
Predicted Average Outcome Jul 2021	67.35* (66.99, 67.71)	62.32* (61.94, 62.70)	-5.02* (-5.55, -4.50)
Monthly Change	0.0033 (-0.0071, 0.014)	0.16* (0.14, 0.17)	0.15* (0.13, 0.17)
Predicted Average Outcome Nov 2024	67.48* (66.72, 68.23)	68.52* (68.15, 68.90)	1.05* (0.21, 1.88)
N			548,264

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 30 month olds) in the NC Medicaid population as determined in the metric specifications.*

Subgroup analyses revealed differential effects of SPs among certain sub-populations (Figure 10). Compared to children in metropolitan areas, children in non-metropolitan areas had a negative effect of SP on well-child visits, even by the end of the Demonstration. This is consistent with some of the rural challenges identified in qualitative analyses. We observed a similar pattern when comparing SP effects in Asian American/Pacific Islander and American Indian/Alaska Native populations to their respective non-Asian American/Pacific Islander and non-American Indian/Alaska Native counterparts, with both groups showing an estimated negative SP effect on well-child visits at the end of the study period.

Figure 10: Comparison groups in Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

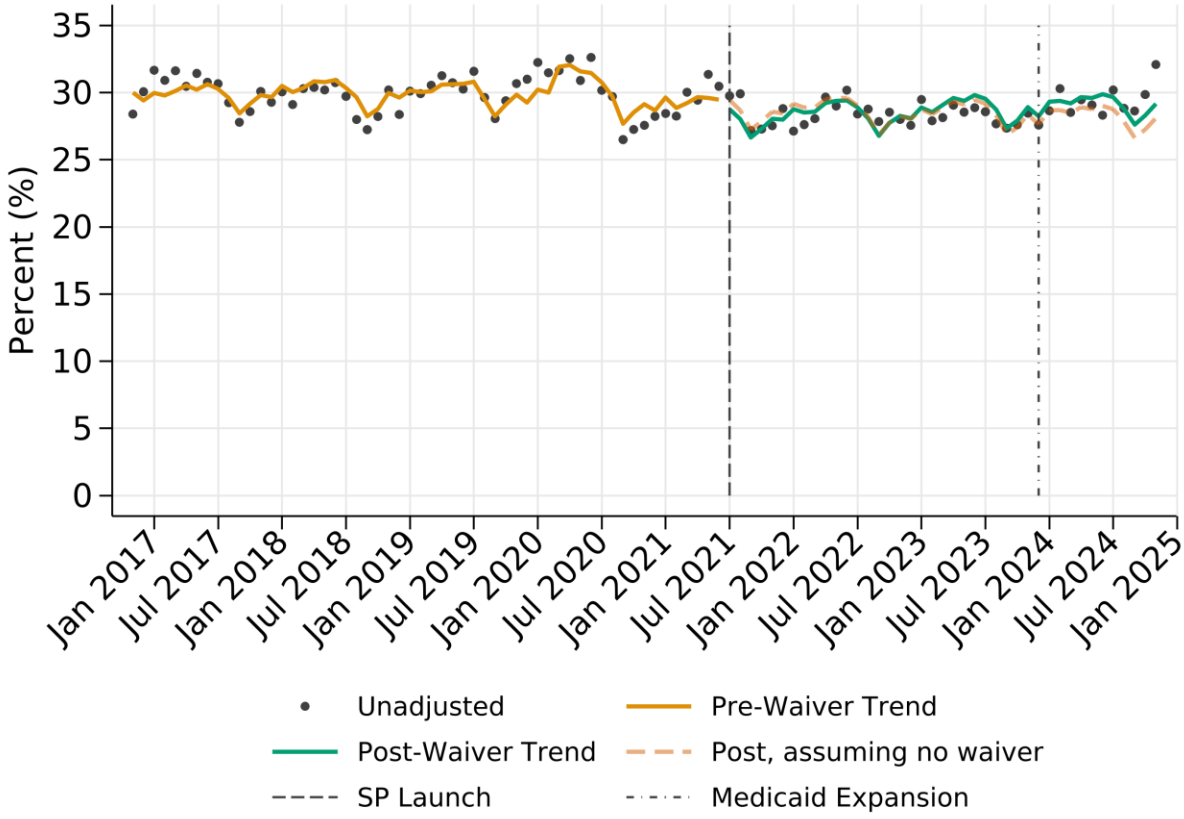
Immunizations for Adolescents (IMA

We observed an immediate implementation-period decline in immunizations for adolescents, followed by post-implementation improvement.

The IMA metric, which measures the percentage of adolescents turning 13 years of age during the measurement year that are up to date on recommended vaccines, is an important indicator of adolescent preventive care and public health. We again observed a seasonal pattern (Figure 11), with broader peaks in the summer months followed by declines during the winter. Prior to SP implementation, this metric was trending downward. At the time of SP implementation, the predicted average outcome dropped to 28.36%, which was 0.68 percentage points lower than the projected baseline counterfactual (Table 8). Following the implementation, this metric trended upward. This represents an increase of 0.044 percentage

points per month compared to the baseline trend. By the end of the Demonstration period, the predicted average outcome was 1.07 percentage points higher than we would have estimated had pre-implementation trends continued. This demonstrates that SP implementation may have been associated with a modest attenuation of the pre-implementation decline in adolescent immunizations and small improvement in preventive care engagement by the end of the evaluation period.

Figure 11: Trends in Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 12-13) in the NC Medicaid population as determined in the metric specifications.

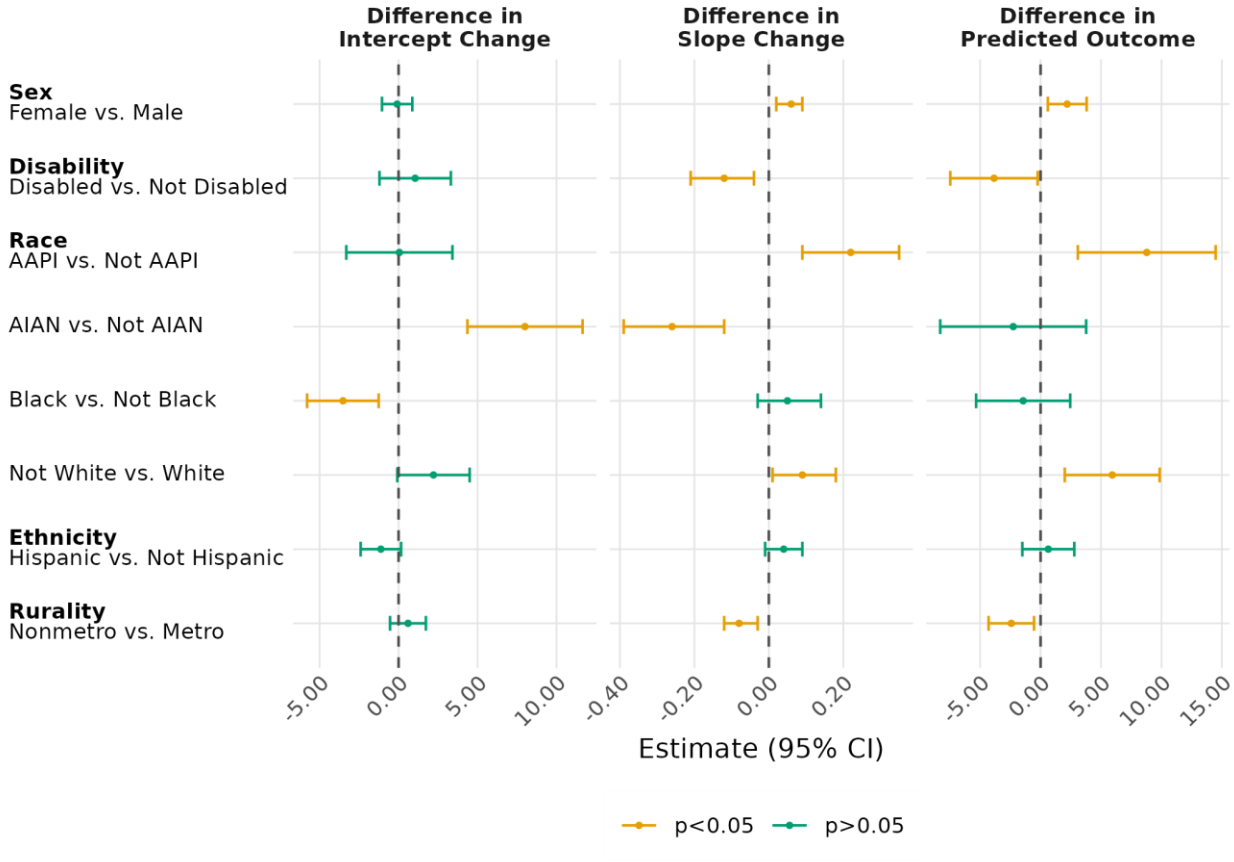
Table 8: Interrupted time series estimates of Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13

	Baseline	SP Implementation	Difference
Predicted Average Outcome Jul 2021	29.04* (28.68, 29.40)	28.36* (28.01, 28.71)	-0.68* (-1.19, -0.18)
Monthly Change	-0.021* (-0.032, -0.0100)	0.023* (0.0079, 0.038)	0.044* (0.025, 0.063)
Predicted Average Outcome Nov 2024	28.21* (27.44, 28.98)	29.28* (28.93, 29.64)	1.07* (0.23, 1.92)
N			515,853

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 12-13) in the NC Medicaid population as determined in the metric specifications.*

Subgroup analyses showed differential effects among certain populations. Female, Non-White, and Asian American/Pacific Islander populations showed a higher SP effect at the end of the study period compared to male, White, and non-Asian American/Pacific Islander populations, respectively. In contrast, adolescents with disabilities and those residing in non-metropolitan areas showed a lower predicted effect at the study endpoint compared to those without disabilities and those living in metropolitan areas.

Figure 12: Comparison groups in Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

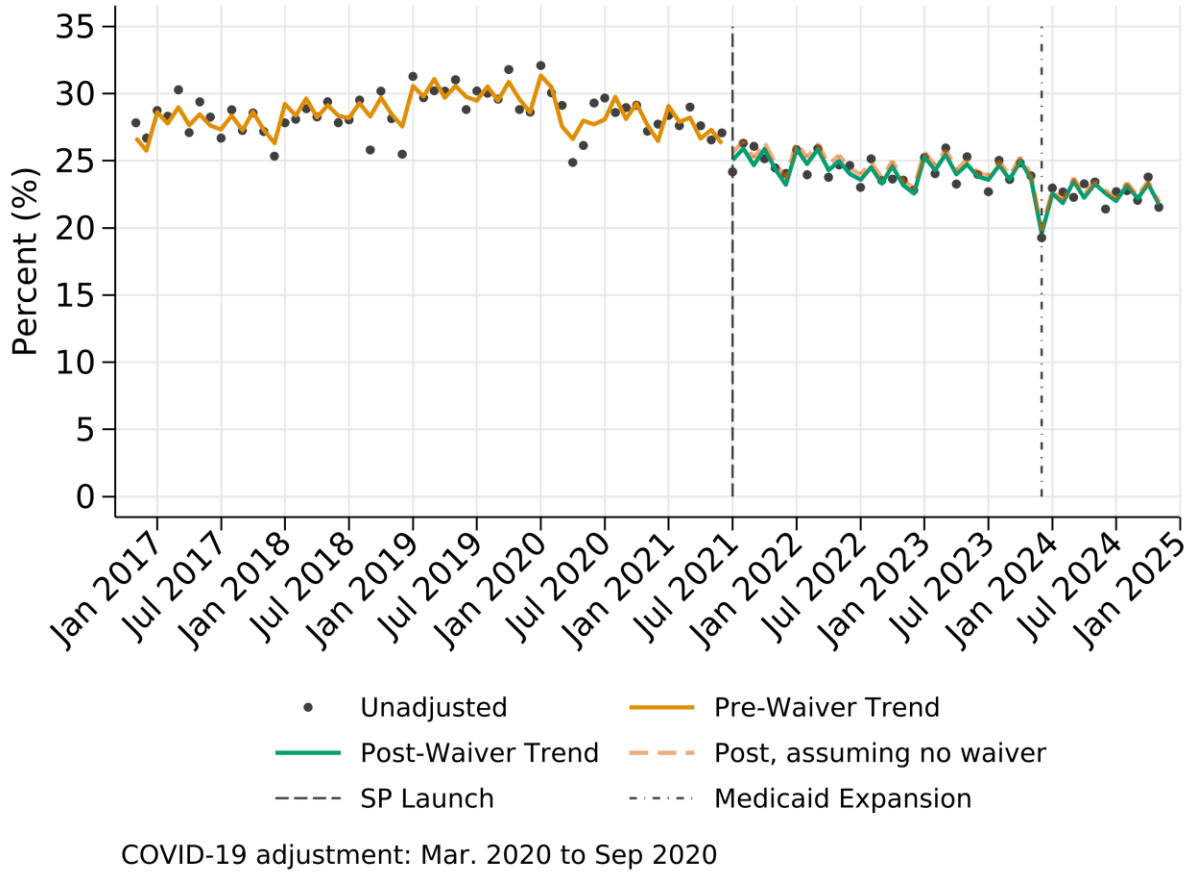
Access to Preventive/Ambulatory Health Services (AAP) and Childhood Immunization Status (CIS) showed a different pattern compared to W30 and IMA. At the time of SP implementation, we observed an initial decrease in the rates for both measures as we did for the prior metrics. Following implementation, however, we found no evidence of a statistically significant change in the monthly trend compared to the projected baseline counterfactual. Consequently, the predicted average outcome by the end of the Demonstration in November 2024 remained lower than we would have estimated without SP implementation.

Access to Preventive/Ambulatory Health Services (AAP)

The AAP metric is a key indicator of adult engagement with primary and preventive care. AAP showed an initial decrease at launch and remained lower by the end of the study (Figure 13). At the time of SP implementation, we observed a decline of 1.23 percentage points compared to the projected baseline counterfactual (Table 9). Following implementation, we found no statistically significant difference in the monthly rate of change compared to the baseline trend. Consequently, the predicted average outcome at the study endpoint remained 1.12 percentage points lower than we would have estimated without the implementation of SPs. This overall pattern aligns with broader evaluation themes, indicating lower performance for wellness and prevention measures. Ambulatory care failed to recover the initial implementation decline, resulting in a significant and negative difference at the study's endpoint.

We did observe a decrease in the AAP trend in late 2023, where the rate dropped below 20%, coincident with Medicaid expansion in December 2023. The decrease in the rate following Medicaid expansion may reflect a shift in population composition due to the enrollment of newly eligible adults, which increased the denominator for the adult AAP metric. Because newly enrolled beneficiaries may require time to navigate the healthcare system and schedule routine visits, the overall proportion of the population receiving these services initially may have decreased. This pattern is present in the AAP metric but absent in pediatric metrics (such as W30, IMA, CIS, and WCC) probably because AAP measures beneficiaries aged 20 years and older. Since low-income children were broadly eligible for Medicaid before December 2023, expansion may not have introduced a similar influx of newly eligible beneficiaries for child and adolescent measures.

Figure 13: Trends in Access to Preventive/Ambulatory Health Services (AAP): For Adult Medicaid Beneficiaries



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 20+) in the NC Medicaid population as determined in the metric specifications.

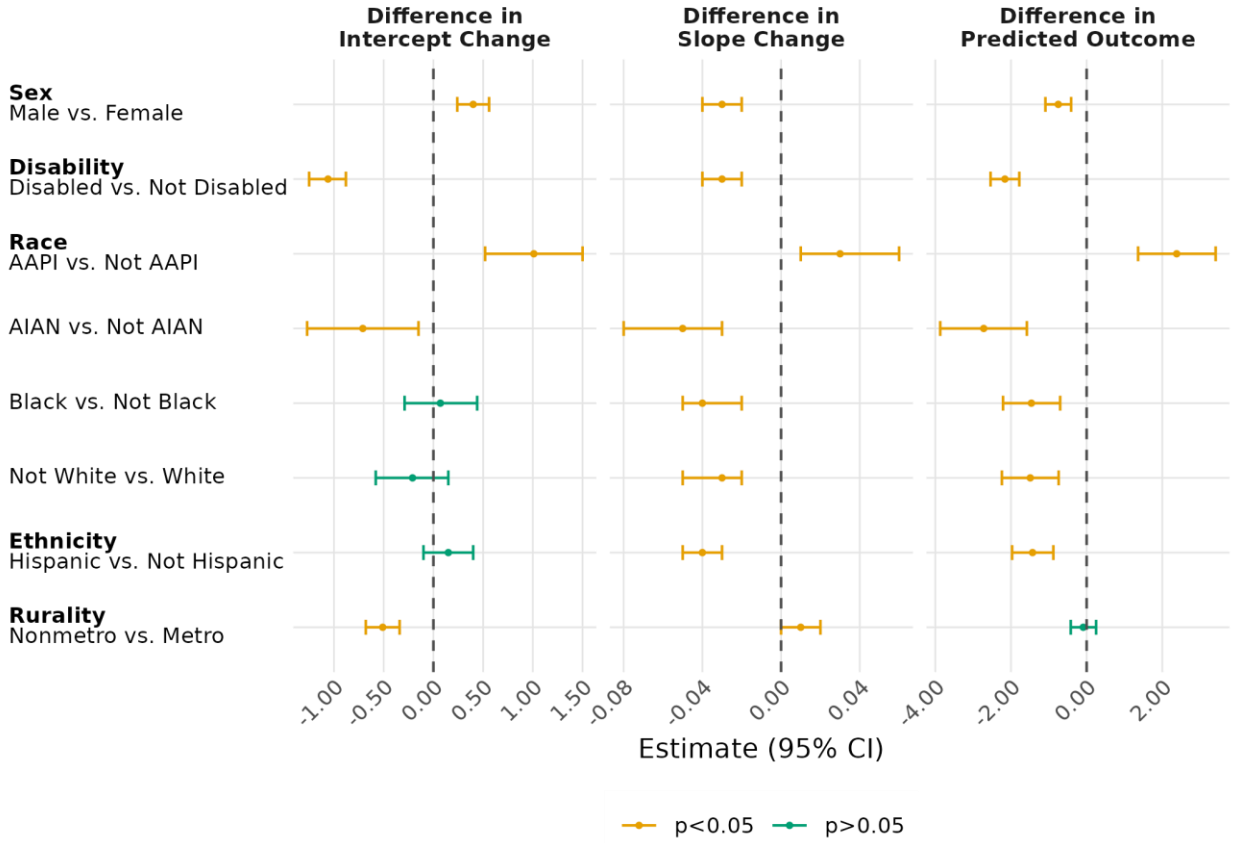
Table 9: Interrupted time series estimates of Access to Preventive/Ambulatory Health Services (AAP): For Adult Medicaid Beneficiaries

	Baseline	SP Implementation	Difference
Predicted Average Outcome Jul 2021	26.51* (26.31, 26.71)	25.28* (25.07, 25.49)	-1.23* (-1.46, -1.00)
Monthly Change	0.010 (-0.0005, 0.021)	0.013* (0.0012, 0.024)	0.0027 (-0.011, 0.016)
Predicted Average Outcome Nov 2024	26.91* (26.39, 27.44)	25.79* (25.41, 26.18)	-1.12* (-1.67, -0.57)
N			46,190,172

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 20+) in the NC Medicaid population as determined in the metric specifications.*

Subgroup analyses showed variations in SP implementation effects among certain populations. Male, disabled, American Indian/Alaska Native, Black, non-White, and Hispanic populations showed a lower trend after SP implementation compared to their respective counterparts. This resulted in a lower predicted effect of SP for these groups at the study endpoint. Conversely, the Asian American/Pacific Islander population showed a higher predicted SP effect compared to the non-Asian American/Pacific Islander population.

Figure 14: Comparison groups in Access to Preventive/Ambulatory Health Services (AAP): For Adult Medicaid Beneficiaries



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

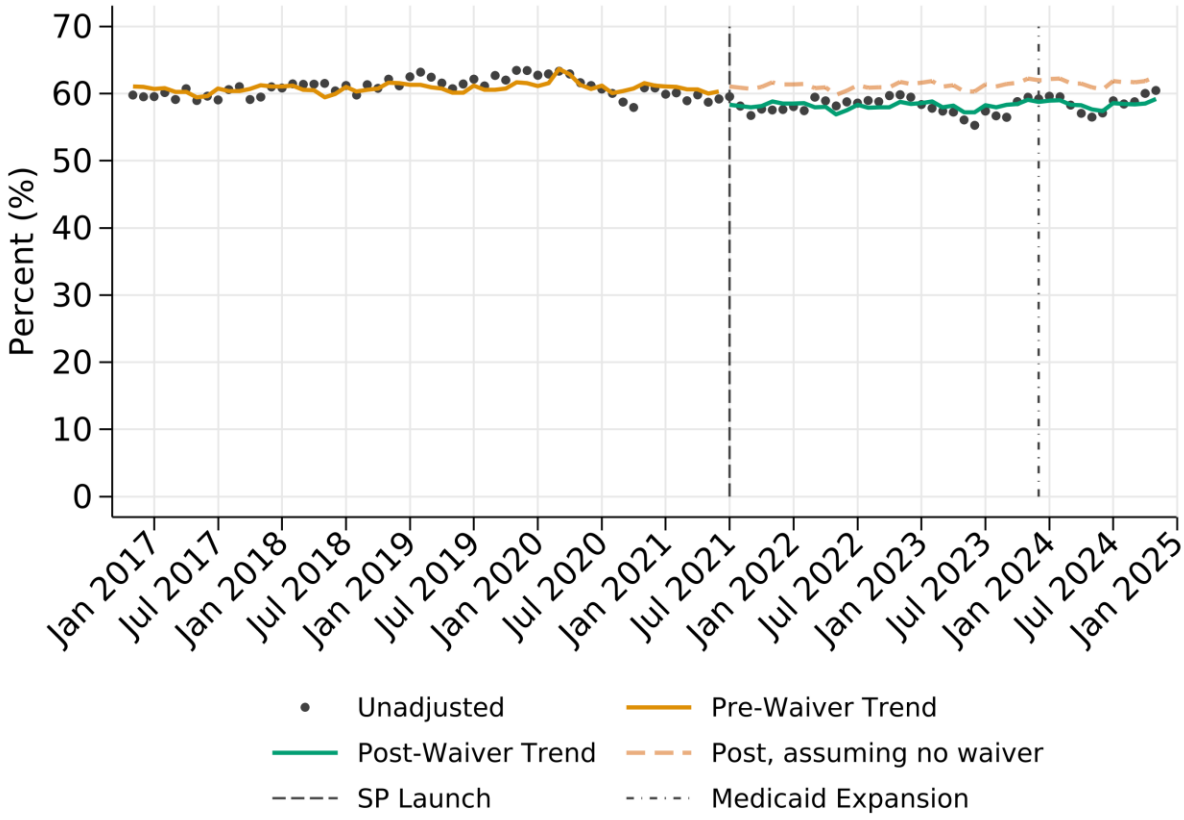
Childhood Immunization Status (CIS)

CIS Combination 7 measures the percentage of children turning two years old during the measurement year who are up to date on seven recommended vaccines (DTaP, IPV, MMR, HiB, Hepatitis B, VZV, and PCV). At the time of SP implementation, we observed a decline of 2.75 percentage points compared to the projected baseline counterfactual (Table 10). Following implementation, we found no statistically significant difference in the post-implementation monthly trend compared to the baseline trend. Consequently, the predicted average effect of SPs at the study endpoint in November 2024 was 3.36 percentage points lower than we would have estimated had pre-SP trends continued. This indicates that, unlike

the W30 metric, which was also a pediatric metric, vaccine administration failed to recover after the initial implementation decline, resulting in a significant and negative difference at the study's endpoint. Notably, childhood immunization was also subject to the withhold program through CIS Combination 10, which includes all immunizations captured in Combination 7. Yet, unlike Prenatal and Postpartum Care (PPC) discussed below, the withhold program does not appear to have been sufficient to shift the post-implementation trend. National CIS trends also indicate that childhood vaccination performance improved before and throughout 2020 but worsened in the post-2020 period and had not fully recovered by 2023[13]. This broad pattern suggests that the CIS shortfall observed in North Carolina may reflect not only transition-related disruption in North Carolina, but also broader post-pandemic decline in childhood vaccination coverage.

[13] Centers for Medicare & Medicaid Services. (2024-2020). Table CIS-CH Percentage of Children Age 2 who are Up to Date on Recommended Immunizations (Measles, Mumps, and Rubella [MMR], Influenza, Combination 3, and Combination 10) by their Second Birthday, as Submitted by States for the 2023-2021 Child Core Set

Figure 15: Trends in Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 1-2) in the NC Medicaid population as determined in the metric specifications.

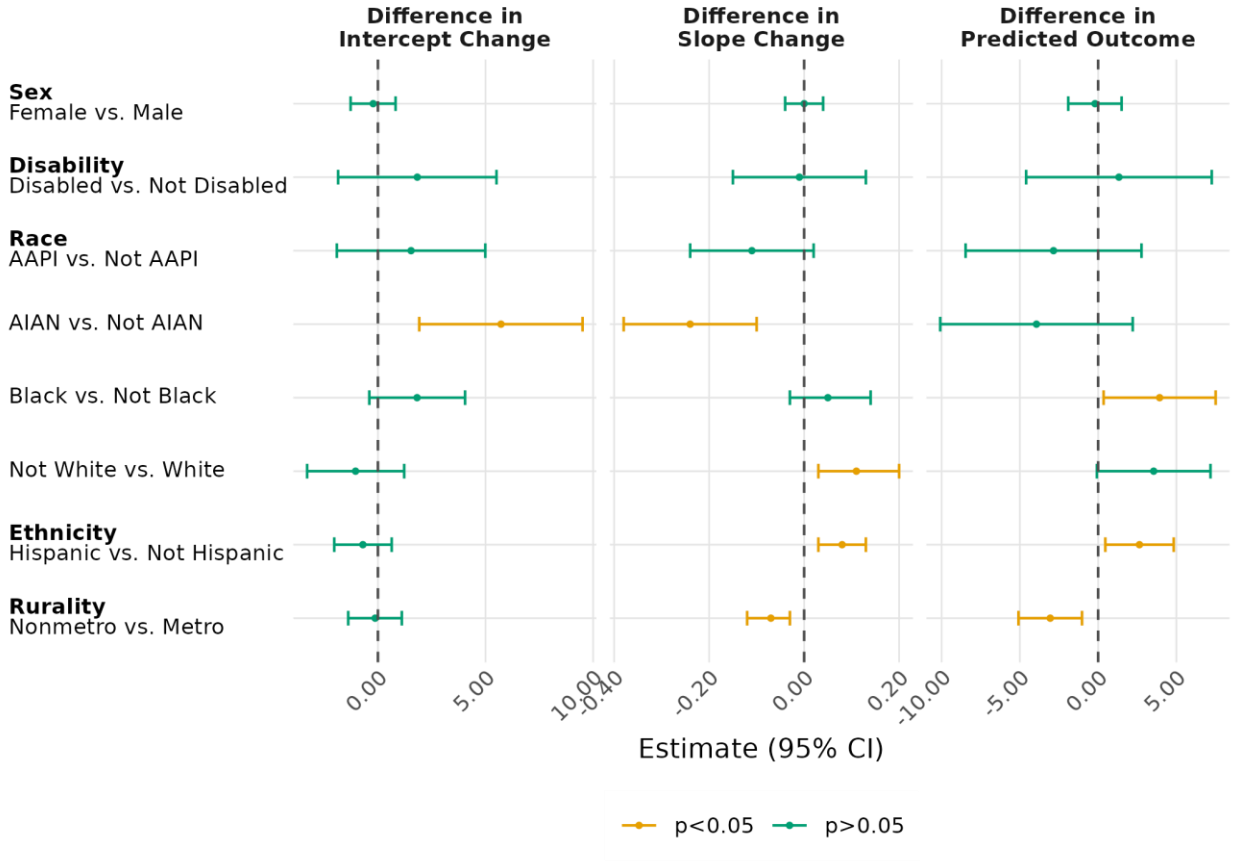
Table 10: Interrupted time series estimates of Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2

	Baseline	SP Implementation	Difference
Predicted Average Outcome Jul 2021	61.05* (60.66, 61.45)	58.31* (57.92, 58.69)	-2.75* (-3.30, -2.20)
Monthly Change	0.011 (-0.0001, 0.023)	-0.0040 (-0.021, 0.013)	-0.015 (-0.035, 0.0049)
Predicted Average Outcome Nov 2024	61.50* (60.68, 62.32)	58.15* (57.75, 58.54)	-3.36* (-4.27, -2.45)
N			526,508

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 1-2) in the NC Medicaid population as determined in the metric specifications.*

Subgroup analyses showed differential waiver effects among certain populations. Black and Hispanic populations showed a greater effect of SPs on childhood immunizations at the study endpoint compared to non-Black and non-Hispanic populations. In contrast, children in non-metropolitan areas had a smaller SP effect at the study endpoint compared to children living in metropolitan areas.

Figure 16: Comparison groups in Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC)

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC) showed a different pattern compared to the previously discussed measures. At the time of SP implementation, we observed a decrease in the predicted rate of weight assessment and counseling compared to the projected baseline counterfactual. Following implementation, we found a lower post-SP monthly trend than the baseline one. Due to both the initial decrease at implementation and the lower post-implementation trend, the predicted SP effect at the study endpoint in November 2024 was negative.

As with many childhood wellness measures, we observe a seasonal pattern for the WCC metric, with higher rates occurring from summer to early fall (Figure 17). During the baseline period, the trend showed an upward trajectory, with successive summer peaks increasing over time. Following the implementation of SPs, this upward trajectory was not sustained. While the seasonal pattern remained visible in the post-implementation period, the peaks remained stable rather than continuing to rise. Consequently, the post-SP trend line remained lower than the projected baseline counterfactual.

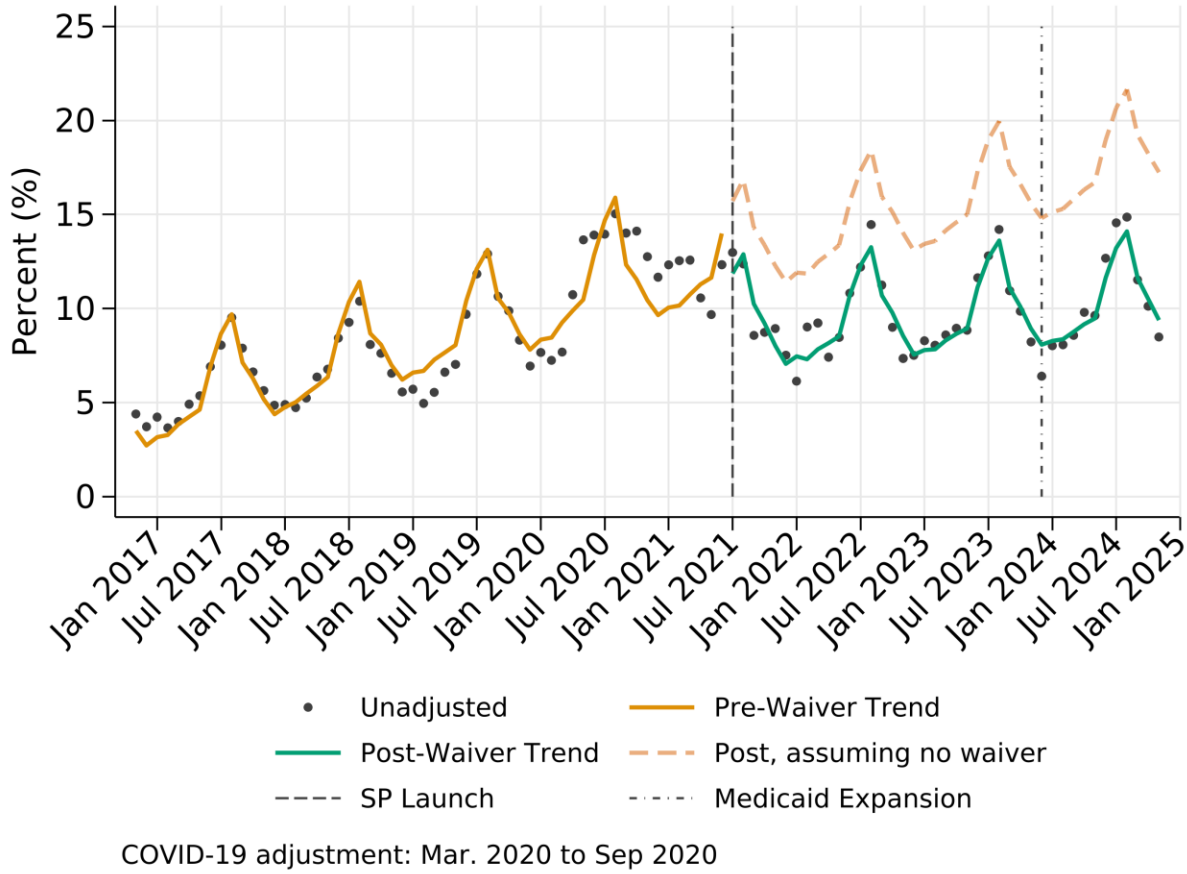
At the time of SP implementation, we observed a decline in nutrition counseling, with the predicted average outcome decreased by 3.86 percentage points compared to the projected baseline counterfactual (Table 11). Following implementation, the rate declined 0.10 percentage points per month compared to the baseline trend. While both the baseline and post-SP trends remained positive, the rate of increase was lower after SP implementation. Consequently, due to the initial decrease at implementation and the lower post-implementation trend, the predicted average outcome at the study endpoint in November 2024 was 7.84 percentage points lower than we would have estimated had pre-SP trends continued. The observed post-SP decline in WCC may be due to time constraints in primary care settings. Prior literature indicates that delivering all recommended preventive services requires a substantial proportion of clinician time, potentially leading providers to prioritize certain mandated services and acute care over counseling-intensive activities[14]. It is important to note that the monthly values here are not comparable to annual rates more commonly reported. Additionally, the projected post-launch status quo trend is a direct result

[14] Yarnall, K. S., Pollak, K. I., Østbye, T., Krause, K. M., & Michener, J. L. (2003). "Primary care: is there enough time for prevention?" American Journal of Public Health, 93(4), 635-641.

of the high growth in the 2017-2020 period, which may not have continued. Specifically, CMS cautions when considering trends beyond 2020 for WCC.[15]

[15] https://www.medicaid.gov/medicaid/quality-of-care/downloads/methods-brief-ffy-2019.pdf

Figure 17: Trends in Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.

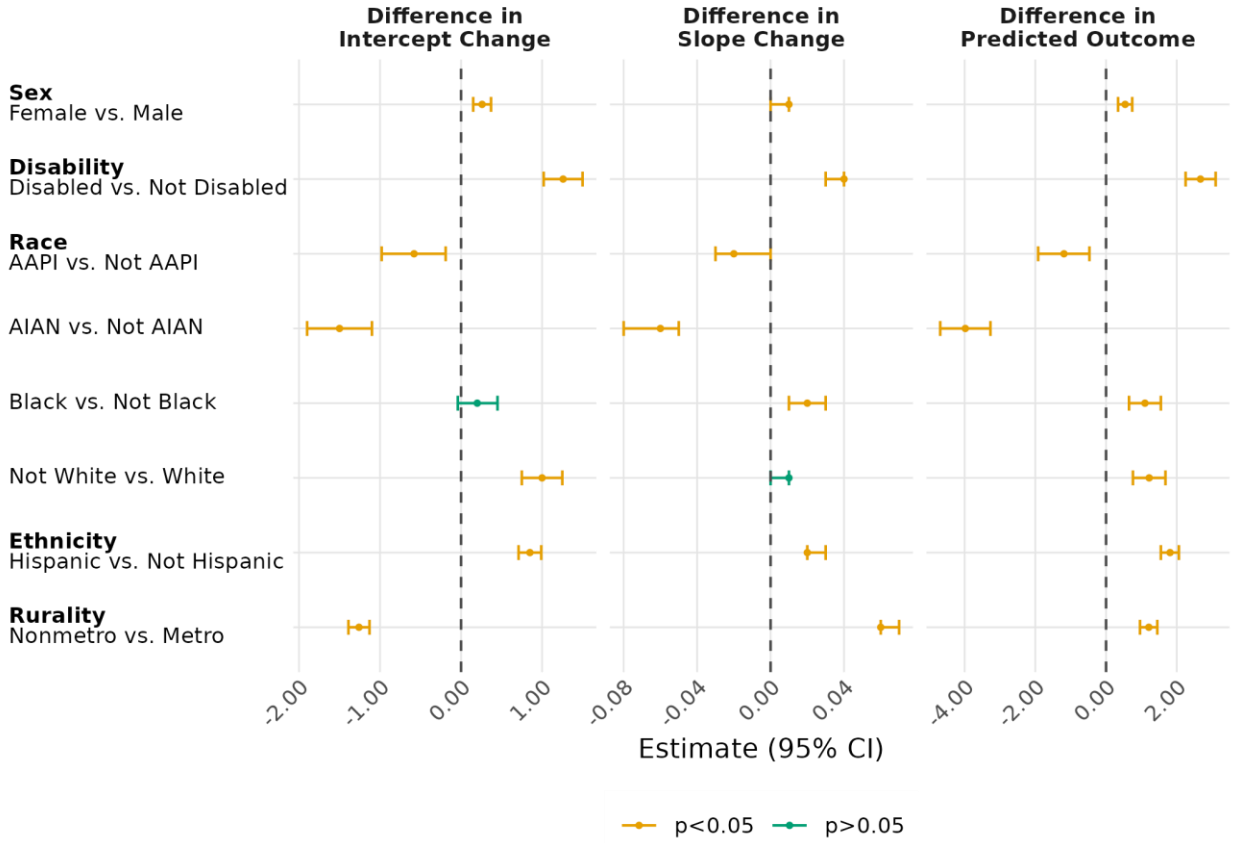
Table 11: Interrupted time series estimates of Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition

	Baseline	SP Implementation	Difference
Predicted Average Outcome Jul 2021	12.53* (12.48, 12.59)	8.68* (8.63, 8.72)	-3.86* (-3.92, -3.80)
Monthly Change	0.14* (0.14, 0.15)	0.045* (0.043, 0.046)	-0.100* (-0.10, -0.097)
Predicted Average Outcome Nov 2024	18.31* (18.21, 18.41)	10.47* (10.43, 10.51)	-7.84* (-7.94, -7.74)
N			17,070,851

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.*

Subgroup analyses showed notable variation in SP effects among certain populations. Female, disabled, Black, non-White, Hispanic, and non-metropolitan populations showed a higher effect at the end of the study period compared to their respective counterparts. Conversely, Asian American/Pacific Islander and American Indian/Alaska Native populations showed a lower effect at the end of the study period compared to non-Asian American/Pacific Islander and non-American Indian/Alaska Native populations.

Figure 18: Comparison groups in Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Maternal Care and Contraception

Postpartum Care (PPC)

The postpartum period represents a critical window for maternal health.[16] It is the primary opportunity for providers to assess physical recovery from labor and delivery, screen for postpartum depression, manage chronic conditions, and initiate or continue contraception.[17] When postpartum visits are disrupted, the downstream services that depend on this touchpoint, including contraceptive counseling, mental health interventions, and complication management, are also at risk.[18] To assess whether Standard Plan implementation affected this key touchpoint, we examined the percentage of beneficiaries ages 21–44 with a live birth who received a postpartum visit between 7 and 84 days after delivery, consistent with the HEDIS Prenatal and Postpartum Care measure definition.[19] However, this metric has also been modified to include state-specific codes that would represent postpartum care.

[16] https://pmc.ncbi.nlm.nih.gov/articles/PMC8328879/

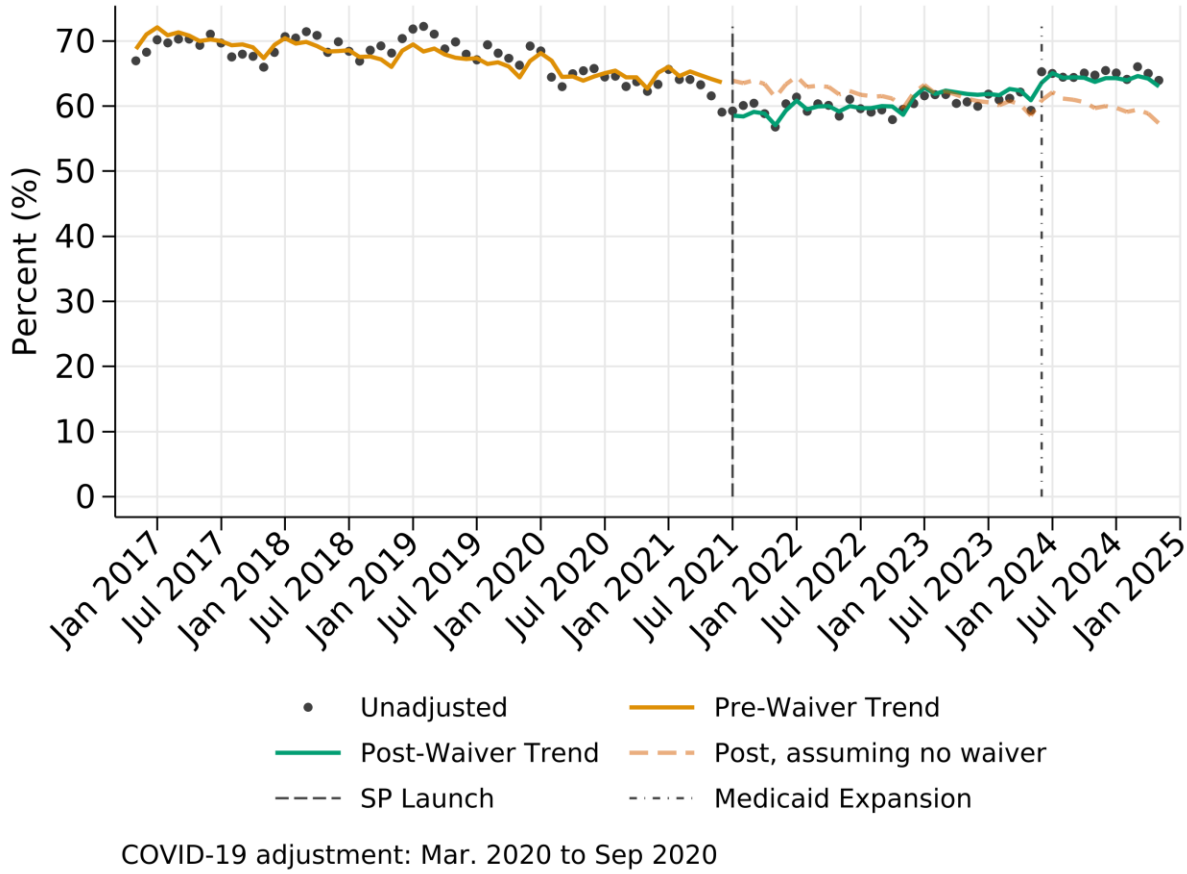
[17] https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2018/05/optimizing-postpartum-care

https://womensmentalhealth.org/posts/acog-increased-care-fourth-trimester/

[18] https://www.acog.org/clinical/clinical-guidance/obstetric-care-consensus/articles/2019/01/interpregnancy-care

[19] https://files.guidewell.com/m/1860fa31ff34be6c/original/providers-programs-quality-hedis-ppc.pdf

Figure 19: Trends in Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21+) in the NC Medicaid population as determined in the metric specifications.
The Medicaid Expansion population has been excluded.

Postpartum visit rates among Medicaid beneficiaries were relatively stable at 68-70% through 2019, before beginning a gradual decline that began with the COVID-19 PHE (Figure 19). At the point of SP implementation, there was a visible disruption in postpartum visit rates, with the model estimating an immediate decline of 5.48 percentage points (Table 12).

Table 12: Interrupted time series estimates of Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+

	Baseline	SP Implementation	Difference
Predicted Average Outcome Jul 2021	63.97* (63.52, 64.43)	58.56* (58.08, 59.04)	-5.42* (-6.08, -4.76)
Monthly Change	-0.12* (-0.13, -0.11)	0.16* (0.14, 0.18)	0.28* (0.25, 0.30)
Predicted Average Outcome Nov 2024	59.16* (58.21, 60.10)	64.85* (64.36, 65.35)	5.70* (4.64, 6.76)
N			355,048

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21+) in the NC Medicaid population as determined in the metric specifications.*
The Medicaid Expansion population has been excluded.

However, following implementation, the underlying trend in postpartum visit rates reversed — shifting from a pre-implementation decline of 0.12 percentage points per month to a post-implementation increase of 0.16 percentage points per month. This reversal is visible in the divergence between the post-SP implementation trend and the counterfactual projection, which continued to decline. By November 2024, the model-predicted postpartum visit rate was 64.94% compared to a counterfactual projection of 59.17%, representing a statistically significant increase of 5.77 percentage points associated with SP implementation.

The initial disruption in postpartum visit rates is consistent with documented billing and contracting challenges during the standard plan transition, which elevated claim denial rates and may have disrupted routine postpartum care scheduling.[20] The subsequent recovery and improvement beyond expected levels likely reflect several factors converging during the evaluation period. Resolution of the administrative barriers could have stabilized claims processing and care scheduling. North Carolina's Medicaid expansion launched in December

[20] https://medicaid.ncdhhs.gov/blog/2021/07/28/guidance-providers-experiencing-payment-issues

2023, and evidence from other states suggests that Medicaid expansion can improve postpartum care utilization even among beneficiaries already covered at delivery, by stabilizing and expanding postpartum care capacity, and creating household-level coverage continuity that supports care engagement.[21],[22] In addition, the Standard Plan withhold program included postpartum care as a measure beginning in the first measurement year of CY 2024, creating direct financial incentives for plans to prioritize performance on this metric. The pronounced increase observed in early 2024 aligns temporally with both the December 2023 expansion launch and the start of the CY 2024 withhold measurement period. North Carolina's earlier postpartum extension of benefits to 12 months under the Pregnancy waiver, implemented in April 2022, may also have contributed to the continuity of coverage supporting follow-up care across the post-implementation period.

Measurement changes are also relevant to interpreting the latter half of the evaluation period. Two new CPT II codes specific to prenatal and postpartum care, 0500F (Initial Prenatal Visit) and 0503F (Postpartum Care Visit), were implemented in NC Medicaid on June 15, 2024.[23] These codes allow providers to capture PPC activities that may previously have been recorded under broader visit codes, and routine quality monitoring has shown corresponding increases in measured PPC rates following their introduction. While the F codes were implemented after the most pronounced increase in early 2024 and therefore cannot account for that change, they may contribute to the sustained elevation in measured rates through the second half of 2024.

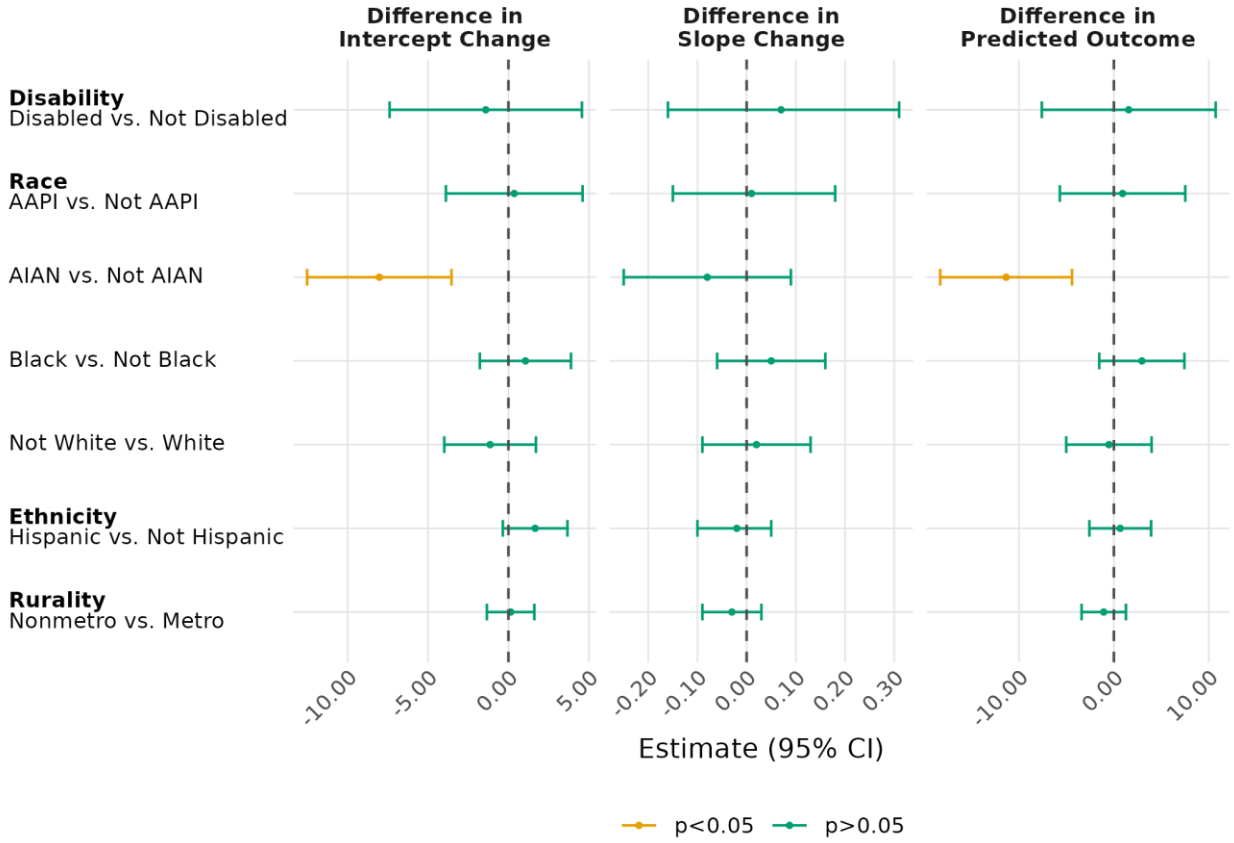
Among subgroups, AIAN beneficiaries experienced a significantly larger initial disruption at SP implementation compared to non-AIAN beneficiaries, and that by study endpoint, the effect remained large and negative – the effect for this group was sufficiently different than the findings in the full population, indicating that PPC rates declined post-launch among AIAN beneficiaries.

[21] https://pmc.ncbi.nlm.nih.gov/articles/PMC7926836/

[22] https://jamanetwork.com/journals/jama-health-forum/fullarticle/2835585

[23] https://medicaid.ncdhhs.gov/ppc-f-codes-faq-document/download?attachment

Figure 20: Comparison groups in Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

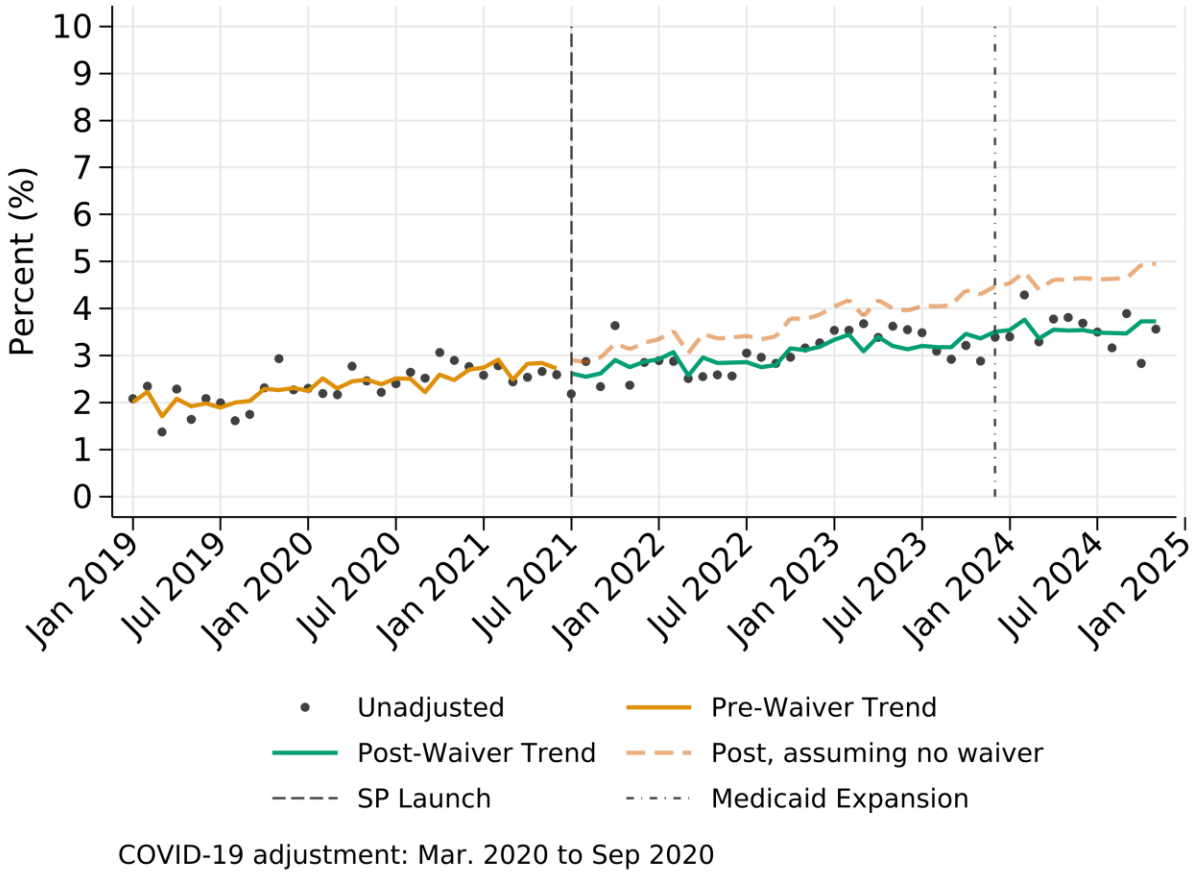
Contraceptive Care Postpartum (CCP)

Long-acting reversible contraception (LARC) methods, such as intrauterine devices and implants, are among the most effective forms of contraception, and timely postpartum placement can reduce the risk of short-interval pregnancies and associated maternal and neonatal complications.[24] To assess whether the SP transition affected postpartum LARC access, we examined two complementary measures: LARC provision within 3 days of delivery, which captures immediate postpartum placement typically performed during the birth hospitalization, and LARC provision within 90 days of delivery, which captures placement during outpatient postpartum follow-up. Together, these measures distinguish between inpatient and outpatient pathways to postpartum contraceptive access.

Prior to SP launch, these two measures were moving in opposite directions. Three-day LARC placement was on a steady upward trajectory, increasing by 0.043 percentage points per month from a base of approximately 2%, due to a change in policy that allowed billing for LARC insertion after delivery in the fall of 2018 (Figure 21). The 90-day measure, by contrast, was in decline, falling at 0.058 percentage points per month from approximately 20% in 2017 toward 16% by implementation (Figure 22).

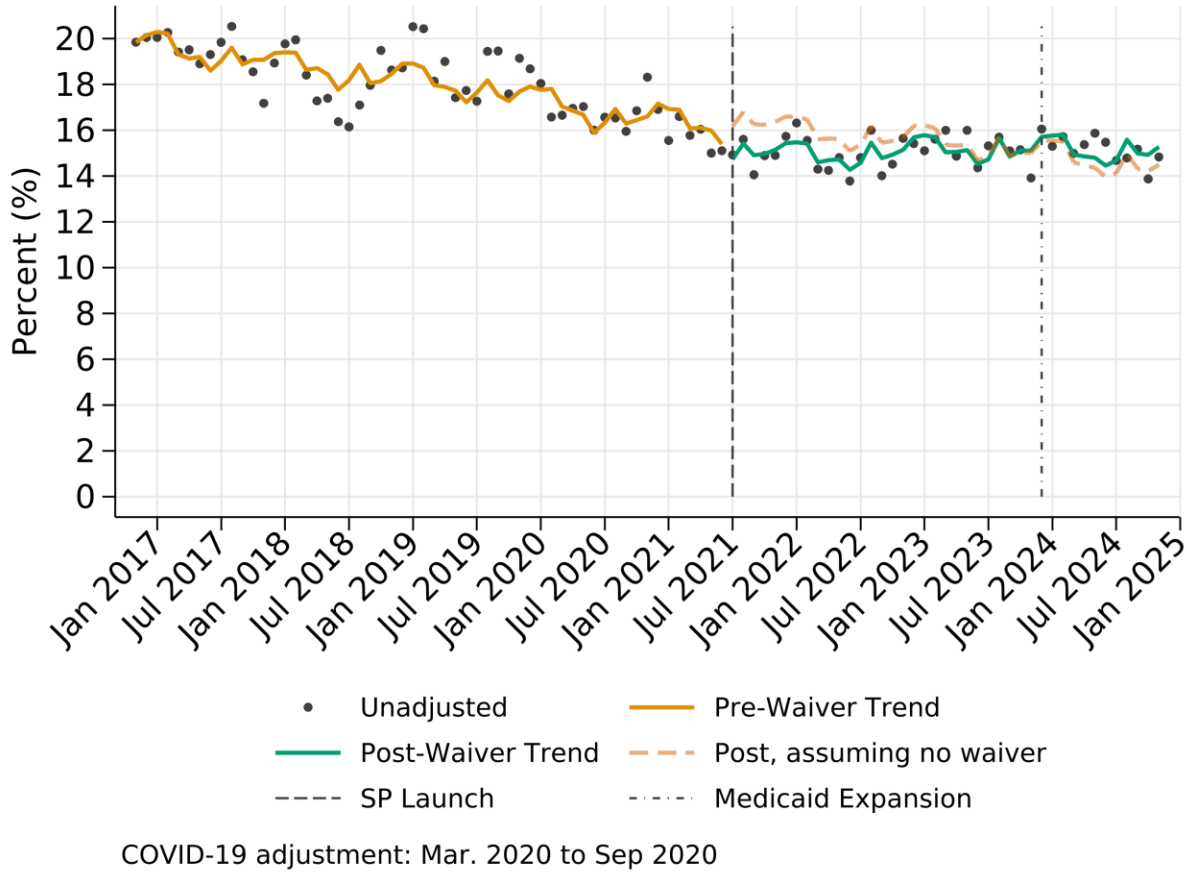
[24] https://mostpolicyinitiative.org/science-note/unintended-pregnancy-and-long-acting-reversible-contraceptives/

Figure 21: Trends in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.

Figure 22: Trends in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 90 days of delivery



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.

At SP launch, both metrics showed immediate disruptions. The model estimated an immediate decline of 0.28 percentage points for 3-day LARC (Table 13) and 1.44 percentage points for 90-day LARC (Table 14).

However, at post-implementation, for 3-day LARC, the trend slowed: monthly increases dropped from 0.043 to 0.020 percentage points per month, roughly half the pre-implementation rate. By November 2024, the predicted rate of 3.52% was significantly below the counterfactual projection of 4.75%, a gap of 1.23 percentage points. Rates continued to

increase in absolute terms, but not at the pace that would have been expected without the Standard Plan transition.

Table 13: Interrupted time series estimates of Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	3.02* (2.80, 3.24)	2.74* (2.56, 2.91)	-0.28* (-0.57, -0.0031)
Monthly Change	0.043* (0.032, 0.055)	0.020* (0.012, 0.028)	-0.024* (-0.038, -0.0095)
Predicted Average Outcome Nov 2024	4.75* (4.09, 5.41)	3.52* (3.33, 3.72)	-1.22* (-1.91, -0.54)
N			225,822

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.*

For 90-day LARC, the declining pattern of pre-implementation essentially halted: the monthly trend shifted from -0.058 to -0.0024, a statistically significant slope change of 0.056 percentage points per month. By November 2024, we find no difference between the predicted rate of 14.91% and the counterfactual value, indicating that SP implementation had no effect on the receipt of LARC by 90 days postpartum.

Table 14: Interrupted time series estimates of Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 90 days of delivery

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	16.45* (16.06, 16.83)	15.00* (14.63, 15.38)	-1.44* (-1.98, -0.90)
Monthly Change	-0.058* (-0.070, -0.046)	-0.0024 (-0.019, 0.014)	0.056* (0.035, 0.076)
Predicted Average Outcome Nov 2024	14.13* (13.31, 14.95)	14.91* (14.51, 15.30)	0.78 (-0.13, 1.69)
N			298,695

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.*

The immediate values observed for both LARC measures are consistent with the billing and contracting challenges that accompanied North Carolina's managed care transition. State Medicaid Bulletins from July through September 2021 documented elevated claim denials, payer routing errors, and contracting gaps relating to postpartum LARC as providers adjusted to five new Standard Plans. [7] Postpartum-specific billing, including complex inpatient LARC add-on coding, may have been particularly vulnerable to these disruptions.[25]

The divergence between the 3-day and 90-day measures may reflect the distinct operational demands of each pathway. Immediate postpartum LARC placement requires hospitals to maintain device inventory, ensure trained inserters are available, and navigate complex reimbursement processes, a workflow that may be more sensitive to billing uncertainty than clinic-based interval insertions.[26] The stabilization of the 90-day measure suggests that outpatient settings may have provided catch-up capacity for beneficiaries who did not receive

[25] https://medicaid.ncdhhs.gov/blog/2019/01/24/clarification-billing-long-acting-reversible-contraceptives

[26] https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2797546

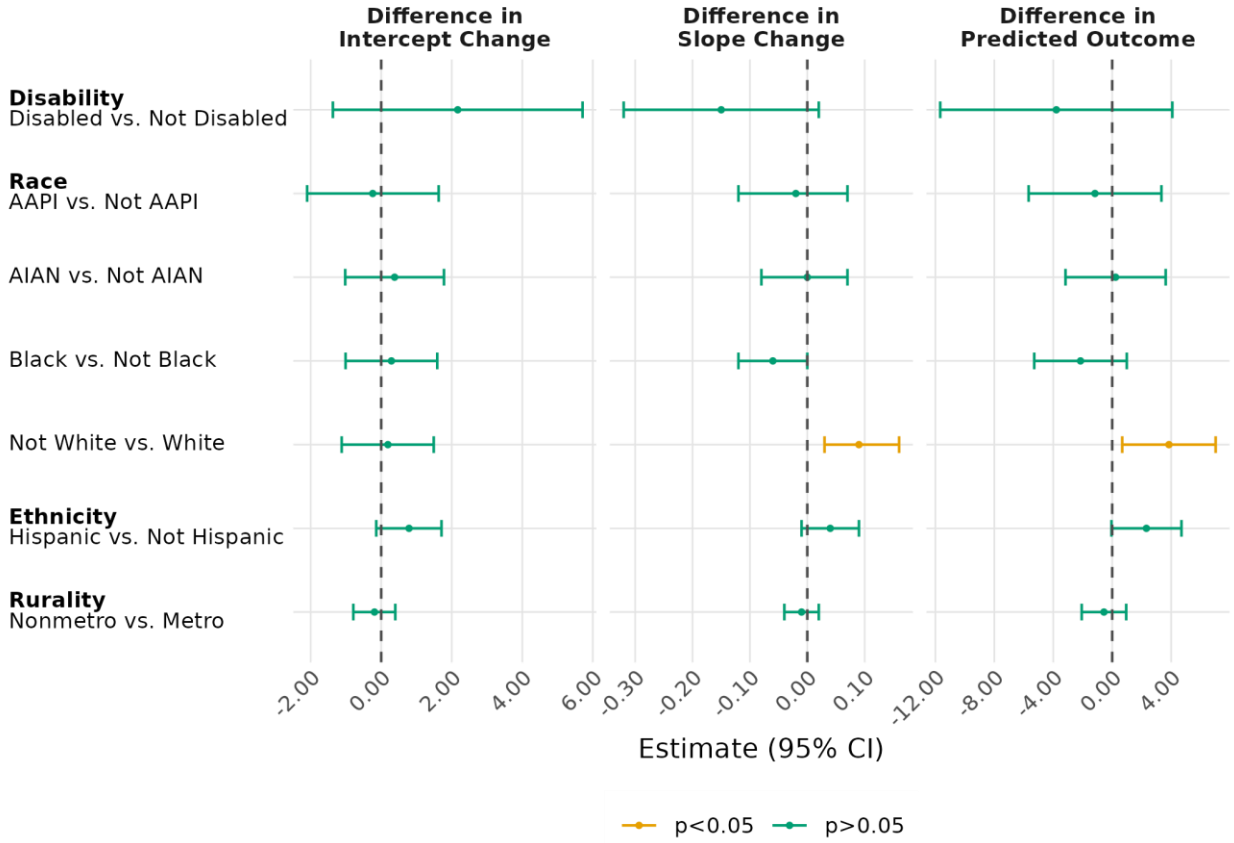
LARC during the delivery hospitalization.[27] While North Carolina's separate inpatient LARC reimbursement policy is supportive in design, operational challenges during the transition may have disproportionately affected inpatient workflows.[28]

The shift from inpatient to outpatient LARC placement, while potentially preserving broader access, may introduce delays in contraceptive initiation and relies on successful completion of a postpartum follow-up visit, underscoring the importance of the postpartum visit changes described above.

[27] https://pmc.ncbi.nlm.nih.gov/articles/PMC8042857/

[28] https://pmc.ncbi.nlm.nih.gov/articles/PMC12639324/

Figure 23: Comparison groups in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Among subgroups for the 3-day LARC measure, Black, Hispanic, and disabled beneficiaries showed significantly larger predicted SP effects compared to their respective reference groups (Figure 23). No significant subgroup differences were observed for the 90-day measure.

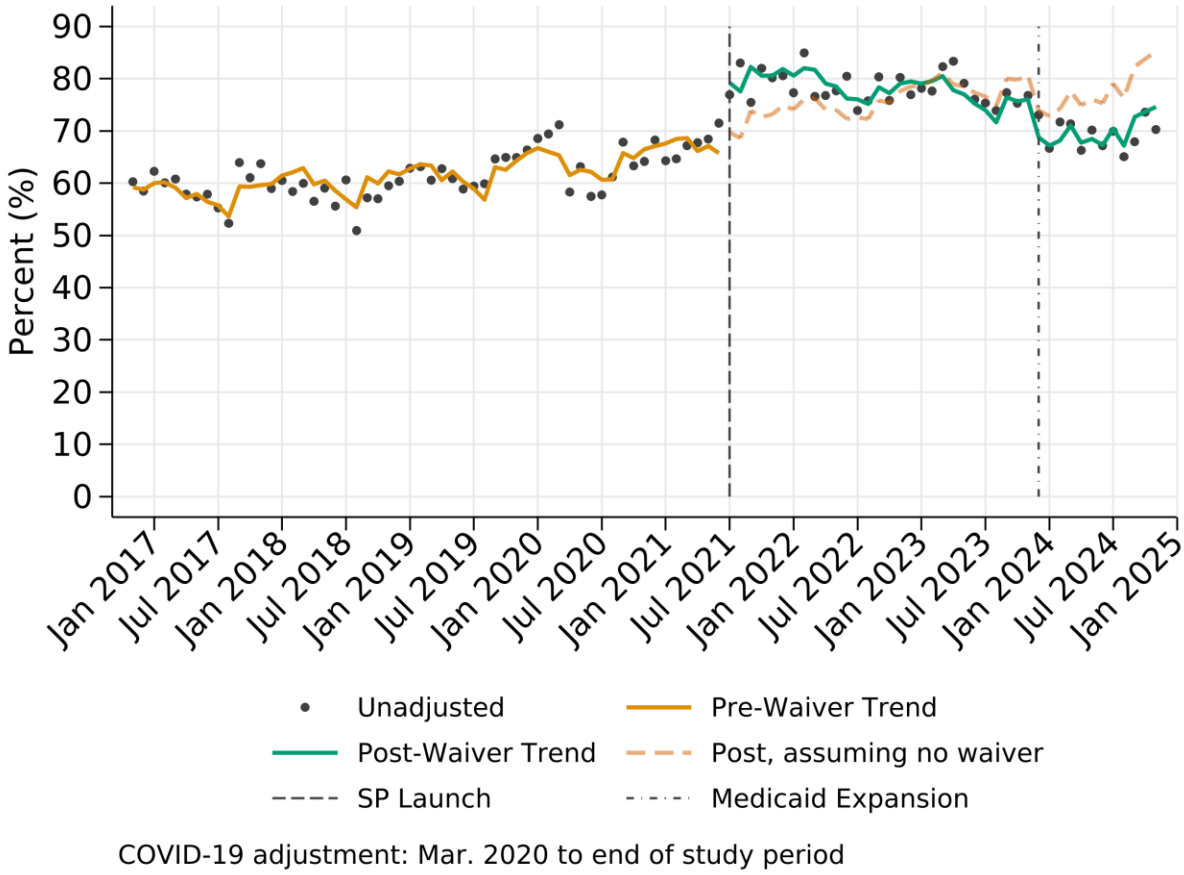
Chronic Care

Pharmacotherapy Management of COPD Exacerbation (PCE)

These measures capture the use of a bronchodilator and the use of corticosteroids, separately, for patients with Chronic Obstructive Pulmonary Disease. We observed very

similar trends in these two metrics. Immediately after SP implementation in July 2021, there was a large uptick in their predicted average use.

Figure 24: Trends in Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 40+) in the NC Medicaid population as determined in the metric specifications.

Immediately post SP implementation in July 2021, the predicted average rate of use of corticosteroids among those with COPD increased to 77.18%, which was 9.42 percentage points higher than the counterfactual prediction at baseline. Prior to SP implementation, we observed an increasing monthly trend. After implementation, the monthly trend declined, representing a 0.50 percentage point decrease relative to the baseline trend. There was a notable decrease in the trend at Medicaid expansion in December 2023. By the end of the

study period, we found no evidence of a change in the rate of corticosteroid use among those with COPD compared to what we would have expected in the absence of SPs.

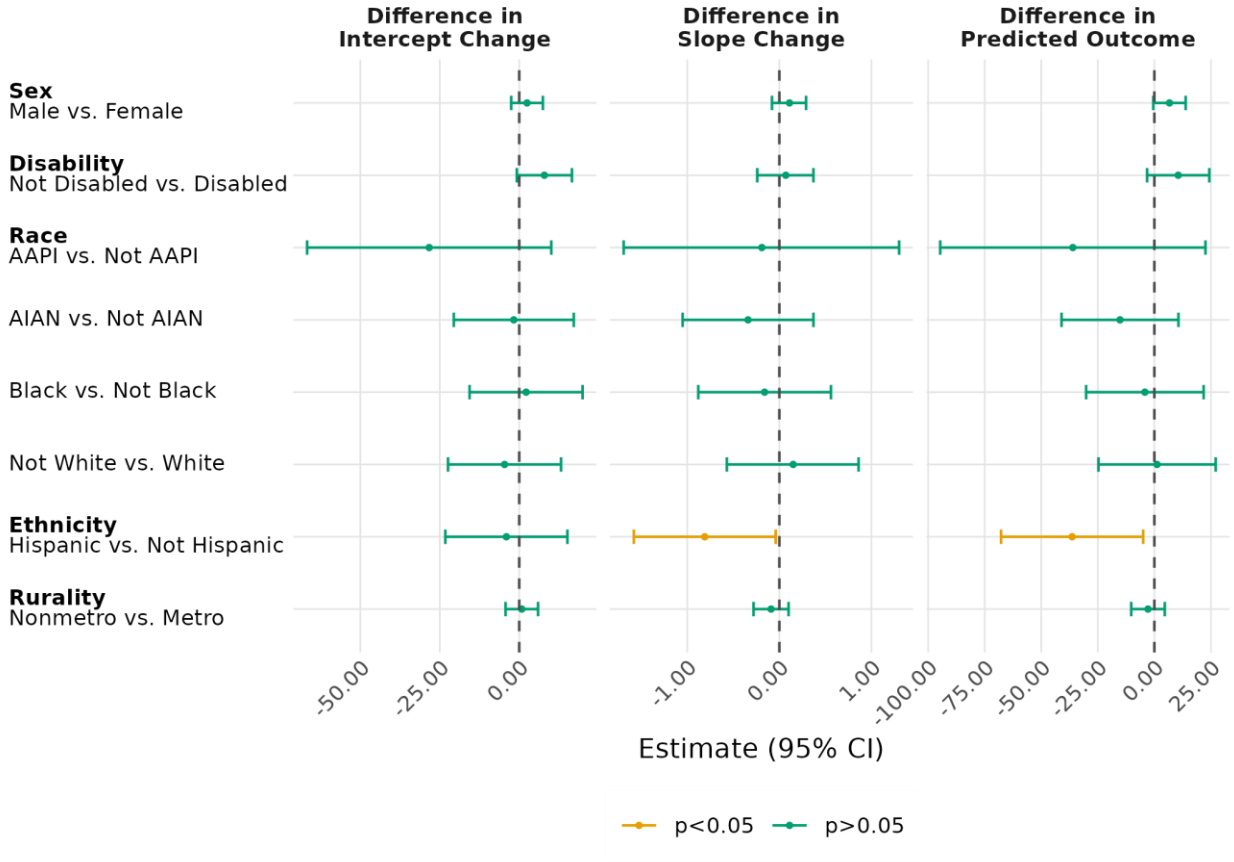
Table 15: Interrupted time series estimates of Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	67.76* (64.79, 70.73)	77.18* (75.19, 79.17)	9.42* (5.89, 12.95)
Monthly Change	0.18* (0.12, 0.24)	-0.32* (-0.64, -0.0018)	-0.50* (-0.81, -0.19)
Predicted Average Outcome Nov 2024	81.11* (66.49, 95.72)	70.49* (68.57, 72.42)	-10.61 (-25.36, 4.13)
N			34,176

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 40+) in the NC Medicaid population as determined in the metric specifications.*

We observed differential effects for both corticosteroid and bronchodilator use, based on Ethnicity. Compared to beneficiaries who are not Hispanic, those who are Hispanic experienced a lower predicted effect by the end of the evaluation period.

Figure 25: Comparison groups in Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid

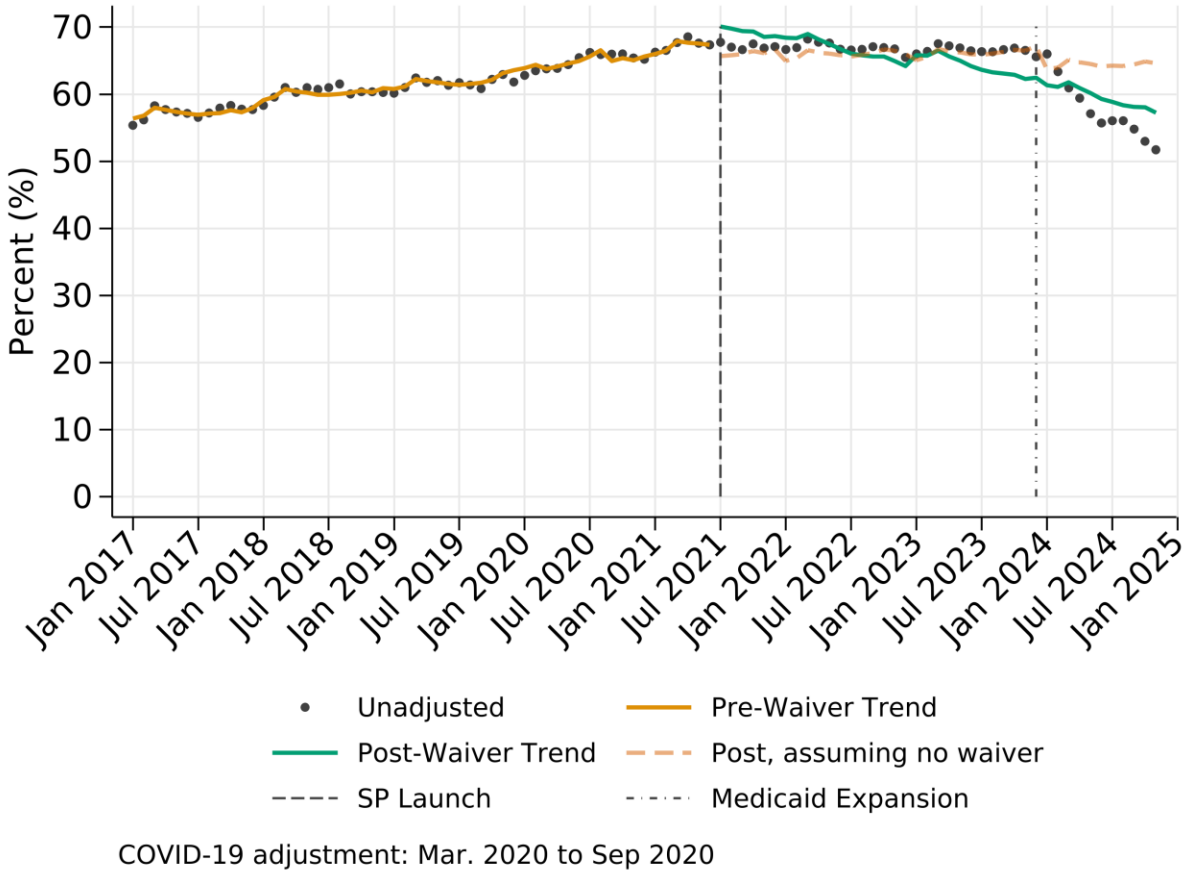


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Statin Therapies for Patients with Cardiovascular Disease (SPC) or Diabetes (SPD)

Statin Therapies for Patients with Cardiovascular Disease (SPC) and Statin Therapy for Patients with Diabetes (SPD) are additional crucial metrics for evaluating quality of care among those with chronic conditions. These metrics measure adherence to evidence-based guidelines for the treatment of adult patients with cardiovascular disease and diabetes. We observed similar trends across these metrics. Pre-SP implementation, there was an increasing trend in statin use. Immediately at SP implementation in July 2021, the use spiked. In the years following SP implementation, however, we observed a steady decline in the predicted probability of statin use, most of which took place during the last year of the demonstration period through November 2024.

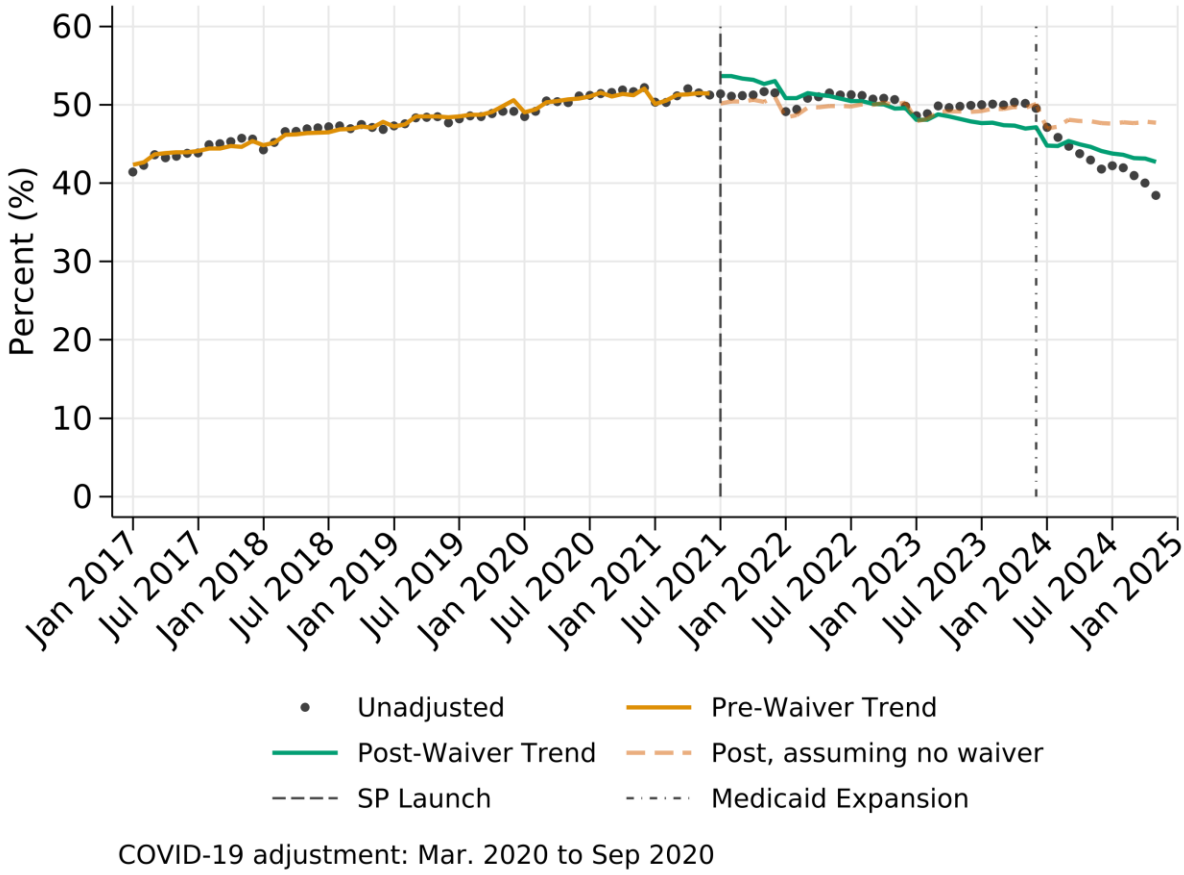
Figure 26: Trends in Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged M 21-75; F 40-75) in the NC Medicaid population as determined in the metric specifications.

The Medicaid Expansion population has been excluded.

Figure 27: Trends in Statin Therapy: Statin Therapy for Patients with Diabetes (SPD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged M 21-75; F 40-75) in the NC Medicaid population as determined in the metric specifications.
The Medicaid Expansion population has been excluded.

Following SP implementation in July 2021, the statin therapies were being used to treat patients with diabetes at a predicted average rate of 53.44%, which was 2.07 percentage points higher than the counterfactual prediction at baseline. Contrary to the increasing monthly trend observed prior to SP, the monthly trend declined after SP, representing a 0.32 percentage point decrease relative to the baseline trend. By the end of the study period, the predicted probability of the outcome decreased by 10.76 percentage points, compared to the baseline counterfactual.

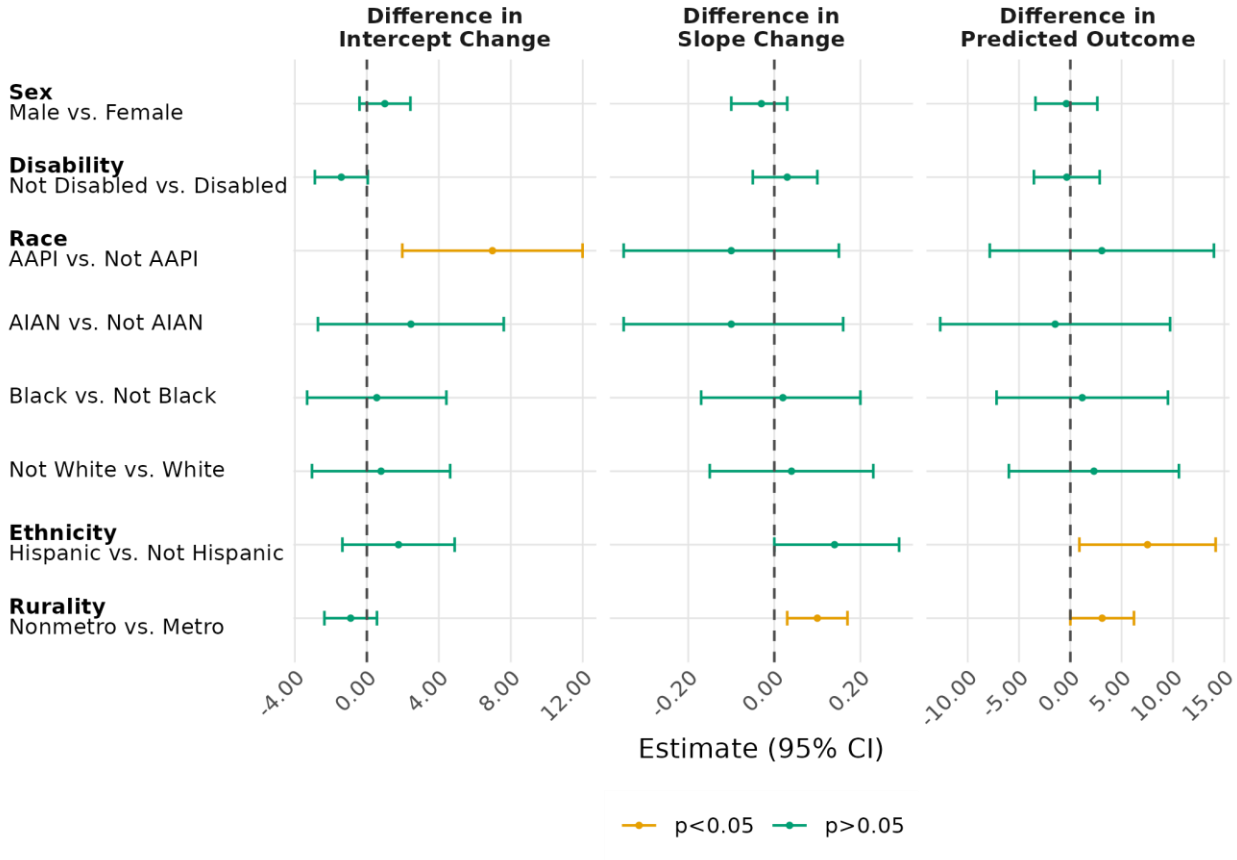
Table 16: Interrupted time series estimates of Statin Therapy: Statin Therapy for Patients with Diabetes (SPD)

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	51.38* (50.95, 51.81)	53.45* (52.99, 53.91)	2.07* (1.55, 2.58)
Monthly Change	0.26* (0.24, 0.28)	-0.063* (-0.10, -0.026)	-0.32* (-0.36, -0.29)
Predicted Average Outcome Nov 2024	61.67* (60.64, 62.71)	50.91* (49.69, 52.14)	-10.76* (-12.17, -9.35)
N			1,452,893

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged M 21-75; F 40-75) in the NC Medicaid population as determined in the metric specifications.*
The Medicaid Expansion population has been excluded.

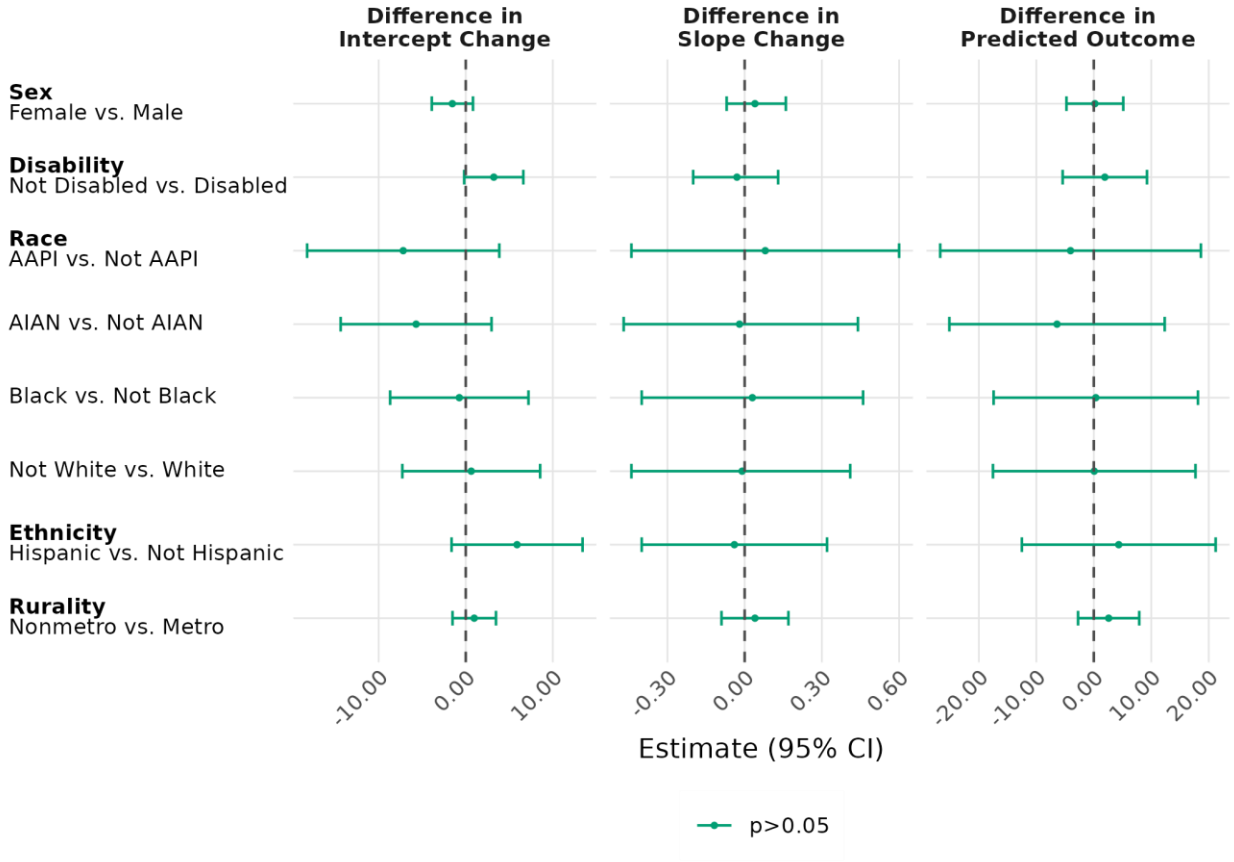
Subgroup analysis indicated differential effects in the use of statin therapies for patients with diabetes. Hispanic patients and those living in non-metro areas experienced a higher predicted effect of the outcome, relative to non-Hispanic beneficiaries and those living in rural communities.

Figure 28: Comparison groups in Statin Therapy: Statin Therapy for Patients with Diabetes (SPD)



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

Figure 29: Comparison groups in Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC)



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

Summary

Qualitative Findings

This qualitative evaluation highlights perspectives from multiple stakeholder groups at two key time points: (1) the period leading up to the transition to Medicaid managed care (2020–2021) and (2) experiences during the first five years of implementation (July 2021–August 2025). Across provider, PHP, and beneficiary interviews, a consistent picture emerges: primary care is generally accessible, but the system frequently falters when patients need specialty services, medications, durable medical equipment, and cross-provider coordination. While participants acknowledged that some processes have become smoother over time (e.g., changing a beneficiary's PCP), persistent issues (especially PCP assignment and attribution concerns, variable plan policies), continue to create delays, administrative burden, and frustration for patients and care teams. The detailed results are reported below.

Some background on the policy as well as the processes adopted by Medicaid is helpful for orienting toward these results, particularly around processes for assignment and attribution. On July 1, 2021, nearly 1.6 million beneficiaries were eligible to transition to SPs during the open enrollment period between March 15, 2021, and May 14, 2021. Beneficiaries had the option to choose a health plan and a primary care provider (PCP). If they did not choose, [29] the State auto-assigned them a health plan using a six-step algorithm, also known as auto-enrollment. Health plans received member information from NCDHHS and then assigned a PCP based on a step-wise algorithm, which includes a) prior PCP assignment; b) beneficiary claims history; c) plan assignments for other family members ; d) family's claims history; e) beneficiary's geographic location; f) special medical needs; and g)language preference.[30]Member lists were shared with providers by health plans, typically monthly through the NCTracks portal, timed to coincide with payment cycles, intended to ensure providers have an up-to-date, official roster of assigned patients for care management and reimbursement purposes.[31] PCPs were tasked with confirming that their limits were up to date in NCTracks with each contracted plan (open/closed, age, gender, capacity). They were also required to conduct outreach to establish contact with members. If outreach was unsuccessful, the

[29] *Standard Plan Auto-Enrollment Fact Sheet. (2022, January 18). Retrieved from North Carolina Department of Health and Human Services, Division of Health Benefits: https://medicaid.ncdhhs.gov/standard-plan-auto-enrollment-fact-sheet/open*

[30] North Carolina Department of Health and Human Services. (2021). *AMH Medicaid Direct/Managed Care PCP enrollee report: How to read and use your enrollee report*. Northwest Area Health Education Center. https://go.northwestahec.wakehealth.edu/practicesupport/amh-nc-medicaid-direct

[31] North Carolina Department of Health and Human Services Medicaid. (n.d.). *Member enrollment and PCP/AMH auto-assignment process* [Presentation]. https://medicaid.ncdhhs.gov/member-enrollment-part-2-pcpamh-auto-assignment/open

PCPs were to contact the health plan to determine if the member had selected another PCP and needed to be re-assigned. If the member had not established a care relationship with another PCP, the initially assigned PCP would remain accountable. Members assigned to a practice for most of the year were typically added to a primary care provider's attribution list, although plans have some differences in the specific methodology. Attribution refers to the methodological assignment of a Medicaid enrollee to a provider or practice for the purposes of cost measurement, performance evaluation, and incentive payments. The attribution lists were provided by the PHPs to the practices and were typically generated annually.[32,33] This process was intended to ensure that practices were assessed based on members for whom they had the greatest opportunity to influence care and outcomes.

Provider Perceptions

Provider perception before the transition (2020-2021)

Qualitative findings from before the transition to Medicaid managed care (2020-2021) showed that participants from healthcare organizations understood the goals of the transition and could foresee how it might improve the quality of care in the future. However, several participants raised concerns about patient access to care and continuity of care during the transition. Many participants expressed concerns that patient care may be delayed due to unawareness of the transition among their patients and issues with auto-enrollment and PCP assignment. Some participating healthcare organizations and PHPs expressed concerns that specialists may contract with fewer PHPs or not contract at all due to administrative requirements, which could lead to access issues for participants. A health system leader described the impact of specialists not contracting on patient access as follows:

So, even if they get auto-enrolled to a plan that we're in—let's just say—one of their specialists did not sign that contract, right?... Then what happens to that piece when they [patients] need specialty or subspecialty services and are now out of network? And we don't have complete visibility into which specialists are in which networks at this point, so we don't even have the ability from a primary care standpoint to start to figure out how to communicate to somebody that there isn't an orthopedic physician that's in the network in this area.

Participants from healthcare organizations shared how they proactively worked to alleviate these concerns about access to healthcare. First, they took additional steps to share DHHS

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[32] North Carolina Department of Health and Human Services. (2021). *AMH Medicaid Direct/Managed Care PCP enrollee report: How to read and use your enrollee report*. Northwest Area Health Education Center. https://go.northwestahec.wakehealth.edu/practicesupport/amh-nc-medicaid-direct

[33] North Carolina Medicaid. (2022). *NC InCK APM performance measure reporting templates, calculation instructions, and data flow*. https://www.ncinck.org/wp-content/uploads/2023/02/NC-InCK-APM-Reporting-Template-Guidance-v08.pdf

resources about the transition with their patients and educate them about different SPs. Second, several participants from healthcare organizations decided to contract with all SPs to maintain care continuity. Third, they started identifying in-network practices for referrals at distant locations to prevent care delays.

Perceptions during the first five years (July 2022–August 2025)

Provider interviews conducted from 2022 through 2025 indicate that managed care introduced new opportunities, such as more structured patient engagement and greater flexibility to address health-related social needs, while also generating operational challenges that affect both access and perceived quality. Over the years, themes included persistent PCP assignment and attribution problems, referral fragmentation, administrative burden (especially prior authorization), and uneven data timeliness. By 2025, some participants reported incremental improvements in select administrative processes and referrals within certain standard plans, but variability across plans remained substantial, and lingering issues continued to delay care and shift the burden to patients and clinic staff.

Access to Primary Care

In 2022 and 2023, many providers reported disruptive PCP assignment patterns, including operational challenges with getting assigned member lists and patients unexpectedly appearing on panels or long-standing patients being assigned elsewhere. Clinics reported challenges getting the assignment lists and spending significant time correcting assignments to preserve continuity and enable appropriate outreach. A health system leader described their issues with accessing monthly assigned member lists from a health plan as follows:

For [Health plan], I actually have to go through the portal and click on 118 different clinics to yield a report that has my tax ID numbers, and then put it together. And that's just a very tedious process. I should be able to go and click a report, or I should be able to email someone, or someone should be able to automatically send me a report of the main members, and all the information that we need once a month. It should not be a tedious process, but it really is. And I'm not confident in the numbers that I'm piecing together.

This quote illustrates that obtaining lists of assigned members is operationally difficult and could lead to inaccurate data. Participants reported an array of other issues with patient assignment, such as patients living two hours away, and adults appearing on pediatric practice panels. A provider at a small independent practice explained their PCP assignment issue as follows:

And of these kids assigned to us, some of them were aged out; they were no longer our patients. And it makes me wonder how one makes that mistake and assigns them to these Medicaid services when they're no longer under the age of 21 and, in some cases, not even in

our state. And that was a lot…But I mean, we have issues all the time… You know, we have one sibling at one practice and another at another practice. And it's left up to us to resolve it for the parent. Because, as I said, we're in a community where hands have to be held. And we are faced with holding hands instead of delivering patient care, um, the way that we always have. We're devoting manpower to things we shouldn't have to.

This quote illustrates issues with members who have aged out or moved out of state, as well as with siblings being assigned to different PCPs, resulting in additional administrative work for providers and potential consequences for access to care for the members. Providers also highlighted their outreach to newly assigned members, describing that sometimes it worked and sometimes it did not. A safety net provider described their outreach as follows:

It's been an increased workload. Our quality assurance and quality improvement specialists run those lists, and then we look to see who's been contacted and who hasn't. Do we have good working demographic information for them? If not, we refer back to the PHPs. So, there's a lot of conversation back and forth with the practice support specialists [at PHPs]—, do you guys have any updated information, or can you help us reach out to this patient that we've not been able to find?

Others described sending letters and calling assigned members to get them scheduled. Provider shared that misassigned members they have difficulty reaching out to often default to emergency departments: *"They wind up using the ER as their safety net, and we get dinged for gaps."* Other providers also shared concerns about the consequences of PCP assignment issues for access to services. A provider described that they turn back the patients if they are not listed as a PCP on their card: *"We apologize profusely because we're the ones who look stupid and hard-hearted. We're really sorry. We suggest you call the number on the back of your card."* Another participant described that patients bear the brunt of system inefficiencies. *"We tell them, 'Keep calling the plan [to change the PCP]'… sometimes months and months on end, it's the same stuff."*

One predominant reason impacting access is the variation in understanding and implementation of Medicaid policy about members being able to see a PCPs that are in-network with their plan, even if they were not listed on their cards. An administrator from a federally qualified health center described their positive experience as under:

I have not heard of us turning anybody away to not see them, um, because they'll pay us right now, whether we're on their card or not.

On the contrary, some providers reported receiving denials for seeing patients who were not assigned to them. An administrator of a health-system-affiliated practice described it as follows:

Yes. I think that a large majority of dissatisfaction is with PCP assignment, and they [members] don't understand how to change [PCP], how to get what they need. It's not explained to them clearly. Even when I've called [PHPs] personally, you know, they're like, "You can see them." I'm like, "No, we can't. I am sitting here looking at my denial roster. You are denying these patients because we were not their PCP. So, what you're telling me is not accurate."

These quotes illustrate that although the policy was designed to allow members to see any PCP in the network with their plan, even if the PCP was not listed on their card, in practice, there was inconsistency in how it was understood and implemented.

Participants also described concerns about member attribution for quantity measurement and incentives, including attribution lists they received from the PHPs, and difficulty engaging assigned members. The most common issues described were the way those lists were provided and their accuracy. An administrator from a federally qualified health center described their experience of getting their attribution lists from one health plan as follows:

NC Tracks says we have 21,000 patients assigned to us, but when we check the plans, it's much fewer. [Health plan] is still trying to give us paper copies of our attribution. They send a printed PDF of the list of attributed patients to each one of our individual practices, as though we're supposed to be able to perform any sort of reconciliation on which patients are attributed to us using [more than 20] different little PDF lists that we can't manipulate in any way. They're being obstructionist in this. And how ridiculous is that?

This account highlights the operational burden placed on providers when attribution lists are fragmented or not easily usable. Such limitations make it difficult for PCPs to verify the accuracy of attribution.

Providers also shared efforts to engage the members assigned to them, as those members would be on their attribution list if they were not seen elsewhere. Even when patients are formally assigned, meaningful engagement is not guaranteed. An administrator from a large independent practice described their challenges of engaging assigned members as follows:

I will say this population, in terms of meeting care guidelines, and trying to get traction, is a little bit more challenging. You got your low income; it is harder to meet our metrics because it's just a different mindset. It's a different population with challenges. We have to find better ways of working with them, especially when it comes to children. It is very different than our Medicare population. It's been very challenging.

This quote illustrates that the complexity and the lived realities of Medicaid members can make engagement difficult, potentially requiring different ways than traditional outreach and engagement strategies.

Providers further emphasized the financial implications of inaccurate attribution and limited patient engagement. When patients included in attribution lists are either not truly associated with the practice or cannot be reached, providers remain accountable for outcomes they cannot influence. A provider at a federally qualified center described their perspective on meeting quality metrics as follows:

We've been having to report control of hypertension, control of diabetes, uh, preventative measures, smoking cessation, and weight management. All of these different things to our grant funders in order to be funded by foundations year over year. That said, we're totally used to the pay-for-performance space. Um, but if we're being beholden to, or accountable for patients' wellness and patients' disease management that we cannot engage, or are not ours, it potentially impacts us financially, due to not being able to avail ourselves of that upside, um, bonus. Um, and then at some point down the line, it could be a risk to us, because there could be a penalty that's paid if you don't achieve certain measures.

Overall, these accounts show that when attribution lists are unreliable and providers are unable to identify or meaningfully engage their assigned patients, opportunities for preventive care, chronic disease management, and care coordination are missed.

In 2025, providers described a system that has modestly improved but remains misaligned with real-world care delivery. Compared to the early rollout, participants noted fewer extreme errors and some stabilization in assignment and attribution processes. As one provider reflected, "*I don't think it's [PCP assignment] as much as it was when they were first transitioning, but it still continues to be an issue*". There have also been incremental refinements, such as attempts to improve attribution logic, for example, excluding patients without recent claims ("*filters that will not attribute patients who have not had a claim in 18 months*"). Over time, both providers and plans have become more accustomed to navigating these systems, making some operational processes more manageable.

However, these incremental improvements are overshadowed by persistent structural challenges, particularly in correcting assignment and attribution errors. Providers emphasized that correction processes remain slow, patient-dependent, and administratively complex. As one provider noted, reassignment often requires patients to act, and *"it might take them a month or two, depending on which plan."* At the same time, auto-assignment continues to override practice capacity. Even when practices indicate that they are not accepting new patients, they may continue to receive assigned members. One administrator described this situation:

We go on NCTracks, saying, 'Not accepting new patients.' but no. We still have probably anywhere from three to five phone calls or in-person visits a week where patients show up or call saying, 'I've been assigned this doctor.

This creates challenges both for providers, who must redirect patients, and for patients, who may experience confusion and delays in accessing care. Other PCP assignment issues were highlighted. One pediatric practice described receiving "*700 to 900 patients dumped on us… whether or not they'd ever seen us*," while another reported monthly assignment of newborns to a payer with whom they have no contract.

I mean, that's a problem across all plans and the whole system. Yeah. I mean, here is a PCP assignment issue, okay? We do not have a contract with [PHP]. We have numerous patients on our panel with [PHP] every single month. I send that every month, both to [PHP] and to our CIN, and say, "I do not understand why we have these patients continuing to be assigned to us." Um, I would say for Medicaid newborns, like patients that are just born and the parents select Medicaid, and they don't select a plan, or they get automatically enrolled, I would say greater than half of those are added to a [PHP] with us as their primary care provider. Um, and we do not have a contract with them.

While our qualitative data cannot speak to how common this specific type of experience is, the experience of being assigned patients that are effectively ineligible for a practice was not unique to this practice alone. For example, at least one pediatric practice described having adult members assigned to their practice. This highlights discrepancies and challenges in PCP assignment systems that practices are not experiencing as intended by the policy.

Attribution challenges remain equally significant and, in many cases, more consequential to value-based contracting. Providers reported that attribution lists were still highly inaccurate and difficult to reconcile, with large portions of attributed panels not reflecting actual care relationships. As one participant explained,

They often are off by 30 percent… in some cases, 50 percent… they're not our patients. It's known by the PHP that the patient is seeing another provider, but nothing's being done about it. It's still being attributed back to us.

As one health system leader explained, "*If attribution isn't correct, then really the data's not correct because it's not a true representation of the patients we're the medical home for.*"

Efforts to correct these lists are hindered by inconsistent processes across plans and data discrepancies across systems. These limitations not only undermine confidence in the data but also affect care delivery. Overall, these persistent inaccuracies contribute to delays in patients establishing care, fragmented care-seeking patterns, and missed opportunities for

preventive and chronic disease management, particularly for those already facing barriers to access.

Furthermore, clinically integrated networks (CINs) also play a critical role. One respondent shared, "[*Our CIN has] been a big help in creating uniformity; now we have one form to do both plan and PCP changes [for our patients].*" Still, variability persists, with some plans updating attribution only once a year despite the flexibility in how frequently attribution lists can be requested. This finding highlights another area of difference between the intended policy design and its translation and implementation in practice. Respondents emphasized the need for consistent, statewide standards and plan accountability for panel accuracy rates to reduce variability and improve patient access. While some innovations show promise, participants described the consistent application of best practices and statewide standardization as essential to reducing variability and improving patient access.

Access to Specialists

Similar concerns were shared about referrals to specialty care across all years, as referrals became even more difficult after the transition to managed care. Commonly reported specialists that were hard to find included mental health providers, cardiologists, neurologists, otolaryngologists, gastroenterologists, dermatologists, ophthalmologists, and dentists.

An administrator for an FQHC summed it up as:

It is almost impossible to get a specialist to see a Medicaid patient. One, a lot of them are not contracted with all the plans or have stopped accepting Medicaid patients altogether. Medicaid was never a great payer, but it was an easy payer. You didn't have to have approval to send somebody to a specialist. And now, all of those things are added to it.

This respondent describes directly how the transition worsened challenges with getting patients into specialty care.

In 2025, referral processes remain fragmented, creating delays for patients and inefficiencies for staff. One manager explained: "*We keep a running spreadsheet of all the provider offices we refer to and their primary modes of communication*." Furthermore, coverage hurdles can be devastating for high-need patients: "*Her wheelchair broke. It took six months or more just going around in circles.*" Streamlining referral processes and improving benefit navigation were described as critical to ensuring timely, equitable access to specialty and supportive services.

Prior authorizations and access challenges

The prior authorization process was a major hurdle to accessing healthcare services in 2022 and 2023. Participants described how each SP handled prior authorization for the same medications or services differently, causing delays in access to care. They described the services and medications that Medicaid previously approved or did not require prior authorization as either not approved or requiring prior authorization under the SPs, creating frustrations for providers and patients. A medical director at a health-system-affiliated practice described their frustration as:

It seems that every EpiPen now requires prior authorization, which is just an insane waste of time. I mean, there isn't a workaround. It's a life-saving and emergent treatment. And why am I delaying? If I think this kid needs an EpiPen, I want them to have it in their hands today because they just experienced a peanut allergy and reaction. I want them to have it. Why am I then having to jump through these hoops to go through this process? That's the most frustrating one.

This concern improved slightly in 2023 and 2025 for certain health plans, but prior authorization remained an issue for some SPs. An owner and a provider of a pediatric practice described this frustration as:

But it has created a lot more administrative burden. For example, prior authorizations have just been a nightmare. One of our good examples is the babies who need their RSV vaccine, their SYNAGIS vaccine. Each PHP has a completely different process for how that preapproval happens. For some of them, it was pretty straightforward and seamless, while for others, it was a nightmare.

This quote highlights how administrative complexity and inconsistent prior authorization processes across health plans create major barriers to accessing needed care, even for time-sensitive and clinically essential services.

Timely, Actionable Data for Quality of Care

In 2025, participants consistently highlighted the gap between when data arrive and when clinics need it to act. As one system leader put it, "*To do quality, you need real time… but when we get our data, it's at the reporting period, three months after year-end.*" These lags make it difficult to close time gaps, particularly measures that require coordinated outreach across multiple services (e.g., pediatric well visits, adult screenings, diabetes control). Compounding the issue, several clinics reported payer ingestion failures for Current

Procedural Terminology II[34]/supplemental files: "*Our internal dashboards showed compliance, they weren't ingesting CPT II data*."

Where payers and providers invested in joint IT troubleshooting and built shared dashboards, performance improved, especially when monthly lists included attribution-confidence indicators and contactable-member flags. But interviewees stressed that sustained gains require consistent ingestion pathways, transparency in data quality control, and near-real-time exchange so that care teams can act before measurement windows close.

Beneficiary Perceptions (2023 to 2025)

Across 2023–2025, findings from beneficiary interviews suggest mixed experiences when accessing primary and specialty care. Primary care, when continuous, respectful, and easy to schedule, served as the anchor of beneficiaries' experiences. PCPs not only provided clinical care but also navigated complex networks, mitigated stigma, and advocated for timely specialty access. Yet specialty care remained the pressure point: long waits, network limitations, directory inaccuracies, and insurance denials created a pattern of deferred or interrupted care, especially acute in behavioral health, neurology, dental, and OB/GYN. Medication access problems shifted from administrative delays (2023) to financial barriers due to economic challenges of members (2024–2025), underscoring the fragility of adherence under economic strain. Quality perceptions closely tracked continuity, thoroughness, and dignity; when these were present, beneficiaries reported confidence and engagement; when absent, they withdrew, delayed care, or braced for unequal treatment.

Access to primary care

Across years, primary care was widely seen as the anchor of beneficiaries' care experiences. Many described their PCPs as the clinicians who knew them best, listened to them, and helped compensate for system fragmentation. As one beneficiary summarized, "*They've always definitely helped. If it was urgent, they'd put me in.*" PCPs were mostly accessible, and scheduling was relatively straightforward compared to specialists. Providers who took the time to understand personal histories or who proactively reached out, as a beneficiary described PCP contacting her about monitoring a benign tumor, were viewed as accessible and attentive. For some beneficiaries whose PCP helped them finally bring chronic issues under control, primary care became a central, reliable touchpoint of support. Still, challenges persisted over the years: administrative errors in PCP assignments, rural stigma, provider turnover, and logistical obstacles such as a lack of after-hours care.

[34] Category II codes. (2025, September 11). American Medical Association. https://www.ama-assn.org/practice-management/cpt/category-ii-codes

Across the years of beneficiary data, most beneficiaries could keep their same PCP from before the transition, but a few reported issues with PCP assignments that required multiple phone calls to resolve. Beneficiaries differed significantly in how they obtained a primary care provider (PCP). Some were able to exercise choice and maintain long-standing relationships with trusted clinicians. For these individuals, selecting a PCP contributed to continuity, comfort, and confidence in care. One beneficiary described intentionally choosing a provider based on trust and prior experience: *"I told them exactly who I wanted to go to, I trusted 100 percent in them."* However, others were auto-assigned a PCP without consultation or were assigned to providers who were nonexistent, inappropriate, or not accepting new Medicaid patients. These administrative inaccuracies created confusion, delays, and emotional frustration. As one beneficiary recalled, *"They sent me my card, a primary care physician, it was an assisted living facility that answered. 'No, that doctor doesn't exist here.'"* Such experiences highlight gaps in Medicaid provider directories and enrollment workflows that place additional burdens on patients.

Beneficiaries with long-term relationships with their primary care providers often reported greater accessibility and familiarity. For example, a beneficiary who remained with her primary care provider for nearly two decades experienced similarly stable and reliable access, reporting routine six-month visits and finding it easy to be guided through transitions or insurance changes by her PCP's office. However, not all beneficiaries experienced this level of continuity. Provider turnover emerged as a significant barrier that impacted access to consistent primary care. A beneficiary described frustration with constantly changing clinicians: "*Every time I go back there, somebody's different. I don't like that."* This inconsistency undermined patient trust and impeded their ability to form stable connections with providers, making routine access feel less dependable.

Access to primary care varied substantially among beneficiaries, driven by experiences shaped by geography and stigma. Beneficiaries from rural areas reported subtle stigma associated with Medicaid coverage. This took the form of hushed tones, hesitation, or cues that implied Medicaid recipients were less desirable or of lower status. One beneficiary shared: "*I am in more of a rural area, so Medicaid's kind of frowned upon. They'll just whisper it across the table and try not to embarrass you."* Beneficiaries described that such interactions shaped how welcome, respected, and valued they feel within medical environments. They may not prevent access outright, but they contribute to emotional labor, reluctance to seek care, and a sense of differential treatment tied to insurance type. This theme underscores how geographic and cultural factors compound structural challenges.

Moreover, some beneficiaries reported reduced engagement with primary care over time due to life transitions or shifting priorities. A beneficiary, for example, had not visited her primary

care provider in "*a year or two,"* explaining that pregnancy and subsequent postpartum care had shifted her focus to midwifery services. While her long-term connection to the clinic remained, her decreased engagement highlights how competing demands can disrupt ongoing primary care utilization even in the absence of structural barriers. A few beneficiaries described difficulty accessing their PCP after the transition due to the co-pay and the lack of after-hours services, making it hard for them to take time off work.

Others encountered difficulties navigating coverage or administrative processes, which, in turn, hindered access to primary care. A beneficiary noted uncertainty about Medicaid renewal due to an unresponsive caseworker, which created anxiety about whether they could continue seeing their providers. Although these issues did not always prevent individuals from accessing primary care outright, they represent hidden burdens that can complicate patients' ability to consistently seek or schedule care.

Overall, beneficiaries' experiences show that while primary care is often the most accessible and stable entry point into the healthcare system, gaps remain. These include provider turnover, administrative communication failures, and shifts in life circumstances that pull patients away from routine care. Yet, when primary care is consistent, relational, and easy to schedule, it becomes a trusted and highly valued resource, one that patients rely on for both preventive and ongoing health needs.

Access to Specialists

Across all three years, beneficiaries consistently described specialty care as difficult, delayed, and unpredictable. For many beneficiaries, PCPs served as navigators through the specialty care landscape, verifying Medicaid acceptance, ensuring referrals went to appropriate providers, and helping initiate appointments, as one beneficiary described: "*The doctor referred me to somebody who accepted that insurance.*" This facilitative role was particularly important because beneficiaries describe Medicaid networks as being difficult to navigate independently, especially when directories are outdated or incomplete. Beneficiaries emphasized that without a proactive PCP, locating a Medicaid-accepting specialist would have been far more time-consuming and stressful. But limited Medicaid acceptance, long wait times, and inaccurate directories forced some beneficiaries into exhausting search processes,

Similar to the findings from providers, a common barrier reported by beneficiaries across years involved the limited number of specialists who accept Medicaid, often resulting in extensive searching or outright denial of care. Many beneficiaries reported having to call numerous offices because directories, whether online, in print, or within mobile apps, were inaccurate or misleading. A participant described, "*You try to look for a doctor's office. It's going to give you one that don't accept it. I had to call at least like 10, 20 times."* Because

Medicaid's provider directories are often static and quickly outdated, patients bear the brunt of verifying which clinicians actually participate in their plans. Another beneficiary described the complexity of finding specialty behavioral health providers: "*It was kind of hard to find doctors that would take Medicaid. I just asked around.*" Similarly, another beneficiary attempted to see a cancer specialist, which highlighted another critical barrier: "*They found out I was on Medicaid. They don't accept the plan I have.*" The rejection left her without access to recommended follow-up, despite her PCP monitoring a benign tumor. This illustrates how specialty access gaps can interrupt continuity of care even when primary care is established.

Long waits were a near-universal theme across years. Beneficiaries described months-long delays across specialties, especially neurology, dermatology, behavioral health, dental, and OB/GYN care. A beneficiary described, "*I've been waiting on a neurologist for four months now.*" Another described: "*There was a four-to-six-month wait list*." These delays were particularly concerning for beneficiaries managing depression, anxiety, or chronic mental health needs. These delays resulted not only from limited provider participation but also from appointment backlogs and high demand in certain regions. The issue was even more pronounced in dental care, where many beneficiaries described being "*squeezed in,*" treated as lower priority, or placed on extended standby lists.

These narratives show that wait times are not only long but also stratified by insurance status. Beneficiaries frequently encountered specialists who did not accept Medicaid or only accepted certain Medicaid plans. This mismatch forced patients to switch providers, travel to distant cities, or restart referral processes. A beneficiary described their experience as: "*The neurologist wouldn't take the insurance. So, I had to switch down here to Asheville*." This quote highlights how limited Medicaid specialist participation forces beneficiaries to travel long distances or switch providers entirely, impacting care continuity.

Geographic barriers compounded access issues for many beneficiaries. A beneficiary emphasized the burden of distance when needing to see specialists: "*If I had to go, I would've had to travel to Chapel Hill, that's over an hour away.*" While she was eventually able to use a health system's extensive specialty network, she recognized that her proximity to multiple major health systems was not the norm. Similarly, another beneficiary sought urology services for chronic kidney issues and found that access and responsiveness varied significantly by location. She described excellent care at one location: "*If I'm in pain, he can call me something in. If it's important, come in immediately.*" In contrast, services closer to home were less responsive, illustrating how geographic disparities affect the quality and availability of specialty care.

Others experienced practical burdens even within established specialty relationships. When their therapist/psychiatrist relocated, it created access friction despite continuity: "*It's worth it having in-person therapy, but the traffic sucks.*" This underscores how seemingly small logistical shifts can affect regular attendance at specialty appointments.

Insurance authorization barriers also limited access to certain specialty interventions. A beneficiary shared a distressing example in orthopedics and pain management: "*Medicaid ain't paying for the gel injections, now I'm scared. I might go back [to narcotic pain medicine].*" In this case, lack of coverage for a clinician-recommended, non-opioid injection forced the patient into a high-risk situation where relapsing into substance use felt like the only path to pain relief. The absence of alternative-covered options left the beneficiaries feeling abandoned by the system.

In contrast, when specialty care was accessible, particularly in integrated systems, beneficiaries described strong coordination, continuity, and satisfaction. A beneficiary described her multi-specialty relationship at a health system with cardiology, neurology, and nutrition services as stable and comprehensive: "*They have all the specialists and being a teaching hospital, that helps*." Her long-term cardiologist, neurologist, and new nutritionist formed what she called a "*network of care*," offering seamless referrals and shared medical records through MyChart. Across beneficiaries, continuity with specialist providers was highly valued and strongly tied to perceived quality. Losing valued specialists due to retirement or insurance changes caused significant distress. A beneficiary with multiple co-morbidities explained their concern of the hospital ending its contract with their plan as:

I was able to stay with my [hospital] doctors because when I was sick, they were the first cardiologists I could see right away. And from that day, I've got this, like, network of care with them. And to switch, like, my entire healthcare team to another one, I don't know how I'm going to do that because [concerned tone], I mean, these are doctors that I've had in my life since 2006 or 2008. That's a long time. I mean, which I was hoping' it would work out because [hospital] is one of those institutions—you know, I'm thinking, "Okay, well, maybe even if they don't work out with [health plan], maybe they'll still carry who I choose. I would just have to worry about flipping over to a new insurance company, not just leaving altogether.

Overall, beneficiaries' experiences reveal a specialty care landscape marked by significant gaps, even when primary care access is strong. Long waits, insurance denials, distance, provider scarcity, and coordination failures act as structural barriers that disproportionately affect those with complex medical or behavioral health needs. Yet when systems are integrated and responsive, specialty care can serve as a powerful stabilizing force, offering comprehensive, timely, and coordinated treatment that profoundly improves patients' health and well-being.

Access to medications

In 2023, some beneficiaries reported barriers to receiving their medications on time. They described the ease of obtaining prior authorization before the transition and how it had become difficult, leading to long waits for medications and out-of-pocket expenses. A beneficiary with Type I diabetes caring for a child with asthma described issues with accessing medication as:

So, there may be three or four days you go without medication because you're still waiting for a representative to return your phone call, if you had to leave a message if they were busy. Or the representative at the time wasn't sure what was in your plan, so they needed to look and give you a callback.

In 2024 and 2025, beneficiary data, prior authorization of prescription medications, was not a major finding. However, cost-related barriers to getting medication were pervasive and deeply intertwined with access issues. Beneficiaries repeatedly described having to choose between health and daily necessities. A beneficiary described their issue as: "*I have to choose between gas and food. I couldn't go to the pharmacy to get medicine because I didn't have the money*." This quote reveals the razor-thin margins many Medicaid beneficiaries operate within; even minimal copays or costs can impede care.

Perceived Quality of Care

Over the years, beneficiaries described similar experiences regarding the quality of primary and specialty care, reflecting how provider communication, thoroughness, respect, and coordination shaped their confidence in the care they received. Strong, continuous relationships with clinicians, particularly in primary care, emerged as a cornerstone of perceived quality, while fragmentation, rushed interactions, or lack of follow-up eroded trust. These patterns also extended into specialty care, where the stakes were often elevated due to chronic or complex conditions.

Beneficiaries appreciated providers who listened attentively, communicated clearly, and fostered a sense of partnership. Many beneficiaries described primary care as where they felt most known, heard, and supported. Those who had long-term relationships with their primary care providers described high-quality, relationally grounded care that addressed not only physical issues but also emotional and contextual needs. A beneficiary offered an example of this type of care, emphasizing both responsiveness and attentiveness: "*She's great. I feel like all my needs are met whenever I go. They're very well informed about my family and me as well.*" Her narrative highlights how clinicians who take time to understand patients' lives beyond symptoms cultivate trust and enhance perceived quality. Several beneficiaries, in particular, valued providers who took an extra step to inquire about mental health or personal

stressors. A beneficiary described how her primary doctor recognized deeper issues beyond her physical symptoms: "*He started questioning, trying to shift it to, 'What exactly are you feeling in other aspects of your life?' If he didn't try to have that conversation, I probably would have just kept going down without even knowing it.*"

Thoroughness also emerged as a major indicator of quality. A beneficiary described the impact of having a PCP who reviewed past labs and identified a missed diabetes diagnosis: "*She's very thorough, looked back at all my bloodwork and said, 'You had diabetes for six months.'*" Such careful attention reassured patients that their providers were truly invested in their health. While specialty care varied widely by system, location, and insurance coverage, many beneficiaries described specialty providers as highly skilled, thorough, and life-changing, particularly when they were embedded within well-coordinated health systems.

However, quality concerns also surfaced. Some beneficiaries experienced rushed visits or a mechanical, impersonal approach. A beneficiary described a previous PCP as someone who simply moved through tasks without care: "*She just does her job and is through with no connection.*" Another beneficiary found that despite repeated screenings for depression at primary care visits, no meaningful follow-up was ever offered: "*I fill out a piece of paper every time they don't do nothing.*" These encounters reveal how missed follow-through can make primary care feel procedural rather than relational. Some beneficiaries also described situations where they felt devalued or dismissed: "*They treated me like dirt at [Name] Hospital.*" These negative experiences led to mistrust and reluctance to seek future care.

Furthermore, beneficiaries shared perceptions that discrimination and stigma were affecting the quality of care. Several beneficiaries described explicit or subtle discrimination based on their Medicaid status. A beneficiary described their experience as: "*All men are created equal, but some are more equal than others. There's definitely a different echelon they treat you as.*" This quote captures both attitudinal inequalities that affect dignity, trust, and perceived legitimacy in clinical encounters.

PHP Perceptions (2021 and 2024)

In 2021, SPs in North Carolina described the transition to Medicaid-managed care as smoother and more collaborative than in other states, partly attributed to the state's existing infrastructure and provider buy-in.

Regular meetings and escalation pathways help resolve provider issues efficiently, leading to better access to care and higher quality of care. There have been policy improvements based on evidence. In one specific example of effective improvements, children with cranial asymmetry often need cranial orthoses to correct skull deformities, but NC Medicaid initially required neurosurgeon authorization, even though PCPs typically managed these cases. In

response, PHPs, the state, and the National Commission for Allied and Healthcare Professions (NCAHP) collaborated with providers to develop evidence-based criteria, resulting in a revised policy that distinguishes when neurosurgeon versus primary care authorization is appropriate. This change illustrates how managed care feedback loops can lead to more efficient and clinically aligned coverage policies. However, divergences emerge around operational constraints, policy trade-offs, and provider capacity, which may complicate or limit the full realization of improved health outcomes. PHPs desire more autonomy to manage care and costs, while the state maintains strong oversight. This tension may limit innovation or responsiveness in care delivery. Additionally, efforts to maximize provider participation may have reduced the ability to detect fraud or billing errors, potentially impacting care quality.

In 2024, PHPs described demonstrating flexibility in addressing health-related social needs to improve access. One plan repaved a member's washed-out driveway to prevent missed medical appointments. A plan representative said, "*Let's just repave their driveway. 'Cause it was gonna be cheaper in the long term than kidney failure.*" Such interventions highlight the evolving role of managed care in tackling social determinants of health.
Furthermore, PHPs described several beneficiary engagement strategies, such as member advisory committees and innovative polling, to strengthen connections with members: "*We do innovative polling, follow up immediately, keep folks interested*" to foster trust and responsiveness, ensuring members feel heard and supported.

Despite progress, participants described that navigation barriers persist. Accurate contact information remains a critical challenge: "*You've got to make sure you have all of the right contact information; otherwise, you won't be able to connect them to care*." Plans described responding proactively with outreach, including benefit reminders for members who have not used services. These gaps underscore the need for robust data systems to support timely access.

Participants also described efforts to standardize processes, such as changing PCPs, to improve access for beneficiaries. They also described Making Care Primary (MCP) as a framework for aligning Medicaid with broader value-based care models. MCP is viewed as "*a fantastic rubric, guidance for operational and clinical capabilities.*" However, concerns about sustainability and political will remain: "*I have real concerns about the 10-and-a-half-year runway; because sustained political will won't exist.*" Participants anticipated significant investments in data infrastructure and potential re-procurement of standard plan contracts to

embed MCP principles, signaling a trajectory toward deeper integration of access and quality goals. However, that program was terminated early by the federal government.[35]

Summary

Across stakeholder groups, participants described persistent barriers to timely, equitable access, including inaccurate PCP attribution, variable prior-authorization policies, limited specialist participation, and fragmented referral workflows. Providers emphasized that panel accuracy underpins both care delivery and quality measurement. Beneficiaries reported that primary care was often accessible and relationally supportive, but specialty care frequently involved long waits, geographic burden, coverage denials, and directory inaccuracies. PHPs highlighted collaboration and social-needs flexibility, while acknowledging continuing navigation and data challenges.

Taken together, the perspectives of providers, PHPs, and Medicaid beneficiaries reveal a system that is evolving but not yet fully optimized. While some aspects of access and quality have improved as compared to the beginning of the transition, such as smoother PCP change processes and stronger attention to social needs, other barriers, particularly those related to attribution accuracy, specialist availability, prior authorization, and perceived stigma, continue to hinder timely and equitable care. Beneficiaries with long-standing relationships with PCPs and those seeking care at integrated systems often navigate these challenges relatively easily, whereas those without such connections face greater delays and administrative burden. These qualitative insights underscore the need for continued system-level standardization, more consistent data exchange, and ongoing collaboration among Medicaid stakeholders to improve access, continuity, and quality of care for Medicaid beneficiaries in North Carolina.

[35] *Making Care Primary (MCP) Model. (n.d.). Retrieved from Center for Medicare and Medicaid Services: https://www.cms.gov/priorities/innovation/innovation-models/making-care-primary*

Hypothesis 1.2: The implementation of Medicaid managed care will increase the rate of use of behavioral health services at the appropriate level of care and improve the quality of behavioral health care received.

Quantitative Analyses

Mental Health

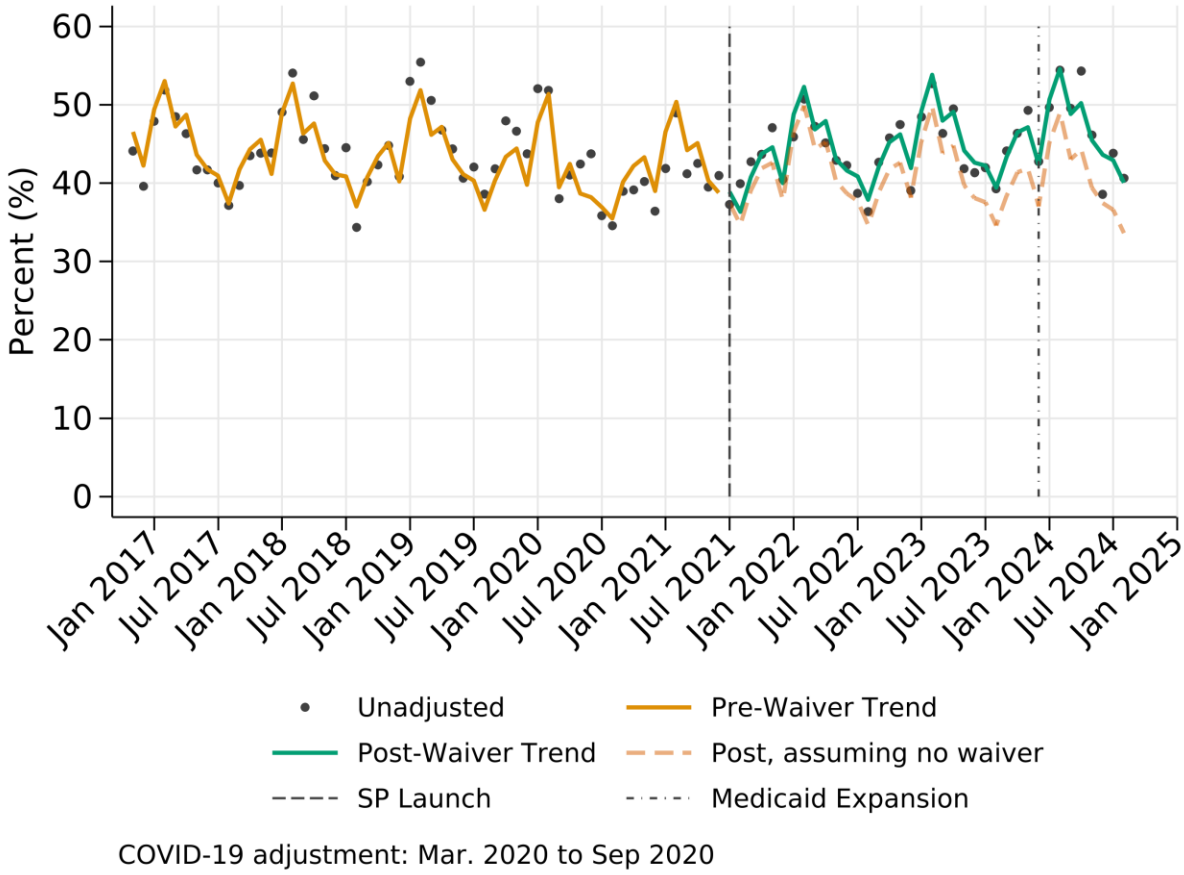
Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation and Continuation

Among children and adolescents with newly prescribed ADHD medication, follow-up care (defined as at least 3 visits within a 10-month period after a new episode of medication treatment for ADHD) is an important marker of quality of care. This metric exhibits high degrees of seasonality, with higher values around late summer to early fall. Standard Plan implementation was associated with a small initial improvement in this metric (July 2021), with predicted average follow-up rates similar between the pre-implementation and post-implementation trends (42.15% vs. 43.59%), yielding a statistically significant difference of 1.44 percentage points.

Following implementation, follow-up rates shifted from a slight monthly decline to a positive monthly trend. The slope increased by 0.14 percentage points per month, reflecting a transition from a pre-implementation decrease of –0.055 percentage points per month to a post-implementation increase of 0.080 percentage points per month.

By August 2024, the model-predicted a follow-up rate of 46.56%, compared to a counterfactual projection of 40.12% had SPs not been implemented. This represents a 6.44-percentage-point improvement associated with Standard Plan implementation, a clinically significant improvement over the baseline rate of roughly 42 percent at implementation.

Figure 30: Trends in Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Table 17: Interrupted time series estimates of Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	42.15* (41.42, 42.88)	43.59* (42.79, 44.38)	1.44* (0.38, 2.50)
Monthly Change	-0.055* (-0.076, -0.034)	0.080* (0.043, 0.12)	0.14* (0.092, 0.18)
Predicted Average Outcome Aug 2024	40.12* (38.66, 41.58)	46.56* (45.76, 47.35)	6.44* (4.77, 8.11)
N			147,884

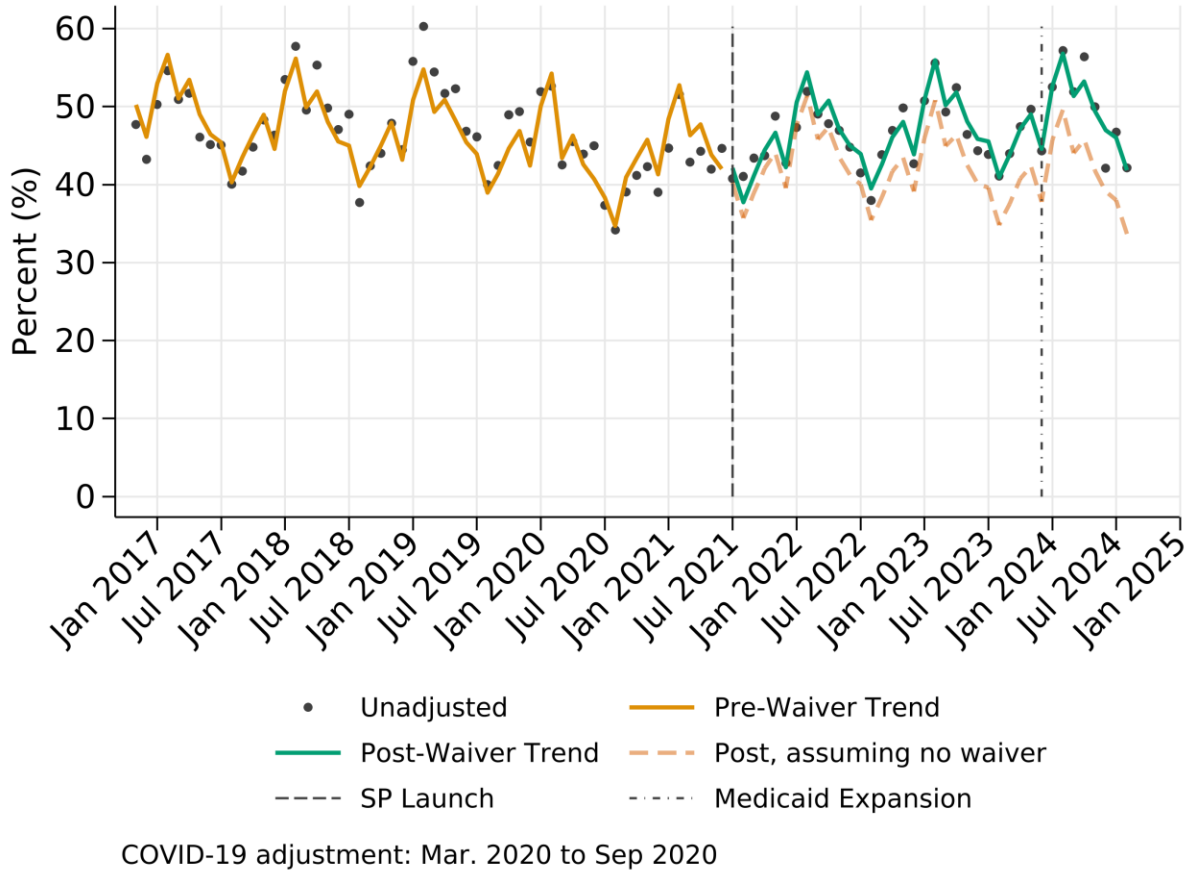
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.*

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

As with the initiation measure, a change in the rates of follow-up for children continuing ADHD medication occurred in the monthly trend. Prior to implementation, the rate was declining slightly by 0.091 percentage points per month. Following the Standard Plan rollout, the monthly change shifted to an increase of 0.079 percentage points per month.

By August 2024, these diverging slopes produced an appreciable gap between the predicted pre-implementation trajectory (40.51%) and the observed post-implementation level (48.65%). The resulting 8.14-percentage-point difference suggests an improvement associated with Standard Plan implementation among youth continuing ADHD medication treatment.

Figure 31: Trends in Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Table 18: Interrupted time series estimates of Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	43.87* (43.07, 44.67)	45.74* (44.89, 46.58)	1.86* (0.72, 3.01)
Monthly Change	-0.091* (-0.11, -0.068)	0.079* (0.040, 0.12)	0.17* (0.12, 0.22)
Predicted Average Outcome Aug 2024	40.51* (38.91, 42.11)	48.65* (47.80, 49.50)	8.14* (6.33, 9.96)
N			127,289

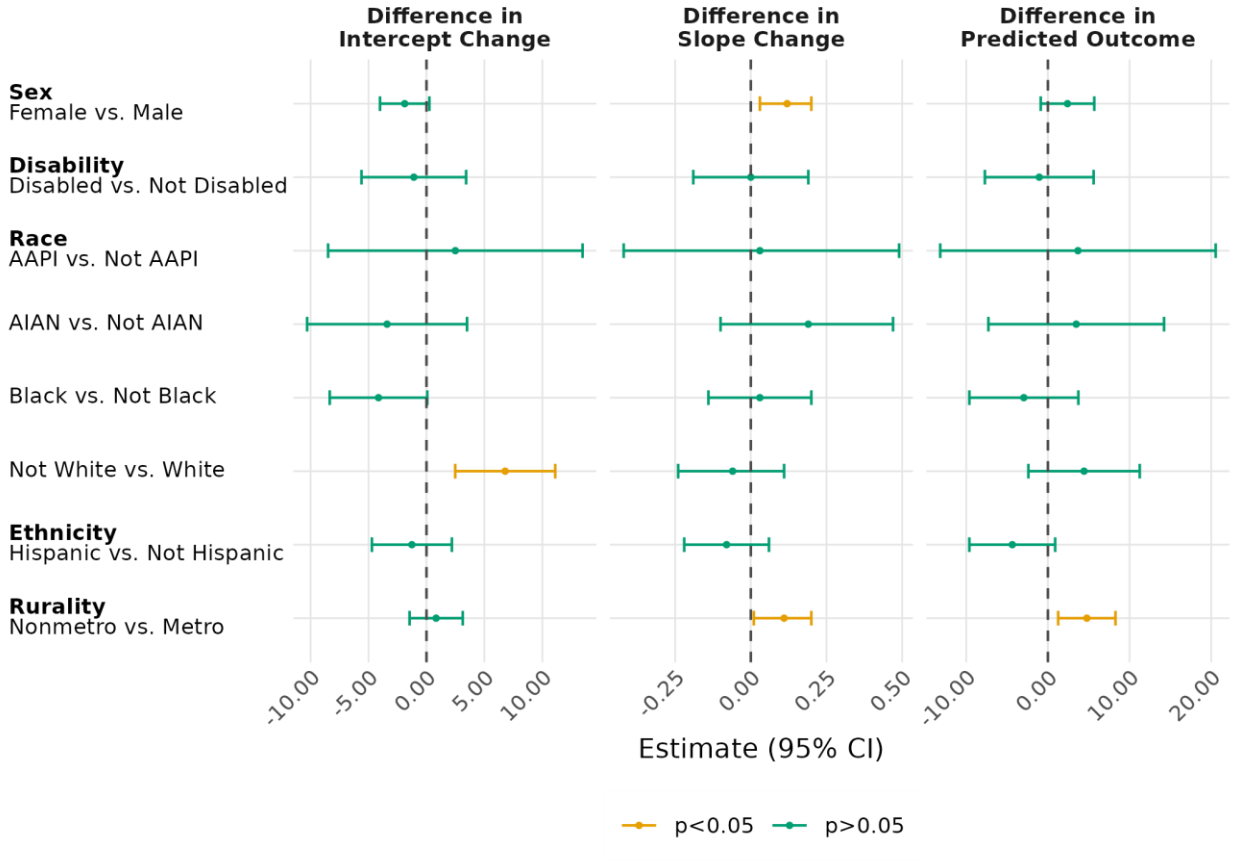
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.*

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Taken together, these findings suggest that children and adolescents receiving ADHD treatment experienced an increase in engagement with follow-up, with sustained gains over time following implementation.

The effects of SP implementation on initiation and engagement with follow-up for children and adolescents receiving ADHD treatment was equal across comparison groups, except for beneficiaries in rural areas, who exhibited a greater effect of SP on initiation trends over time and also showed a greater effect in initiation and continuation rates at end-point than beneficiaries living in metropolitan counties. (Figure 32 and Figure 33).

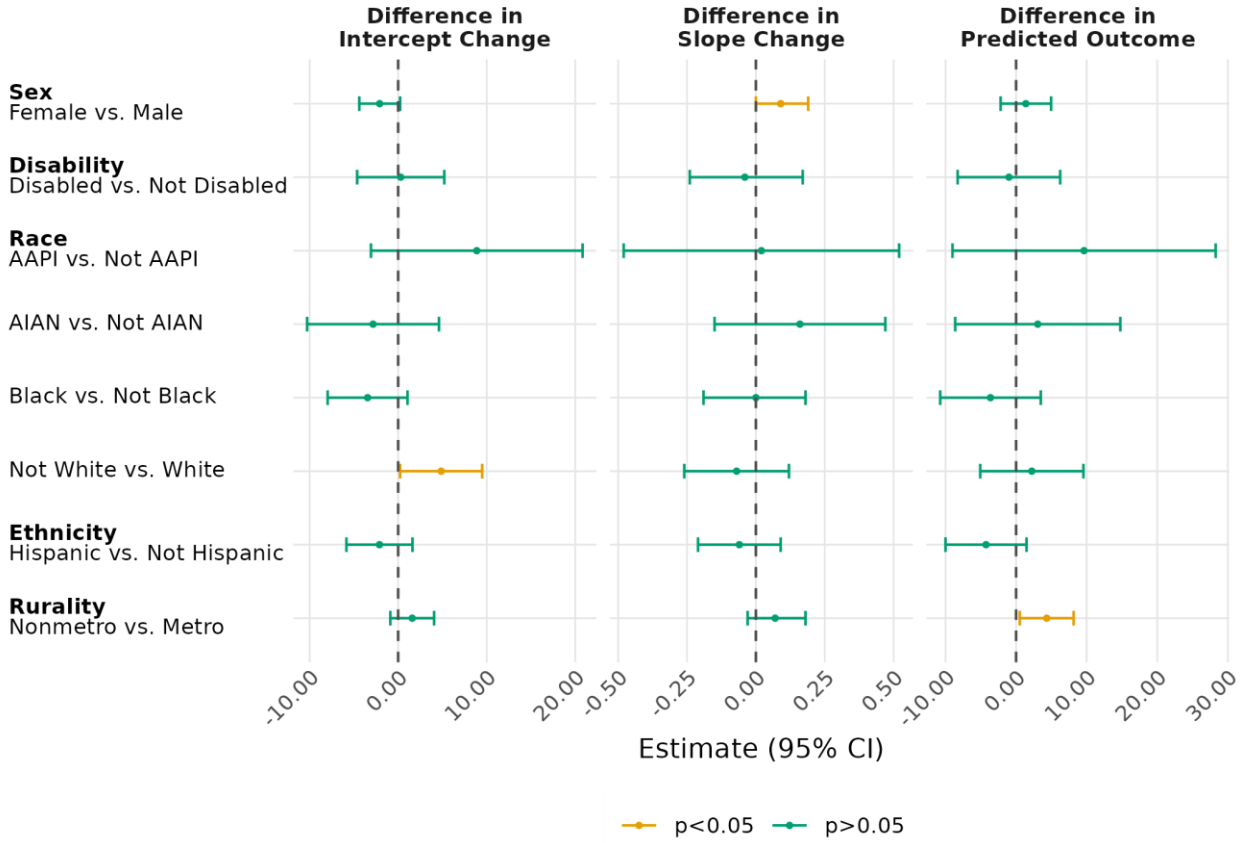
Figure 32: Comparison groups in Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Figure 33: Comparison groups in Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)

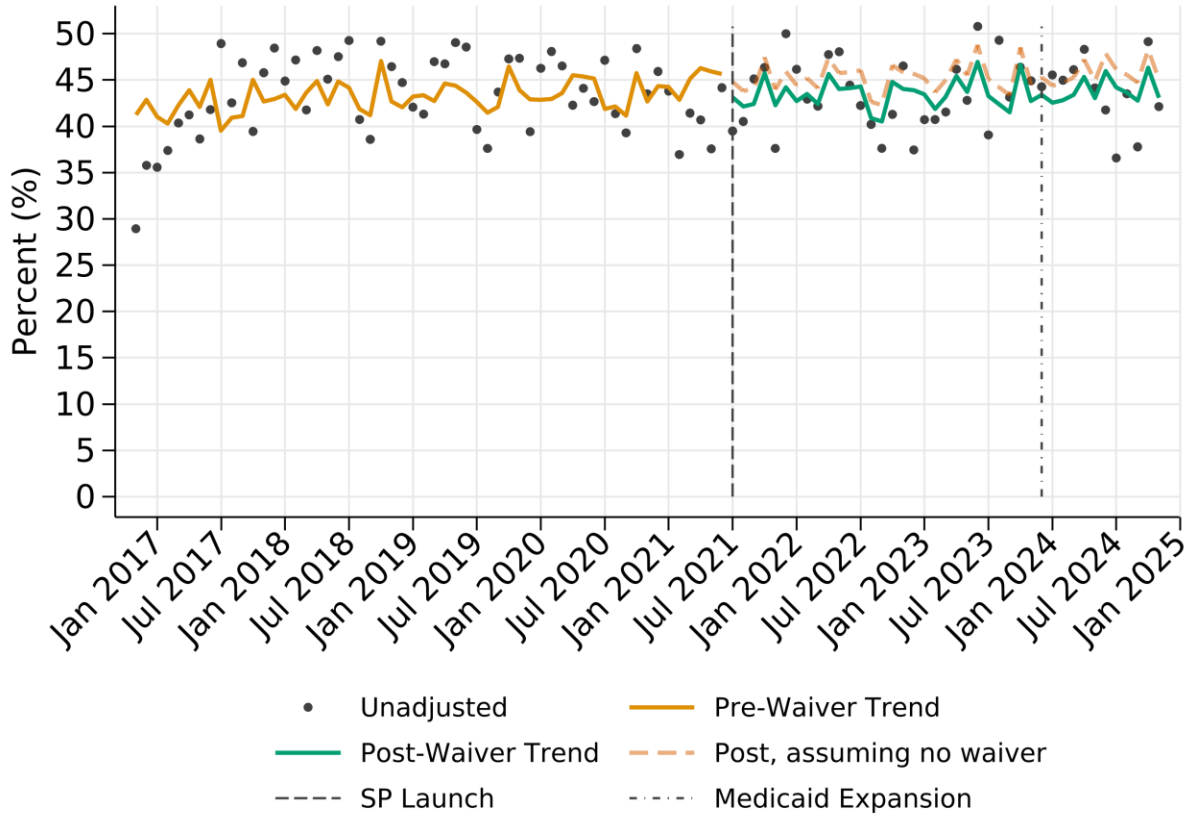
First line psychosocial care for children and adolescents on antipsychotics indicates that providers attempted non-pharmaceutical interventions such as therapy before prescribing. While many children using antipsychotics are now in Tailored Plans, there were enough children in SPs to run this analysis, although the metric is somewhat noisy due to a smaller sample size.

Figure 34 shows an increase in the use of psychosocial care for children and adolescents on antipsychotics in 2017, with rates remaining relatively stable throughout the rest of the study period. Rates oscillated between 35 and 50%, dipping between July and September for most years.

Standard Plan implementation was not associated with immediate changes in the use of psychosocial care among children newly prescribed antipsychotic medications, nor was it associated with changes in monthly trends nor differences in average predicted outcomes at the end of the study period (Table 19).

Across comparison groups, there were no notable differences in the impact of Standard Plan implementation as seen in Figure 35.

Figure 34: Trends in Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 1-17) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

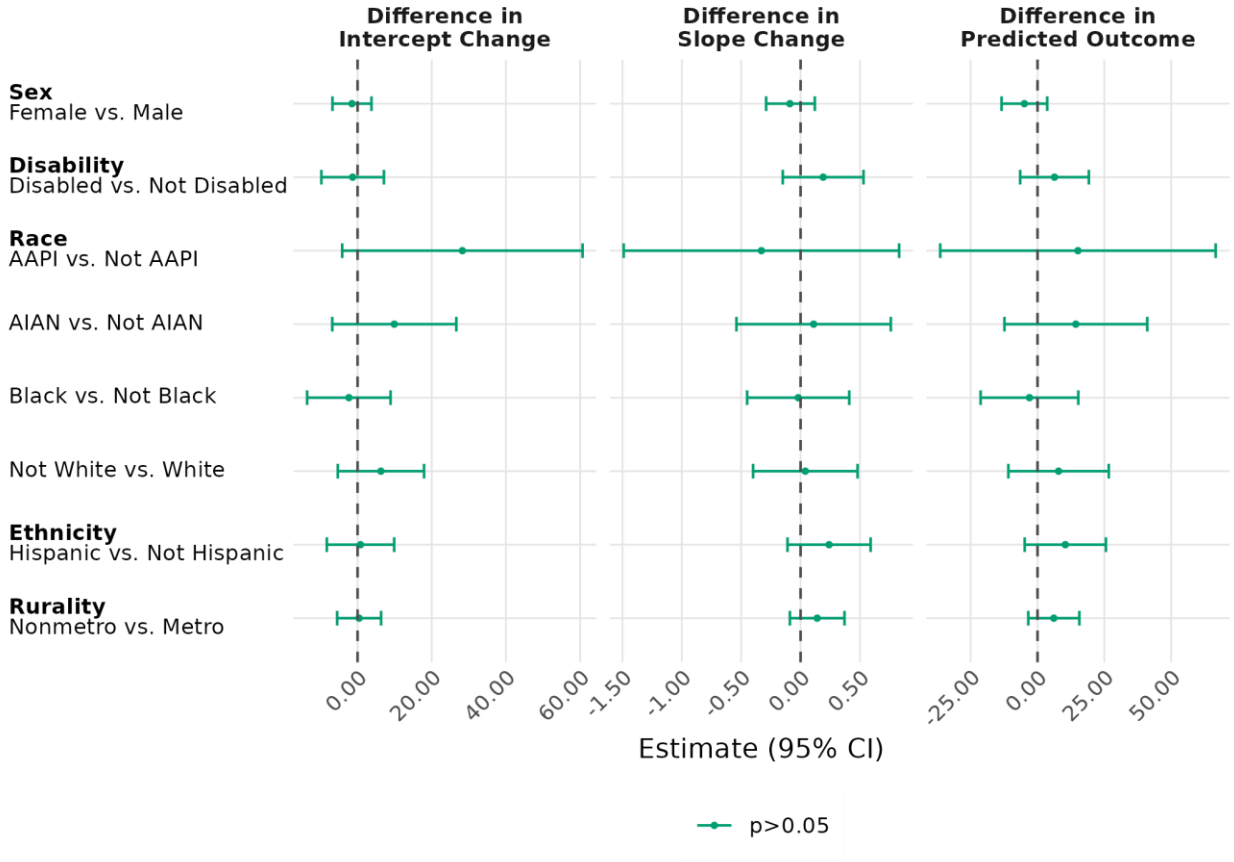
Table 19: Interrupted time series estimates of Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	44.35* (42.47, 46.23)	42.68* (40.68, 44.68)	-1.67 (-4.37, 1.04)
Monthly Change	0.014 (-0.041, 0.068)	0.0068 (-0.079, 0.093)	-0.0069 (-0.11, 0.095)
Predicted Average Outcome Nov 2024	44.90* (40.96, 48.83)	42.95* (40.92, 44.99)	-1.94 (-6.35, 2.47)
N			22,117

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 1-17) in the NC Medicaid population as determined in the metric specifications.*

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Figure 35: Comparison groups in Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Substance Use Disorders

While many Medicaid beneficiaries with severe SUD diagnoses eventually enroll in Tailored Plans, 4.5% of Standard Plan enrollees have a SUD diagnosis. This section of the report describes the experience of Standard Plan Enrollees who meet criteria for each of these SUD metrics.

Any Substance Use Disorder (SUD) Treatment

A fundamental quality assurance measure for evaluating the effects of SP implementation on behavioral health services is whether beneficiaries diagnosed with substance use disorders can access treatment services.

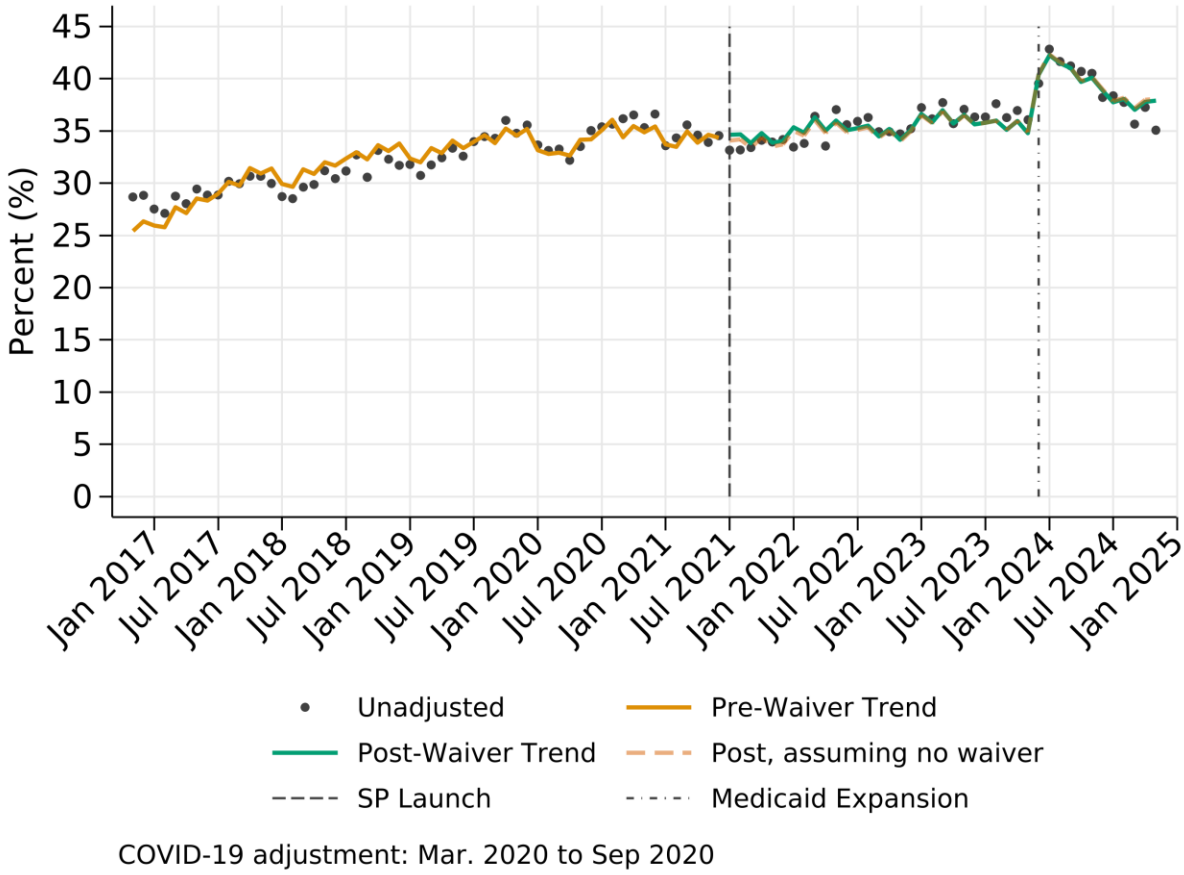
The percentage of SP beneficiaries with a SUD diagnosis who received treatment services increased substantially over the Demonstration period, with rates increasing from 27% in January 2017 to nearly 44% in January 2024 (Figure 36). Throughout the baseline period, rates for treatment receipt increased steadily, with small seasonal declines between December and January of each year. Rates dipped slightly during the COVID-19 pandemic but recovered to pre-COVID-19 levels by June 2024 and continued to increase with seasonal variation through 2021. After SP implementation, rates for treatment receipt increased at a slower rate, and seasonal variation diminished. A large, temporary increase in treatment rates was observed after Medicaid Expansion.

Our analysis found that observed increases in SUD treatment receipt were not associated with the launch of Standard Plans. Table 20 shows that Standard Plan implementation was not associated with immediate changes in the receipt of SUD treatment among the SP population, nor was it associated with changes in monthly trends nor differences in average predicted outcomes at the end of the study period.

Subgroup analyses revealed differential effects of SPs among subgroups of interest (Figure 37). Compared to their respective counterparts, beneficiaries who were less than 18 years old, male, disabled, Black, and Hispanic experienced positive effects of SP launch on treatment receipt at the end of the study period. SPs also had a protective effect on treatment receipt trends over time for Black and Hispanic beneficiaries. Future research should explore the potential for Standard Plans to improve documented disparities in treatment receipt among Black and Hispanic Medicaid beneficiaries.[36] Finally, Beneficiaries in rural areas exhibited a pronounced negative effect of SPs on SUD treatment receipt trends over time and showed a greater negative effect in rates at end-point compared to beneficiaries living in metropolitan counties.

[36] https://medicaid.ncdhhs.gov/nc-medicaid-health-disparities-report-2023/open

Figure 36: Trends in Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

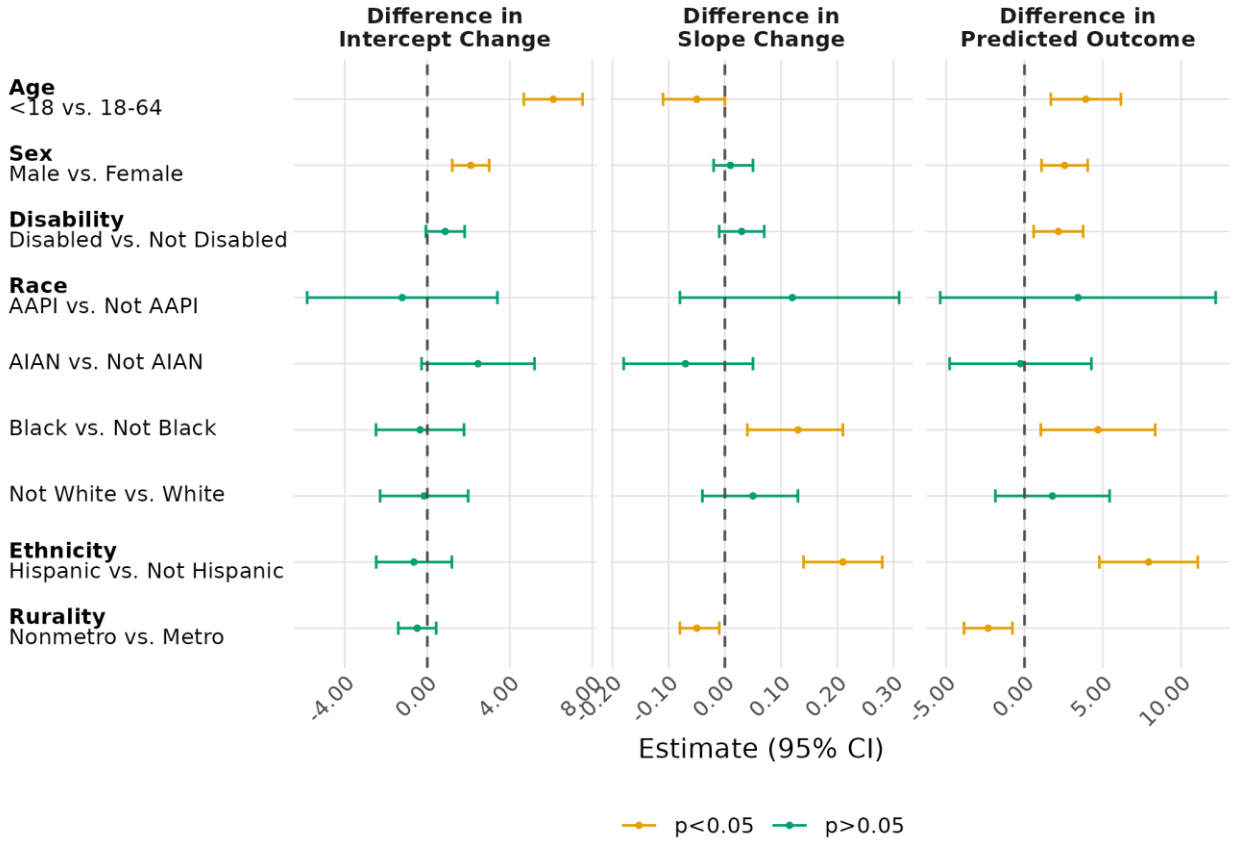
Table 20: Interrupted time series estimates of Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	33.95* (33.22, 34.68)	34.78* (34.24, 35.32)	0.83 (-0.036, 1.69)
Monthly Change	-0.035* (-0.065, -0.0051)	-0.064* (-0.092, -0.037)	-0.029 (-0.066, 0.0082)
Predicted Average Outcome Nov 2024	32.54* (30.70, 34.38)	32.20* (31.33, 33.08)	-0.34 (-2.21, 1.54)
N			3,221,130

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Figure 37: Comparison groups in Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-Up After Emergency Department Visit for Alcohol or Other Drug Abuse or Dependence within 30 days: Age 18 and older (FUA-AD/M17)

Emergency department visits for substance use often reflect acute crises, treatment gaps, or disease progression, making the period immediately following discharge a time when individuals are at elevated risk for adverse outcomes, including repeated ED visits, inpatient utilization, and treatment disengagement.[37] Evidence-based guidelines recommend follow-up with community providers within 7 days of an ED visit to capitalize on crisis motivation, stabilize acute symptoms, and establish ongoing treatment connections, with 30-day follow-up serving as an indicator of sustained engagement.[38]

Figure 38 highlights how volatile SUD ED follow-up rates were in the Standard Plan population before and after SP implementation, potentially due to a smaller sample size. Rates of follow-up increased steadily in the baseline period, reaching a high of nearly 20% in September 2019. Rates began to fluctuate after SP implementation at levels well below baseline starting points, with trends stabilizing slightly after Medicaid expansion in December 2023. Despite these fluctuations, a clear decrease in 30-day ED follow-up rates can be seen with the introduction of SPs. North Carolina was below the US Medicaid average of 25.8% in 2024 for this measure.

Follow-up rates immediately decreased by 1.96 percentage points at SP implementation and continued to diverge downwards by 0.16 percentage points per month until the end of the Demonstration (Table 21). By the end of the study period, the ED follow-up rate was 8.19 percentage points lower than what was predicted in the absence of SP implementation. Note that the post-SP launch rates are comparable to the rates in the pre-MC waiver period and that the sample size is relatively modest compared to most other metrics.

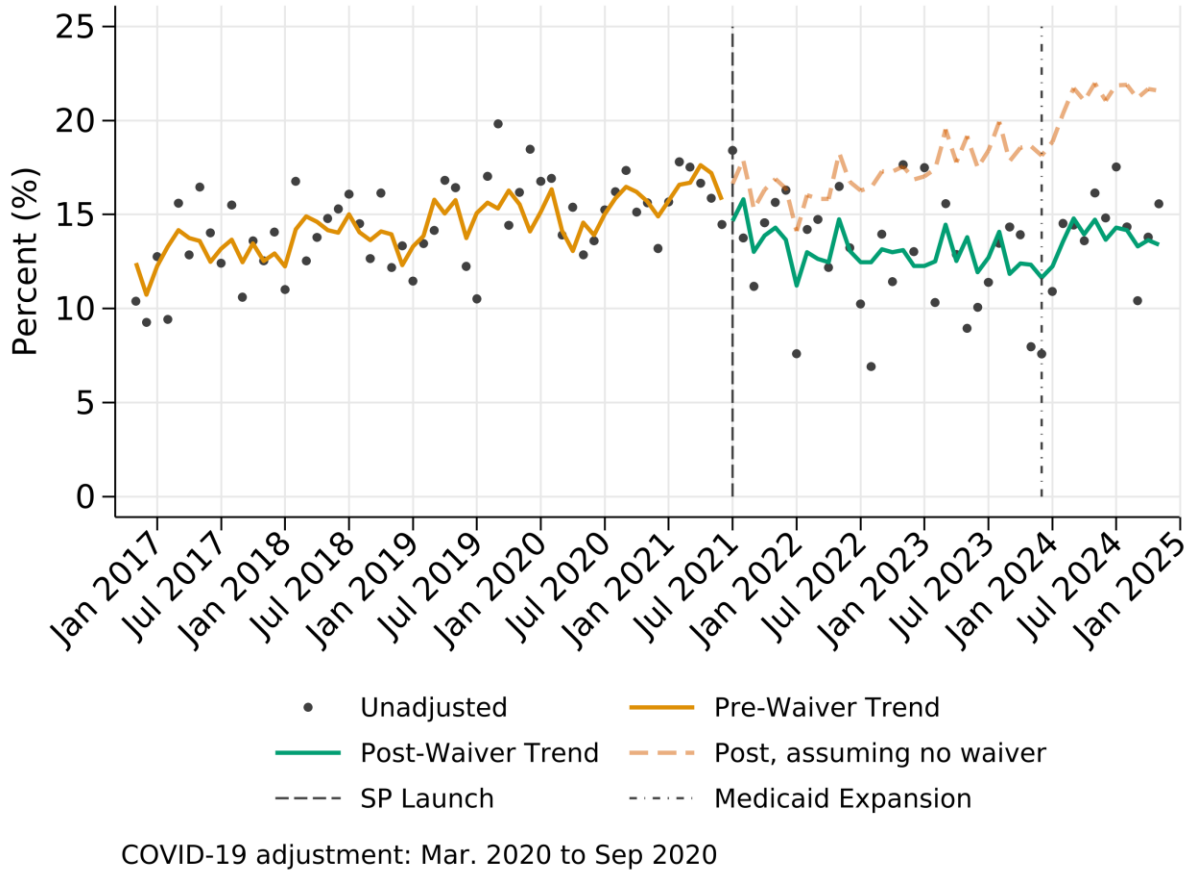
Effects of SP implementation were variable across subpopulations. Figure 39 shows a larger SP effect on the rates of ED follow-up for SUD among people of color and people living in rural communities compared to the effect of SPs on the rates of follow-up for white and non-rural individuals, respectively. The effect of SP implementation on rates of follow-up was lower for American Indian and Alaskan Native, Black, and disabled beneficiaries compared to their respective reference groups.

[37] Zhang X, Wang N, Hou F, Ali Y, Dora-Laskey A, Dahlem CH, McCabe SE. Emergency Department Visits by Patients with Substance Use Disorder in the United States. West J Emerg Med. 2021 Aug 19;22(5):1076-1085. doi: 10.5811/westjem.2021.3.50839. PMID: 34546883; PMCID: PMC8463055.

[38] https://www.ncqa.org/report-cards/health-plans/state-of-health-care-quality-report/follow-up-after-high-intensity-care-for-substance-use-disorder-fui/

Rates of follow-up within 7-days of an ED visit for substance use closely follow trends for follow-up within 30-days and can be found in the appendix (Figure 116 in Appendix A).

Figure 38: Trends in Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

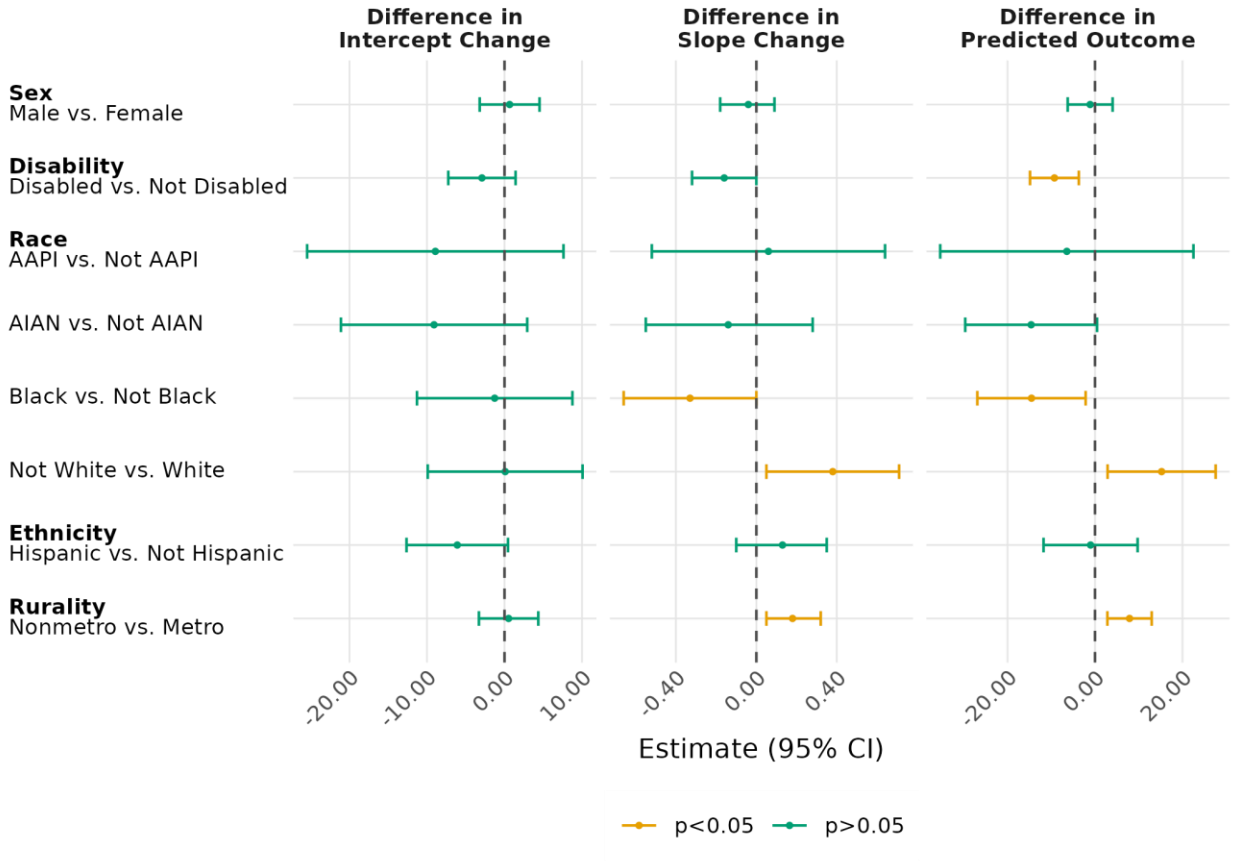
Table 21: Interrupted time series estimates of Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	17.02* (15.90, 18.14)	15.06* (13.53, 16.59)	-1.96* (-3.81, -0.11)
Monthly Change	0.080* (0.049, 0.11)	-0.076* (-0.14, -0.014)	-0.16* (-0.22, -0.087)
Predicted Average Outcome Nov 2024	20.23* (17.94, 22.52)	12.04* (10.81, 13.27)	-8.19* (-10.83, -5.55)
N			31,714

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Figure 39: Comparison groups in Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

Successful substance use disorder (SUD) treatment depends on both timely initiation of care following diagnosis and sustained engagement in treatment services. The Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment measure, which combines experiences from all individuals with any type of substance use disorder, captures two sequential steps in the treatment pathway: initiation (receipt of treatment services within 14 days of a new diagnosis or identification event) and engagement (receipt of two or more additional treatment services within 34 days of initiation). These metrics assess the system's capacity to connect newly diagnosed individuals to care and sustain their participation through the early treatment period, when treatment discontinuation rates are typically elevated.

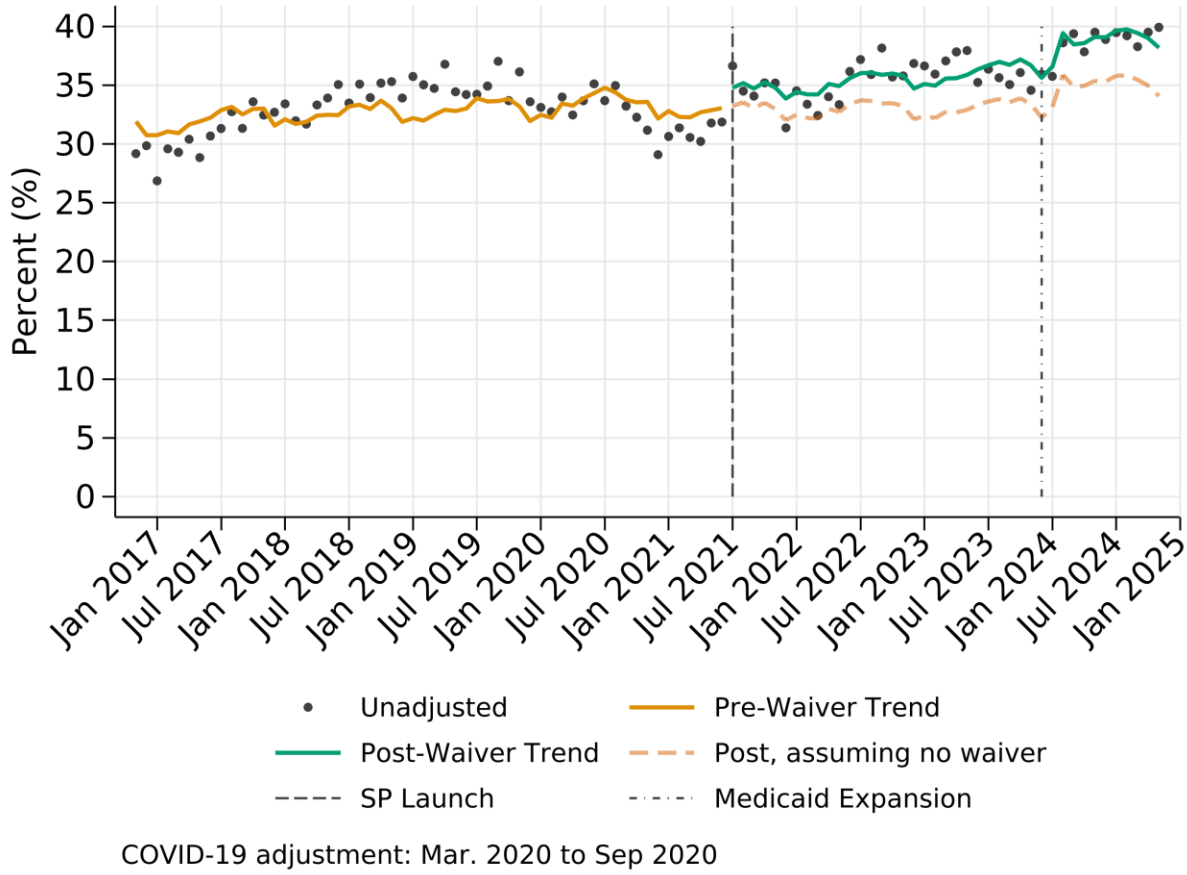
Treatment Initiation

Among the Standard Plan population, rates of treatment initiation for SUD (referred to as AOD or Alcohol and Other Drugs by the metric custodian) increased steadily through the baseline period from roughly 27% to 37% before dropping during the COVID-19 pandemic (Figure 40). After SP implementation, rates began increasing, with an additional uptick in SUD treatment initiation observed after Medicaid Expansion, potentially indicating a higher rate of SUD treatment initiation in the newly eligible population.

Prior to the launch of SPs, SUD treatment initiation rates were increasing by 0.013 percentage points per month (Table 22). After SP implementation, the treatment initiation rate immediately increased by 1.55 percentage points, and trends increased at a faster rate per month. By the end of the study period, the treatment initiation rate was 4.09 percentage points higher than what rates would have been had the pre-waiver trend continued. This trend is promising, although NC remains below the US median rate for AOD treatment initiation of 44.2% in 2024.

The launch of SPs had differential effects on treatment initiation for those living in rural areas and for beneficiaries who are disabled. The effect of SPs on treatment initiation was smaller for individuals residing in nonmetropolitan counties compared to the effect among individuals residing in metropolitan counties, and smaller for disabled beneficiaries compared to beneficiaries who are not disabled (Figure 41). Such effect size differences suggest opportunities for improvement in Standard Plan networks for SUD treatment providers in rural areas and in initiating Medicaid patients with comorbid disorders in SUD treatment.

Figure 40: Trends in Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

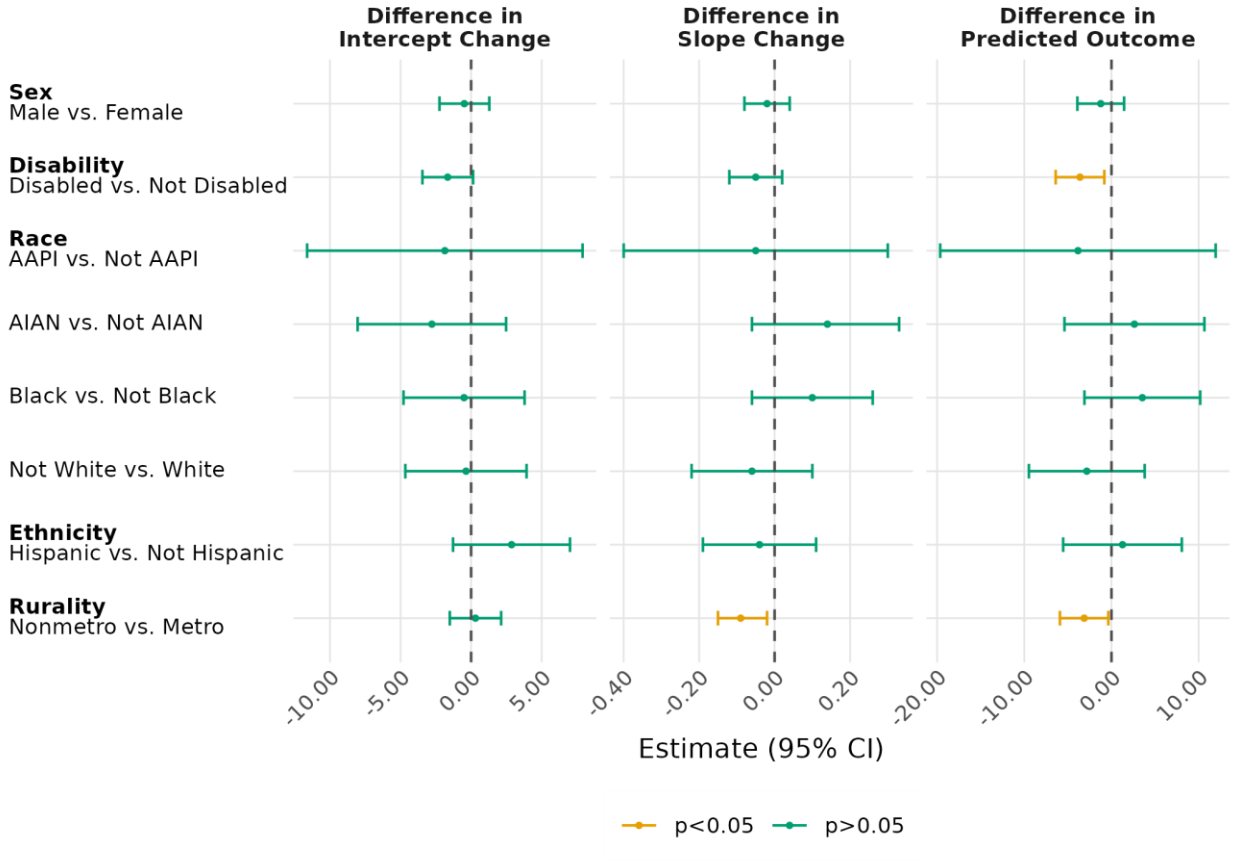
Table 22: Interrupted time series estimates of Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	33.25* (32.67, 33.83)	34.80* (34.13, 35.48)	1.55* (0.71, 2.40)
Monthly Change	0.013 (-0.0033, 0.030)	0.077* (0.049, 0.10)	0.064* (0.031, 0.096)
Predicted Average Outcome Nov 2024	33.78* (32.59, 34.97)	37.88* (37.25, 38.50)	4.09* (2.74, 5.45)
N			239,614

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Figure 41: Comparison groups in Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Treatment Engagement

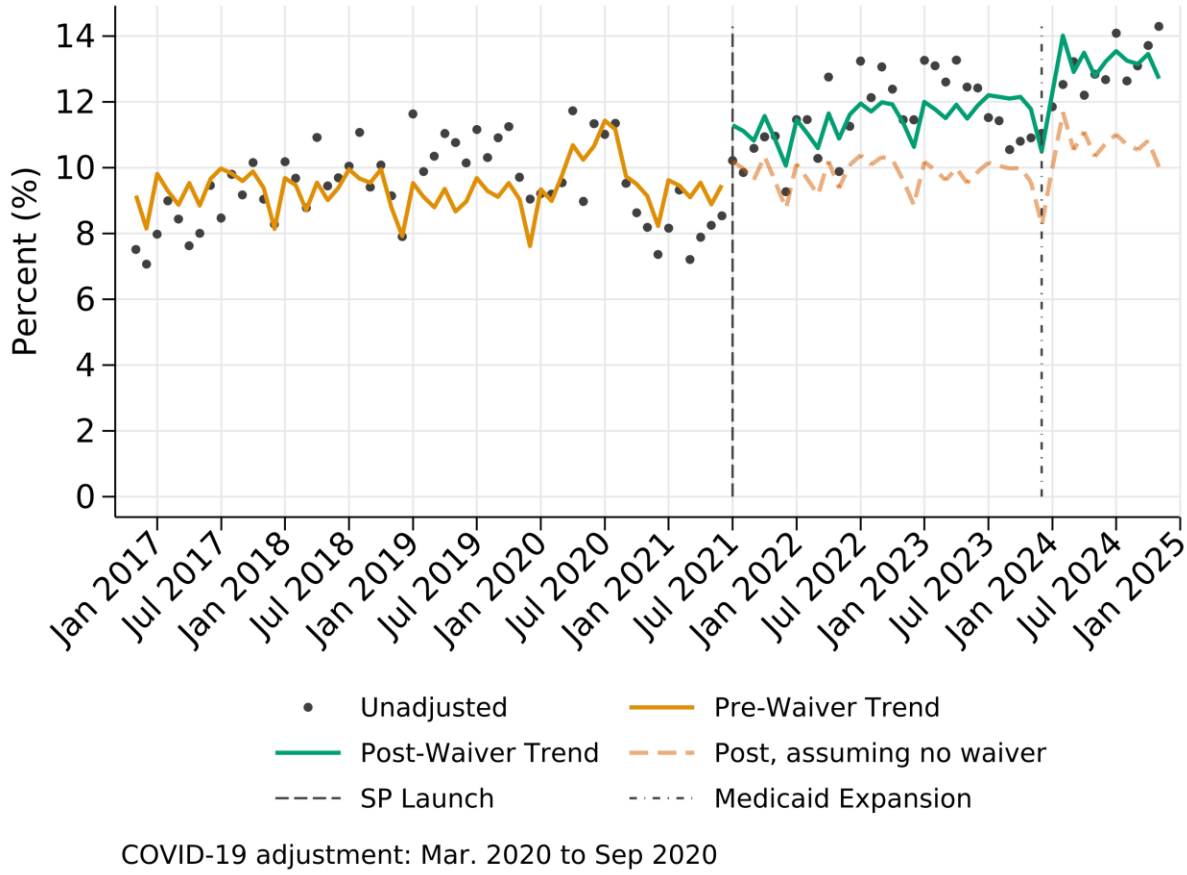
Rates for SUD treatment engagement among beneficiaries who initiated treatment range from roughly 7% to 14% throughout the study period. The Figure below shows rates increasing throughout the baseline period before dropping off during the COVID-19 pandemic, with post-implementation rates continuing to build on pre-pandemic values.

Like treatment initiation, treatment engagement also increased at Standard Plan implementation and experienced increases in monthly trends that resulted in a 2.68 percentage point higher rate of engagement at the end of the study period than what was projected by the counterfactual (Table 23).

Despite increases after SP implementation out, rates of treatment engagement remain low overall (although it is important to remember that these are *monthly* values). These results are consistent with the findings from our qualitative analysis: identifying behavioral health providers was reported as a challenge by providers and beneficiaries, and this could contribute to challenges in treatment engagement. The engagement rate is also still lower than the national median of 15.7%.

The effects of SP implementation on rates of SUD treatment engagement were equal across population sub-groups except for beneficiaries who are disabled, who exhibited a lower effect of SP on treatment engagement trends over time and a lower effect on engagement rates at study end than beneficiaries who are not disabled (Figure 43). Such persistent differential effects of SP on both initiation and engagement in SUD treatment for disabled beneficiaries indicates that barriers to effective and sustainable SUD treatments have not been adequately addressed for patients with comorbidities.

Figure 42: Trends in Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

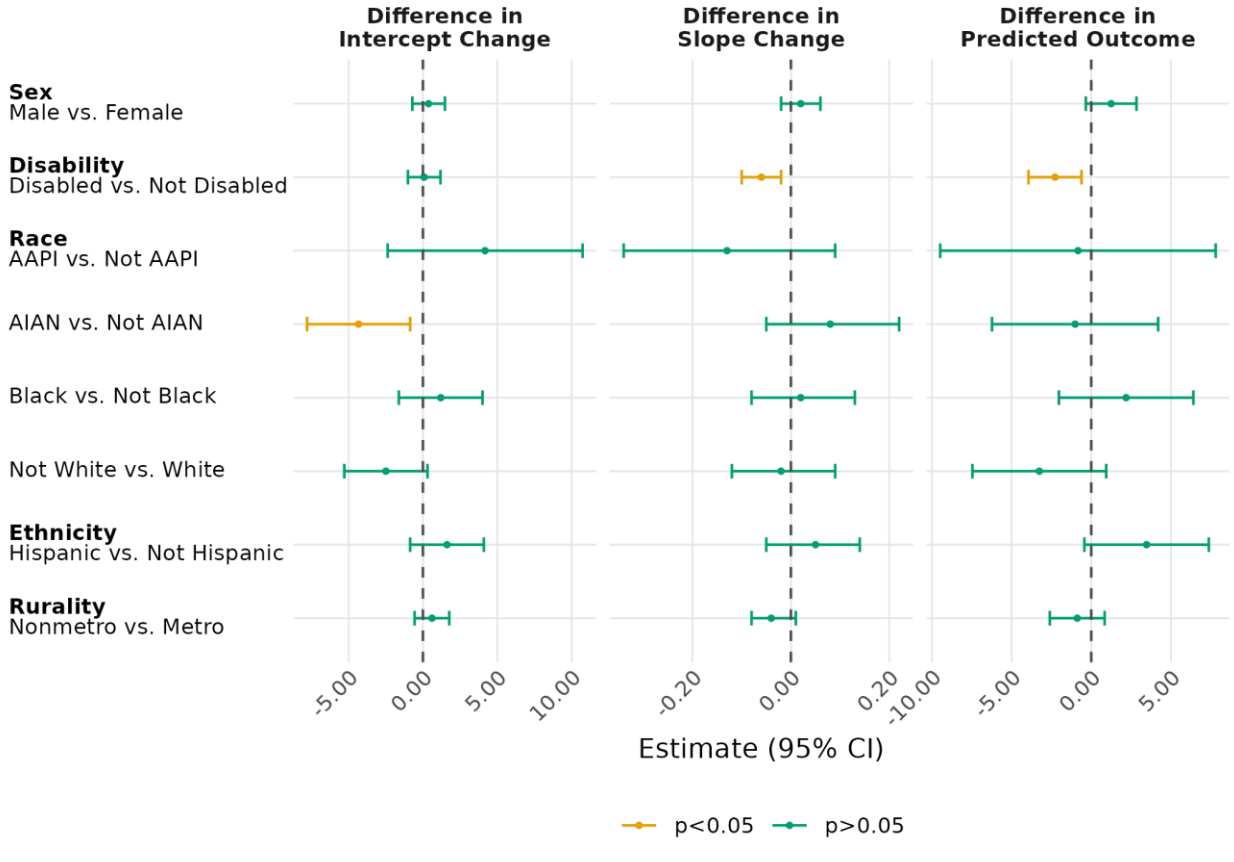
Table 23: Interrupted time series estimates of Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	9.65* (9.31, 10.00)	10.76* (10.32, 11.19)	1.11* (0.57, 1.64)
Monthly Change	-0.0046 (-0.014, 0.0053)	0.035* (0.017, 0.053)	0.039* (0.019, 0.060)
Predicted Average Outcome Nov 2024	9.47* (8.76, 10.18)	12.15* (11.75, 12.54)	2.68* (1.86, 3.50)
N			239,614

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Figure 43: Comparison groups in Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Summary

In conclusion, we examined 33 behavioral health metrics (17 mental health measures and 16 SUD measures) reflecting the use and quality of behavioral health services to test Hypothesis 1.2. 11 measures (5 MH, 6 SUD) had improvements associated with SP implementation, 13 measures (10 MH, 3 SUD) exhibited no change during the Demonstration period, and 8 measures (1 MH, 7 SUD) had worsened outcomes associated with SP launch. Overall, mental health measures exhibited less movement in either direction compared to SUD measures, suggesting that SP implementation had a larger effect on the use and quality of SUD services.

Notably, SP implementation was associated with increases in rates of follow-up care for children prescribed ADHD medication (ADD; initiation and continuation) and improvements in SUD treatment initiation and engagement (IET-AD). These gains occurred alongside no detectable effects for other measures (e.g., APP, any SUD treatment) and declines in follow-up after emergency department visits for SUD (FUA-AD/M17), indicating mixed impacts across behavioral health domains.

Qualitative Findings

The qualitative findings collectively illustrate a behavioral health system in North Carolina that has made some progress over the years after transitioning to Medicaid managed care, while also facing persistent and structural challenges. Providers, beneficiaries, state, and PHP representatives all acknowledge improvements in care integration, access to certain behavioral health services, and the stabilizing effect of coverage. However, these gains are tempered by significant barriers for beneficiaries and providers.

Provider perceptions

Provider perspectives revealed a mixed but evolving experience with the implementation of Medicaid managed care. Early in the transition (2020–2021), providers expressed both optimism about integration and concern about administrative hurdles such as licensing delays and network adequacy. As SPs matured (2023–2025), many providers observed improvements in service availability, care coordination, and electronic health information exchange. Integrated behavioral health models were viewed as powerful tools for enhancing holistic care and improving clinical decision-making. However, persistent challenges included low participation among behavioral health specialists, burdensome prior authorizations, and confusion related to tailored plan operations. Providers delivering comprehensive behavioral health services emphasized the financial unsustainability of current payment structures, despite improved outcomes and patient access. These findings are described in detail below.

Provider perceptions before transition (2020-2021)

Before the launch of Medicaid managed care, participants from healthcare organizations that provide behavioral health services held mixed views on the quality of behavioral health care under managed care. Many participants saw the integration of behavioral and physical health as a cornerstone for better care coordination and quality of care. To that end, some participants described implementing new electronic medical record systems or updating existing ones to ensure accurate health information exchange, which they described as critical. A few participants from primary care practices reported that they had hired, or planned to hire, additional staff to provide behavioral health and care management services to high-need patients. An administrator at a pediatric practice described their approach as:

We have been working with our behavioral health people as interim care management people for behavioral health issues. We've already implemented the impact model, where we have access to a consulting psychiatrist for patients with a PHQ9 of 10 or higher and patients identified as needing additional care management.

Several participants described challenges during the transition that could hamper access to behavioral health services. First, verification of licensing and credentialing of behavioral health providers by health plans was described as time-intensive compared with under the FFS model, which could delay patient care. Second, participants who provide behavioral health services or plan to integrate them with primary care were concerned about the availability of behavioral health providers. At the same time, participants from smaller independent practices that did not provide behavioral health services lacked the resources to integrate behavioral health services.

Provider perceptions (2023-2025)

Provider data from 2023 and 2025 highlighted that integrated behavioral health within primary care settings was increasingly recognized as a continued cornerstone of effective population health management. Some participants shared its importance in addressing the longstanding fragmentation between physical and mental health services, enabling providers to deliver holistic care that meets patients' complex needs. One provider described their philosophy of care as inherently holistic, emphasizing the integration of mental health into routine practice:

Since day one of my venture, it's always been a more holistic approach, where we try to encompass the whole patient: mind, body, and spirit. We have mental health providers who come in and help out.

Clinically Integrated Networks (CINs) were described as critical enablers of this integration, particularly in resource-constrained environments. By pooling resources and leveraging shared infrastructure, CINs can offer a broad spectrum of services under one organizational

umbrella, including behavioral health, dental, and primary care. As one CIN leader explained: "*We provide medical, dental, behavioral health, infectious disease, and women's health. We also offer peds. We do a little bit of everything.*"

Providers also highlighted the operational benefits of integrated care, describing it as a "*force multiplier"* that enhances their ability to manage mental health conditions confidently:

Integrated care in the primary medical home, where having those mental health people in our practice is a force multiplier. I'm more likely to take care of depression when I have more than one trick in the bag because I know, if I get in trouble, I can go ask my psychiatrist, who's right there in the building.

This proximity was described as fostering collaboration, improving clinical decision-making, and ultimately leading to better outcomes for patients with complex behavioral health needs.

Despite progress in integration, significant access barriers were described, particularly for Medicaid beneficiaries. Providers consistently reported challenges in securing timely behavioral health services due to limited participation among providers and administrative hurdles. Other reasons described included low reimbursement rates and geographic disparities, which exacerbate these issues by increasing wait times for patients and delaying care.

Tailored plans, designed to serve high-need populations, often introduce additional complexity rather than alleviate it. Participants described cumbersome prior authorization processes and inconsistent coverage policies that create administrative burdens and delay treatment: *"[Health plan] has been a nightmare, trying to get anything covered. Trying to get prior authorization for medications or diagnostic services has been extremely challenging overall*."

These barriers undermine the intent of Tailored Plans and highlight the need for streamlined processes and standardized approval timelines across Medicaid plans. Participants from provider organizations that invest in behavioral health teams, including psychiatrists, psychologists, and licensed counselors, described operating at a financial loss. They further elaborated that current reimbursement structures fail to account for the complexity and intensity of services required to manage behavioral health effectively. One provider detailed the financial strain of sustaining a comprehensive behavioral health team, *"We have two child psychiatrists, a PhD psychologist, five licensed professional counselors, and a Master of Social Work person. It's amazing, and we lose hundreds of thousands of dollars on it. We're pitching to Medicaid plans: pay us more for this."* Without adequate funding, these models risk becoming unsustainable, despite their demonstrated impact on patient outcomes.

Collaborative Care Model (CoCM), an evidence-based behavioral health integration model was implemented in NC's Medicaid program in 2018, but revamped with new procedure codes in 2022. This model of care supports primary care clinicians as they assess and treat patients with mild to moderate behavioral health conditions. Providers reported that collaborative care codes, introduced to incentivize mental health integration, were criticized as insufficient for advanced models that embed specialists within primary care settings. As one provider noted, *"Everybody's so excited about the collaborative care core codes. They're great, but that's what you do when you don't have your own psychiatrist. We're way past that."* This disconnect between policy mechanisms and practice realities underscores the need for updated billing codes and payment structures that reflect the true cost of integrated behavioral health care.

Beneficiary Perceptions

Beneficiary experiences highlighted both the stabilizing impact of Medicaid coverage and ongoing barriers to accessing behavioral health care. Many beneficiaries relied on primary care providers to identify emotional and behavioral health needs and initiate referrals, reflecting the importance of PCPs in early detection. Across interviews, fragmentation between physical and behavioral health services was a recurring theme: most participants described siloed systems requiring them to coordinate their own care, repeat histories, or manually share documentation. Unified EHR platforms significantly reduced this burden, with patients reporting better communication and safer medication management when providers used shared portals. Despite these facilitators, many beneficiaries faced challenges, including difficulty finding Medicaid-accepting providers, long wait times, and recurring issues with prior authorization for psychiatric medications. Nonetheless, beneficiaries described behavioral health services as critical to emotional stability, crisis prevention, and daily functioning, underscoring the essential role of Medicaid in their mental health care. The results are presented in detail below on the challenges of finding accepting providers, long wait times, and recurring issues with prior authorization for psychiatric medications. The results are presented in detail below.

Beneficiary perceptions (2023)

Findings from 2023 indicate that beneficiaries and caregivers who were enrolled in Medicaid both before and after the managed care transition reported being able to find behavioral health providers, retain their established providers, and receive care that they perceived as comparable to care under the fee-for-service model.

However, the availability of mental health providers who accepted Medicaid was still a major concern shared by several healthcare organizations and beneficiaries. Several adults and some caregivers of children with conditions like autism, ADHD, and other developmental

disorders echoed these concerns. They described difficulty finding a therapist for their child or themselves and calling or emailing to figure this out, which took time and effort. Some caregivers could not find a therapist accepting Medicaid who provided specialized therapy like cognitive behavioral therapy, resulting in out-of-pocket expenses. A caregiver described multiple facets of challenges in finding and accessing behavioral health as follows:

I wanted to get him specialized counseling for ADHD, coping skills, and other issues, but it appears that none of them are on the [provider] list. Oh, gosh, I've called so many. The ones on my list of recommendations aren't covered. They'll just say it's cash out of pocket, sometimes $300 an hour. The specific type of counseling I wanted to do is not covered. And then they're running into waitlists and stuff.

This quote illustrates multiple, overlapping structural barriers to accessing specialty behavioral health services for Medicaid beneficiaries, especially when seeking specific, higher-level, or specialized services.

Beneficiary perceptions (2024)

In 2024, across interviews, beneficiaries described behavioral health care as both essential to their stability and often difficult to access, particularly during periods without insurance coverage. Many beneficiaries entered Medicaid after years of unmanaged mental health conditions, during which they struggled to maintain therapy, psychiatric medications, or consistent follow-up. These experiences created instability that accumulated over time. Several beneficiaries described long periods of *"going without"* until a crisis forced them into emergency settings. Once enrolled in Medicaid, beneficiaries generally reported improvements in access to behavioral health services, including therapy, psychiatric medications, and care management. Medicaid often served as a doorway into comprehensive mental health systems. One beneficiary described peer support as life-changing: "*My peer support lady would call me, help me make sure I had my shit together. I've been diagnosed with PTSD, and having that support person there is very important.*" Another described finally being able to resume treatment after years without care: "*Having Medicaid is very helpful. It just really sucks that it took me getting pregnant to qualify.*"

However, even after gaining insurance, navigating behavioral health care was not always straightforward. Telehealth emerged as both a facilitator and a limitation. Several beneficiaries appreciated its convenience, particularly therapy, but noted that virtual sessions sometimes felt less personal or insufficient. As one explained, "*With my therapy, I have used telehealth a lot… but I've recently tried to switch to in-person because it feels more personal.*" Another described a telehealth therapist who failed to engage meaningfully: "*I'm always visiting her virtually, but I don't feel like she gives me any solutions. She just listens to me talk.*"

In such cases, beneficiaries expressed uncertainty about how to find more effective providers, often relying on primary care for guidance.

For many, access to psychiatric medications remained a concern due to prior authorization barriers and inconsistent coverage. Some beneficiaries described monthly struggles just to refill medications essential for depression or bipolar disorder. One beneficiary taking Abilify recounted: "*They want to have the doctor sign off on it every time before they'll give it to me, every month we have to go through the same thing.*" Another, waiting for approval for a long-standing depression medication, explained: "*I've been on it for a while, and all of a sudden, when I went to get it refilled, it said that it needed prior authorization, so I've been waiting on it.*" These delays created stress, uncertainty, and in some cases, fear of relapse.

Access was also shaped by the availability of Medicaid-accepting providers. Beneficiaries across multiple interviews described long wait times, limited appointment slots, or being unable to find specialists who accept their insurance. While this often applied to specialty medical providers, the same pattern held for some behavioral health services. One beneficiary seeking care explained plainly: "*Everywhere they called, they said they stopped takin' Medicaid.*" Others described needing to travel long distances or rely heavily on caseworkers or probation officers to locate services that would accept them.

Despite these challenges, beneficiaries reported feeling emotional relief from having behavioral health coverage. Having access to therapy, medications, and crisis intervention provided beneficiaries with a sense of stability, safety, and, in several cases, hope. One beneficiary summarized this powerfully: "*If I didn't have Medicaid right now, then my life would be really in turmoil or chaos. It's really been a big help for me.*" Another expressed gratitude for accessing comprehensive behavioral health treatment for the first time: "*My life has changed around. I did like a whole 360.*" Across interviews, beneficiaries consistently framed behavioral health benefits not only as clinical services but as lifelines that shaped their day-to-day functioning, ability to parent, and capacity to remain stable during crisis. Even when the system was fragmented or difficult to navigate, having Medicaid meant they were no longer facing mental health challenges alone.

Beneficiary perceptions (2025)

In 2025, access issues remained, and telehealth was the main mode of therapy, but new findings emerged. Across interviews (standard plans and tailored plans), beneficiaries frequently described their PCPs as the first point of identification for emotional or behavioral health concerns. PCPs noticed symptoms, asked probing questions, or reviewed patterns in frequent visits, eventually initiating referrals. Several beneficiaries explained that their PCP recognized emotional burdens even before they themselves could name them. For example, a beneficiary recalled how her doctor connected her frequent physical complaints to

underlying distress: "*He was the one who suggested that I go see a therapist; he looked through my medical records, and he advised me that it would be best if I could see a therapist*." For some, this early detection prevented symptoms from worsening. Beneficiaries described PCPs who took "*that extra step*" during medical visits to uncover emotional, social, or life context factors that shaped their health.

Integration of physical and behavioral health emerged as a key finding. Many beneficiaries described a task-oriented integration: providers communicated primarily when medications overlapped or raised safety concerns. The collaboration was typically limited to ensuring pharmaceutical compatibility. A beneficiary recounted how communication occurred only when needed for medication safety: "*My psychiatrist wanted to try a medicine, so they did communicate to make sure it was safe.*" This pattern suggests that while medication management prompts cross-provider communication, broader care coordination regarding therapy progress, social needs, or stressors is far less common.

A significant number of beneficiaries described systems that were completely siloed, with PCPs and behavioral health providers operating without shared infrastructure or communication. For example, a beneficiary shared: "*I don't think they communicate. They're both [Name] hospitals, but I don't think they talk really.*" Others noted how this fragmentation created extra burdens: "*They don't talk to each other. I have to talk to them separately.*" In the absence of integrated services, beneficiaries often took on the responsibility of manually coordinating their own care, such as explaining histories, sharing after-visit summaries, or tracking what each provider knew. For example: *"[Facility Name] only has access to what I send them. I sent them the after-visit summary*." Others described the stress of needing to repeatedly recount their stories:

"I have to say the same things to different providers. It would be more convenient if they communicated." This pattern demonstrates a form of patient-driven integration, often burdensome and inconsistent.

Across interviews, the single strongest facilitator of integrated care was a unified electronic health record system. When providers used the same portal, patients perceived smoother communication and felt less responsible for coordinating their own care. One beneficiary put it plainly: "*MyChart is a game changer because everybody knows what everybody else is doing.*" Another described how this system allowed providers to remain informed even without explicit updates: "*My psychiatrist was aware of my cancer diagnosis before I disclosed it to her.*" Beneficiaries emphasized that shared portals reduced redundant conversations, improved medication safety, and ensured that providers understood co-occurring medical issues.

Many beneficiaries expressed a strong desire for greater communication between their physical and behavioral health teams, even if they felt their care was currently adequate. A beneficiary described: "*If they had something connected, a place where all the notes were, that would help keep everyone aware of what's going on.*" Beneficiaries recognized that integrated care could reduce confusion, support consistency, and improve safety, especially for those with multiple conditions.

A minority of beneficiaries indicated that separate systems worked fine for them, often because medications were managed effectively or because they preferred privacy. For example, one beneficiary noted, "*Since it is well managed, I don't have a problem that they're not connected.*" These perspectives highlight variability in patient preferences, underscoring that integration strategies should be flexible and patient-centered.

Beneficiaries with access to behavioral health services frequently underscored how behavioral health providers offered validation, attentive listening, and emotional safety. These qualities were central to positive care experiences. One beneficiary described how her nurse practitioner responded when she was struggling emotionally: "*She really listened to my needs and validated what I was going through. We came up with a care plan.*" This quote indicates that, beyond access, relationship quality significantly shaped participants' experiences of mental health care.

Taken together, beneficiary experiences reveal a behavioral health system that offers meaningful support yet remains difficult to navigate in critical ways. Medicaid coverage provided stability, access to therapy and medications, and an important sense of reassurance for many participants, even when services were limited or inconsistent. At the same time, fragmented communication between physical and behavioral health providers, ongoing challenges with securing appointments, and frequent administrative hurdles, especially around prior authorization, placed a heavy burden on beneficiaries to coordinate their own care. Participants consistently expressed a desire for better communication, unified systems, and easier pathways to connect with qualified behavioral health professionals. Despite these obstacles, their data underscore the essential role Medicaid plays in their emotional well-being, highlighting both the progress achieved under managed care and the continued need for stronger integration and systemwide accessibility.

SP Perceptions (2024)

Across interviews with SP leadership and staff, participants described a behavioral health access environment characterized by (1) structural fragmentation between Standard and Tailored Plans, (2) capacity constraints in the BH workforce (including language access), (3) navigation and data challenges affecting enrollment and care connection, and (4) continuity-of-care issues during large-scale transitions. Participants also highlighted mitigation

mechanisms (e.g., the P1 escalation process, a rapid, same-day coordination among health plans, NC Medicaid, and supporting entities like NCTracks or the Provider Ombudsman to address critical issues) designed to protect access during the transformation.

Participants reported improvements in access to BH services under managed care compared with the FFS system. One leader described how, under FFS, accessing psychiatric care from primary care often required navigating an entirely separate behavioral health system: "*To get them a psychiatrist, they [beneficiaries] had to go through a whole different healthcare system, that's ridiculous.*" At the same time, participants emphasized that under managed care, the organizational separation between Standard and Tailored Plans continues to pose challenges for beneficiaries who require services beyond the Standard Plan benefit package. In particular, service carve-outs and the need to transition between plan types were described as disruptive. As one PHP representative explained, "*If it was intensive outpatient substance abuse, you had to leave the Standard Plan and go to a Tailored Plan, and that was crazy—[now] we can provide the service at least once.*" This quote reflects operational flexibility within Standard Plans to deliver certain intensive services on a short-term or transitional basis while eligibility for a Tailored Plan or appropriate referrals are being resolved.

Participants described access to BH services under SPs as also shaped by provider capacity, network composition, and navigation infrastructure. Ongoing shortages of BH providers were a central concern, with respondents reporting uneven availability across regions. Workforce limitations, especially in BH specialties and language access, were repeatedly cited as barriers. Participants in managed care plans described difficulty staffing 24/7 BH lines with bilingual clinicians: "*We all struggle with finding enough Spanish-speaking clinicians to be able to cover 24-hour behavioral health service lines.*" These constraints were seen as contributing to delays in care initiation and challenges in maintaining ongoing treatment relationships for members with BH needs.

Participants consistently linked BH access under SPs to the quality of data and navigation systems. On the provider side, accurate and up-to-date information, such as practice location and services offered, was described as foundational for effective auto-assignment to PCPs, which often function as an entry point to BH services. As one participant explained, "*Their office location [and] the types of services are important in making that auto assignment logic work well.*" Inaccurate or outdated provider data was described as limiting the effectiveness of these assignment processes, with downstream effects on BH referrals and care coordination.

On the beneficiary side, respondents emphasized that gaps in contact information constrained outreach and education efforts, thereby limiting members' awareness of and uptake of available BH services. One participant noted, "*You've got to make sure you have all*

of the right contact information for your members; otherwise, you won't be able to connect them to care." To mitigate these challenges, participants described Standard Plan strategies to increase utilization, including targeted reminders and outreach to members who had not accessed covered BH services.

Escalation processes were described as an important mechanism within SPs for addressing unresolved BH access barriers. Participants characterized these processes as flexible and multi-entry, allowing initiation by members, providers, ombudsman staff, plans, or the state. As one respondent stated, "*We created a very flexible process to support members.*" These escalation pathways were described as particularly relevant when standard scheduling, referral, or navigation processes failed, enabling plans to intervene and prevent prolonged gaps in BH care.

Participants also discussed plan transitions and eligibility changes as factors influencing BH access under SPs. Medicaid expansion was reported to have increased enrollment beyond initial projections, shifting the enrolled population toward more adults and intensifying the need to accurately align beneficiaries with plans that can meet their BH needs. In this context, respondents noted that movement between SPs and TPs could affect continuity. As one participant summarized, the challenge was "*making sure that the right people are in the right plan to get the services that they need.*"

Conclusion

Overall, our findings indicate that behavioral health access under SPs is shaped by persistent provider shortages, variable BH network coverage, and the effectiveness of data and navigation infrastructure. Participants identified accurate provider and member data, proactive outreach strategies, and escalation mechanisms as key tools for mitigating access barriers. At the same time, enrollment growth and plan transitions, particularly where members move between SPs and TPs, were described as influencing continuity and timeliness of BH care.

Hypothesis 1.3: The implementation of Medicaid managed care will increase the use of medications for opioid use disorder (MOUD) and other opioid treatment services and decrease the long-term use of opioids.

Quantitative Findings

Overall, we found that the effects of SP implementation on utilization of treatment services for opioid use disorder (OUD) were small but positive.

One important quality metric for people with an opioid use disorder is the use of medications for OUD (MOUD), which is an evidence-based practice. Receipt of MOUD among SP

beneficiaries increased throughout the Demonstration period, and our analysis found possible associations between SP implementation and increased use of MOUD at the end of the study period. Small but positive SP effects were also found for OUD treatment initiation and engagement measures. However, these findings are tempered by persistently low treatment engagement rates and decreasing trends in MOUD continuation rates throughout the Demonstration period.

Because metrics measuring the long-term use of opioids are only calculated annually, the limited number of time points over the Demonstration and baseline period means that we cannot determine the effect of SP implementation. For these metrics, we describe annual trends and highlight the general takeaways.

Use of Medications for Opioid Use Disorders (MOUD)

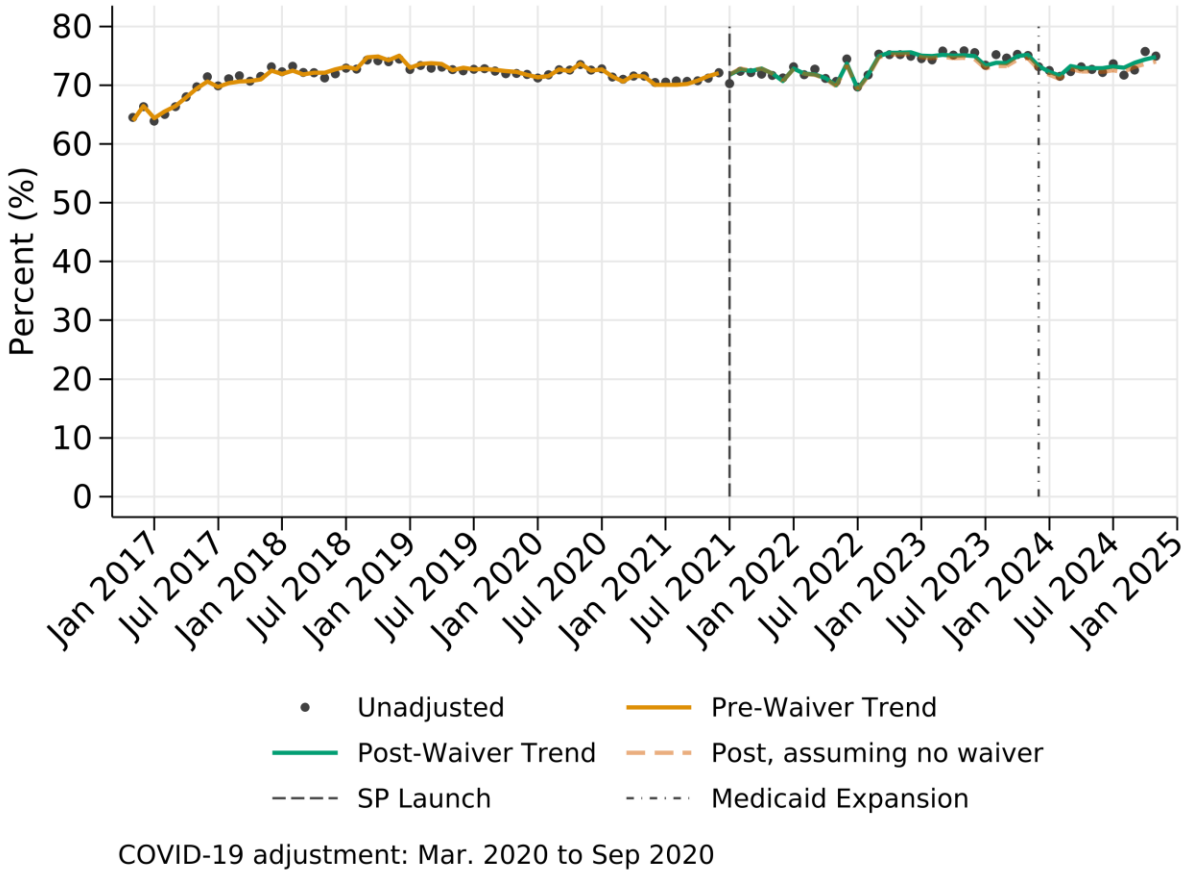
We examined two different measures of MOUD for this evaluation. One is a monthly measure of MOUD receipt among SP beneficiaries with an OUD diagnosis and lines up with the SUD metrics reported quarterly to CMS. The second measure is an annual measure of use of MOUD for SP beneficiaries age 18-64, which examines the specific type of MOUD.

Among the SP population, monthly rates of use of medications for OUD were predominantly stable across the study period. The rate of MOUD use increased steadily between 2017 and 2019, from roughly 65% to 75%, before stabilizing around 72% between 2019 and 2022 (Figure 44). Notably, rates remained stable throughout the COVID-19 PHE and the NC Medicaid Transformation, suggesting limited disruptions to MOUD access for SP-eligible beneficiaries during considerable transition periods in OUD care. Rates of MOUD use increased to 76% in Fall 2022 before experiencing a small, temporary decline following Medicaid Expansion.

SP implementation was not associated with immediate changes in the use of MOUD, nor was it associated with changes in the rate of use over time (Table 24). Our analysis did find SP implementation to be associated with a 2.6 percentage point higher rate of MOUD use at the end of the study period compared with the counterfactual rate in the absence of SP implementation.

Across comparison groups, there were few notable differences in the impact of SP implementation on rates of MOUD use as seen in Figure 45. We observe a smaller effect of SP implementation on MOUD use at the end of the study period for Hispanic beneficiaries and for beneficiaries that are disabled compared to non-Hispanic and non-disabled beneficiaries, respectively (Figure 45).

Figure 44: Trends in Medication Assisted Treatment: OUD population



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

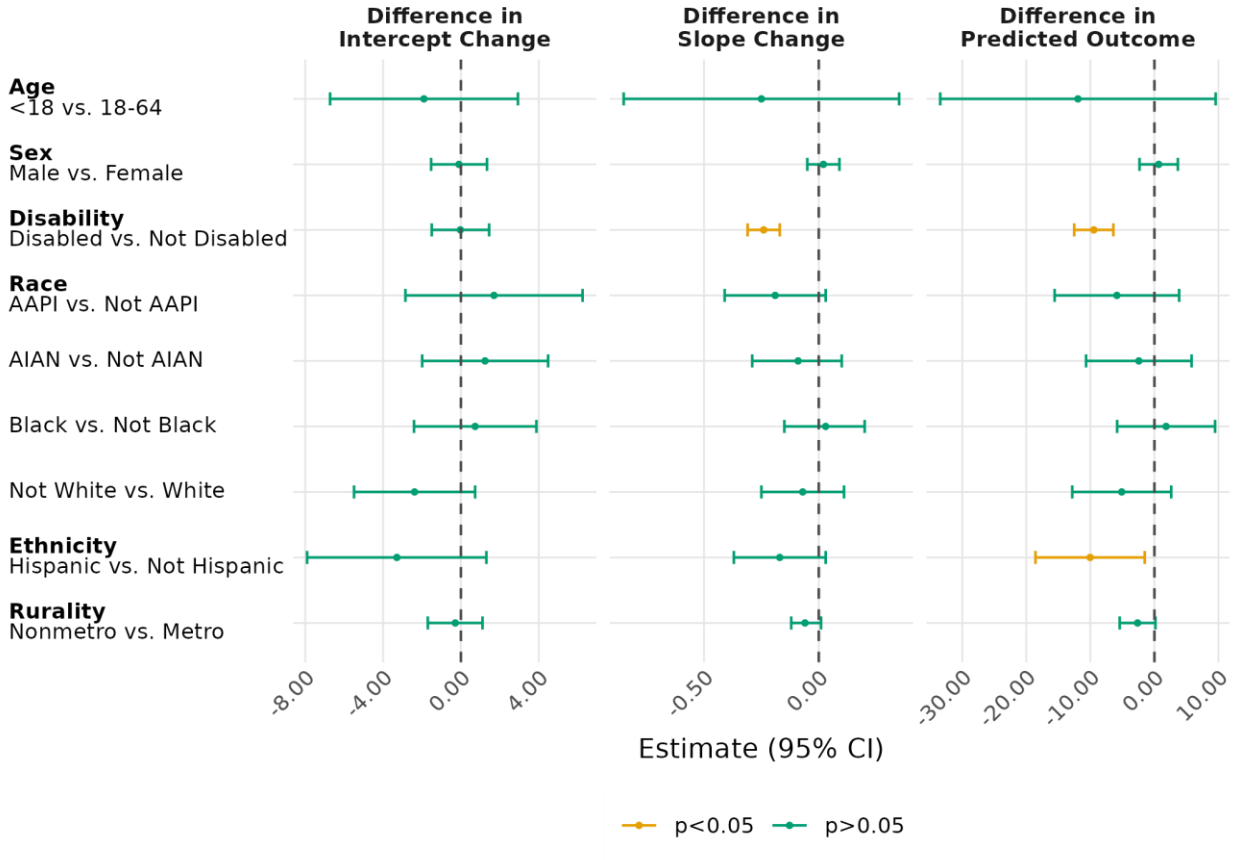
Table 24: Interrupted time series estimates of Medication Assisted Treatment: OUD population

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	71.36* (70.58, 72.15)	71.89* (71.18, 72.60)	0.53 (-0.30, 1.35)
Monthly Change	-0.044* (-0.078, -0.010)	0.0072 (-0.036, 0.050)	0.051 (-0.0025, 0.10)
Predicted Average Outcome Nov 2024	69.61* (67.60, 71.61)	72.18* (70.93, 73.42)	2.57* (0.26, 4.88)
N			606,236

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Figure 45: Comparison groups in Medication Assisted Treatment: OUD population



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

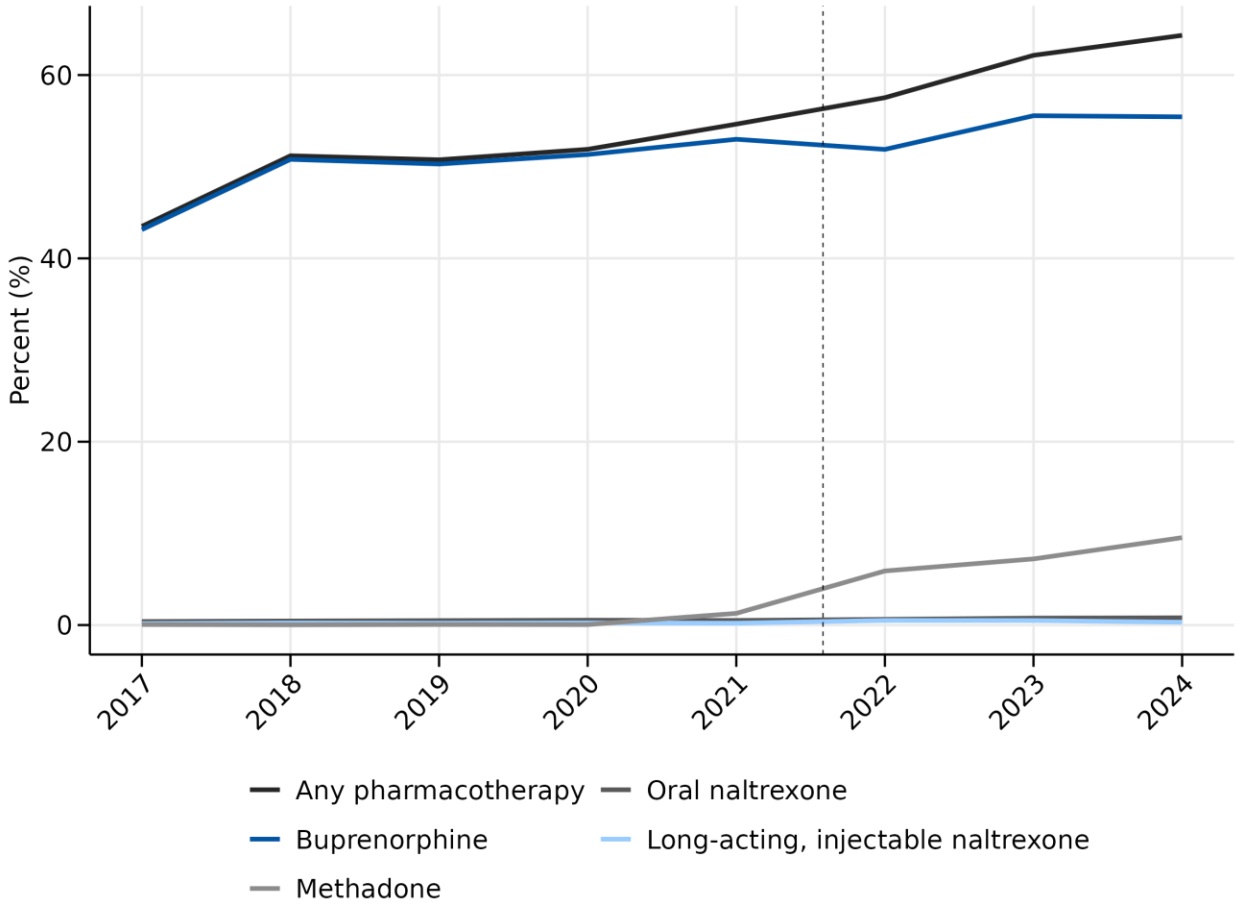
Figure 46 plots the unadjusted annual rates of use of pharmacotherapy for OUD among North Carolina SP beneficiaries aged 18-64 with an OUD diagnosis. Use of pharmacotherapy for OUD increased steadily throughout the study period among non-elderly adults, ranging from 42% of SP beneficiaries with an OUD diagnosis receiving MOUD in 2017 to over 61% of SP beneficiaries with OUD receiving MOUD in 2024. The rate for North Carolina's SP population is close to the US median for this measure (60.5%) for 2024.

Most North Carolina SP non-elderly adult beneficiaries receiving MOUD in 2024 were being treated with buprenorphine (Figure 46). Use of buprenorphine to treat OUD increased from a rate of 42% in 2017 to over 55% in 2024. In comparison, rates for the use of methadone for

treating OUD remained at very low levels from 2017 to 2019. By 2024, roughly 10% of adult beneficiaries with OUD in SPs were being treated with methadone. Use of injectable and oral naltrexone among Standard Plan beneficiaries with OUD remained rare throughout the study period. We note that North Carolina began to bundle payments to opioid treatment programs in Oct 2023, which reduced our ability to detect the prevalence of specific medication treatments in OTPs, since specific medication receipt is no longer coded separately. For this analysis, we counted the receipt of a bundled payment by an OTP as an indicator that the beneficiary received methadone, although this may overstate the actual rate of methadone use.

The appreciable growth in the use of buprenorphine and methadone to treat OUD may be attributed to a quickly changing landscape of state and federal regulations for MOUD. This includes changes to North Carolina's opioid treatment program (OTP) payment approach, North Carolina's Medicaid expansion, and an easing of federal regulations on take-home doses and telehealth for MOUD implemented during the COVID-19 public health emergency and sustained after its end.

Figure 46: Trends in Use of Pharmacotherapy for Opioid Use Disorder (OUD): All



Notes: This figure plots unadjusted rates from the metric population. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Initiation and Engagement of Opioid Abuse or Dependence Treatment (IET-AD)

These metrics measure treatment initiation and engagement for Medicaid beneficiaries age 13 and older with a diagnosed OUD, capturing two sequential steps in the treatment pathway: initiation (receipt of treatment services within 14 days of a new diagnosis or identification event) and engagement (receipt of two or more additional treatment services within 34 days of initiation). These measures capture all types of OUD treatment services, including medication management, services provided in residential IET-settings, and peer support services.

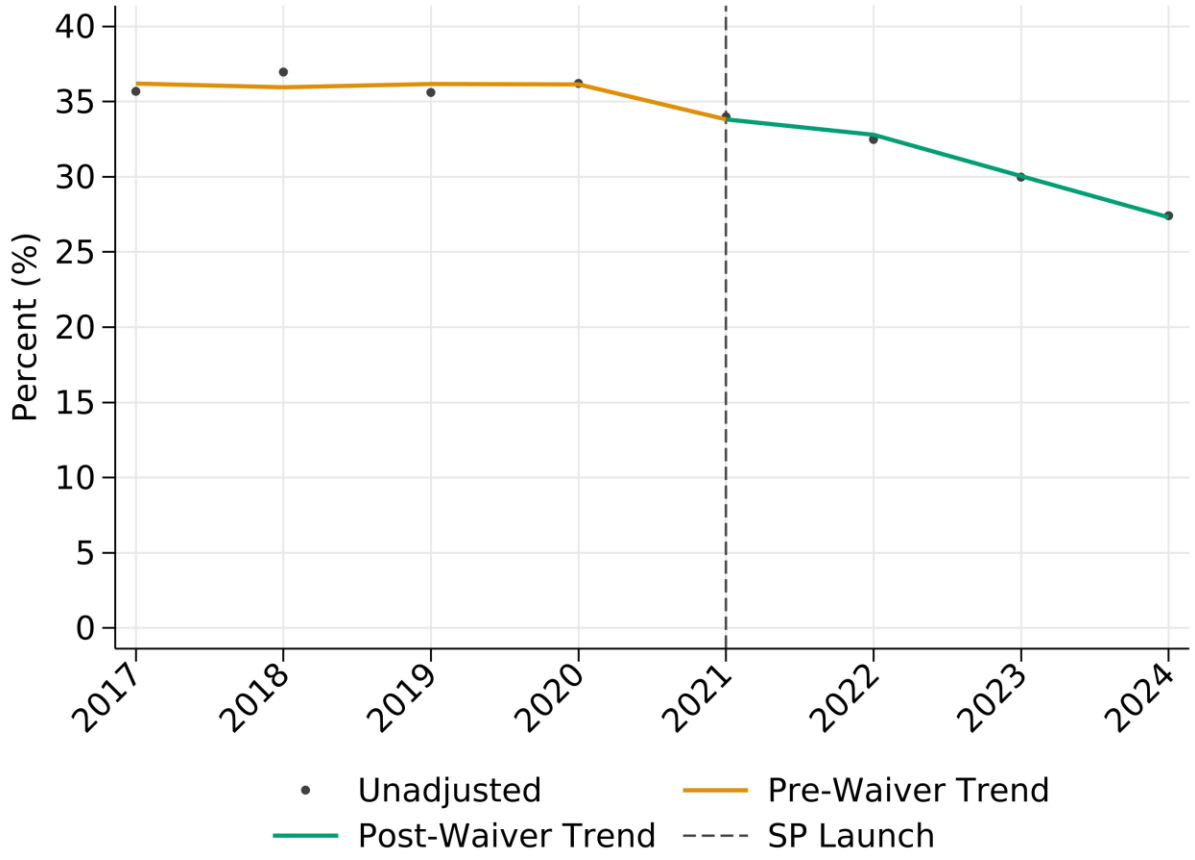
Continuation of Pharmacotherapy for Opioid Use Disorders

Continuation of pharmacotherapy for OUD measures the percentage of individuals who remain on MOUD for at least 180 days following treatment initiation, an important indicator of treatment retention and medication adherence. Extended pharmacotherapy duration is associated with improved clinical outcomes, reduced overdose risk, and lower rates of treatment discontinuation.[39]

Figure 51 shows a consistent downward trajectory in annual MOUD continuation rates that started in 2021 and continued through the implementation of SPs. Because this figure presents only annual rates, we cannot tell if this decline started before or after SP implementation in July 2021. Rates exhibited relative stability at approximately 36% prior to 2021, followed by a sustained decline through 2024, reaching approximately 27% by the study endpoint among the SP population. The persistent decline in MOUD continuation rates indicates system-level challenges in translating increased service availability into sustained longitudinal engagement.

[39] Burns M, Tang L, Chang C-CH, Kim JY, Ahrens K, Allen L, et al. Duration of medication treatment for opioid-use disorder and risk of overdose among Medicaid enrollees in 11 states: a retrospective cohort study. Addiction. 2022 Dec;117(12):3079–88.

Figure 51: Trends in Continuity of Pharmacotherapy for OUD for 180 days or more (SUD22)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Risky Prescribing of Opioids

In order to examine the upstream prescribing of opioids in the SP population, we evaluated annual trends for three national quality measures: use of opioids at high dosage in persons without cancer, use of opioids from multiple providers in persons without cancer, and concurrent use of opioids and benzodiazepines.

Evidence suggests that these types of risky prescribing practices are associated with higher risk of addiction and opioid overdose deaths.[40] In attempts to combat these risks, the state enacted the NC STOP Act of 2017, which made it mandatory for prescribers and dispensers to check a patient's 12-month prescription history in the controlled substances reporting system (CSRS) before prescribing or dispensing Schedule II or III opioids starting on July 7, 2021. The effects of the STOP Act can be seen throughout the baseline period of our study for each of these measures.

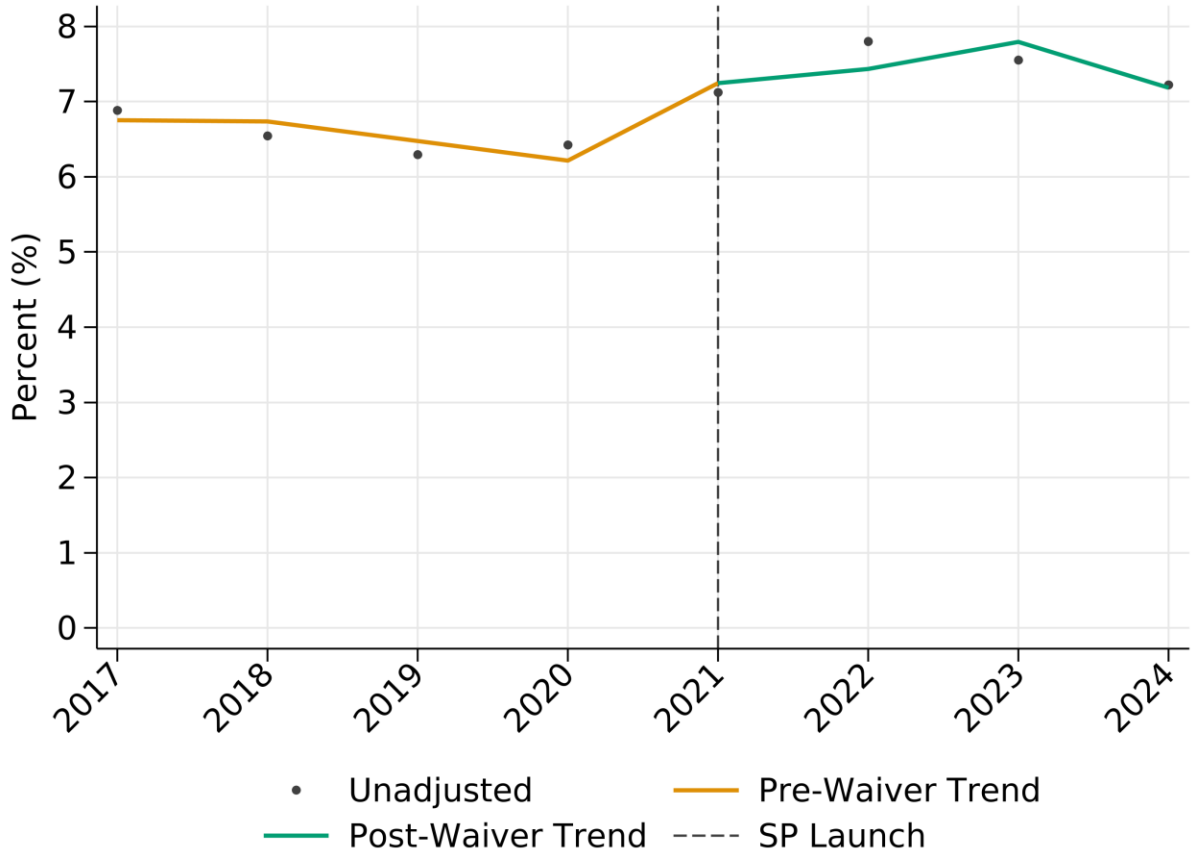
Use of Opioids at High Dosage in Persons without Cancer

This measure is defined as the percentage of SP beneficiaries aged 18 and older who received two or more prescriptions for opioids covering 15 or more days who had a daily dosage greater than 90 morphine milligram equivalents (MME) over a period of 90 days or more. Beneficiaries with a cancer or sickle cell disease diagnosis, or in hospice or palliative care were excluded.

Use of opioids at high dosage varied between 6-8% of adult Medicaid SP beneficiaries receiving opioid prescriptions throughout the study period (Figure 52). The unadjusted rate declined slightly between 2017 and 2019, before beginning to increase prior to the launch of SPs in 2021. Unadjusted rates peaked in 2022 at nearly 8% before returning to near baseline levels in 2024. By 2024, North Carolina's SP population was just above the national median for this measure (6.4%).

[40] Liu S, O'Donnell J, Gladden RM, McGlone L, Chowdhury F. Trends in Nonfatal and Fatal Overdoses Involving Benzodiazepines - 38 States and the District of Columbia, 2019-2020. MMWR Morb Mortal Wkly Rep. 2021 Aug 27;70(34):1136–41.

Figure 52: Trends in Use of Opioids at High Dosage in Persons Without Cancer (OHD-AD)



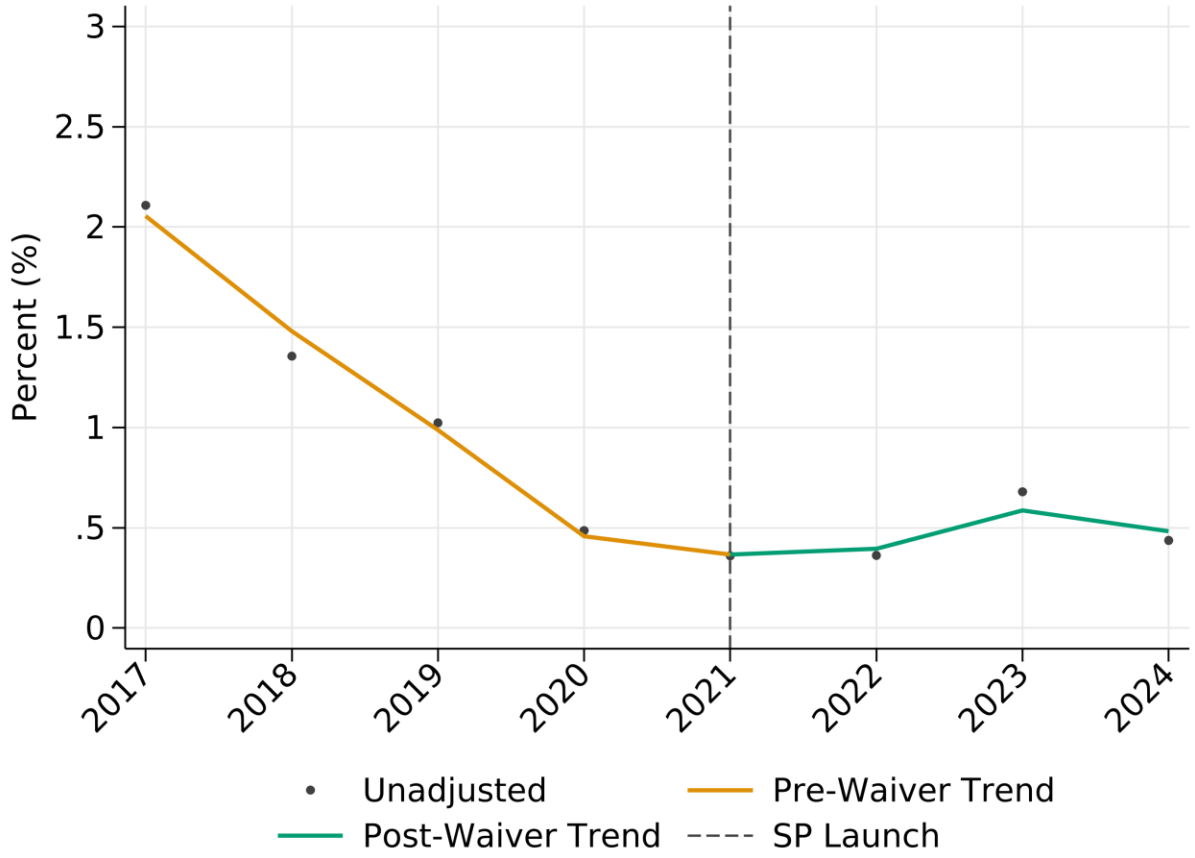
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Use of Opioids from Multiple Providers in Persons without Cancer

This measure tracks the percentage of SP beneficiaries aged 18 and older who received prescriptions for opioids from four or more prescribers and four or more pharmacies within 180 days. Rates for use of opioids from multiple providers declined to near zero levels before the launch of SPs, falling from roughly 2% in 2017 to 0.5% by 2020 (Figure 53). After SP implementation, rates stabilized at roughly 0.5%.

Figure 53: Trends in Use of Opioids from Multiple Providers in Persons Without Cancer (OMP)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

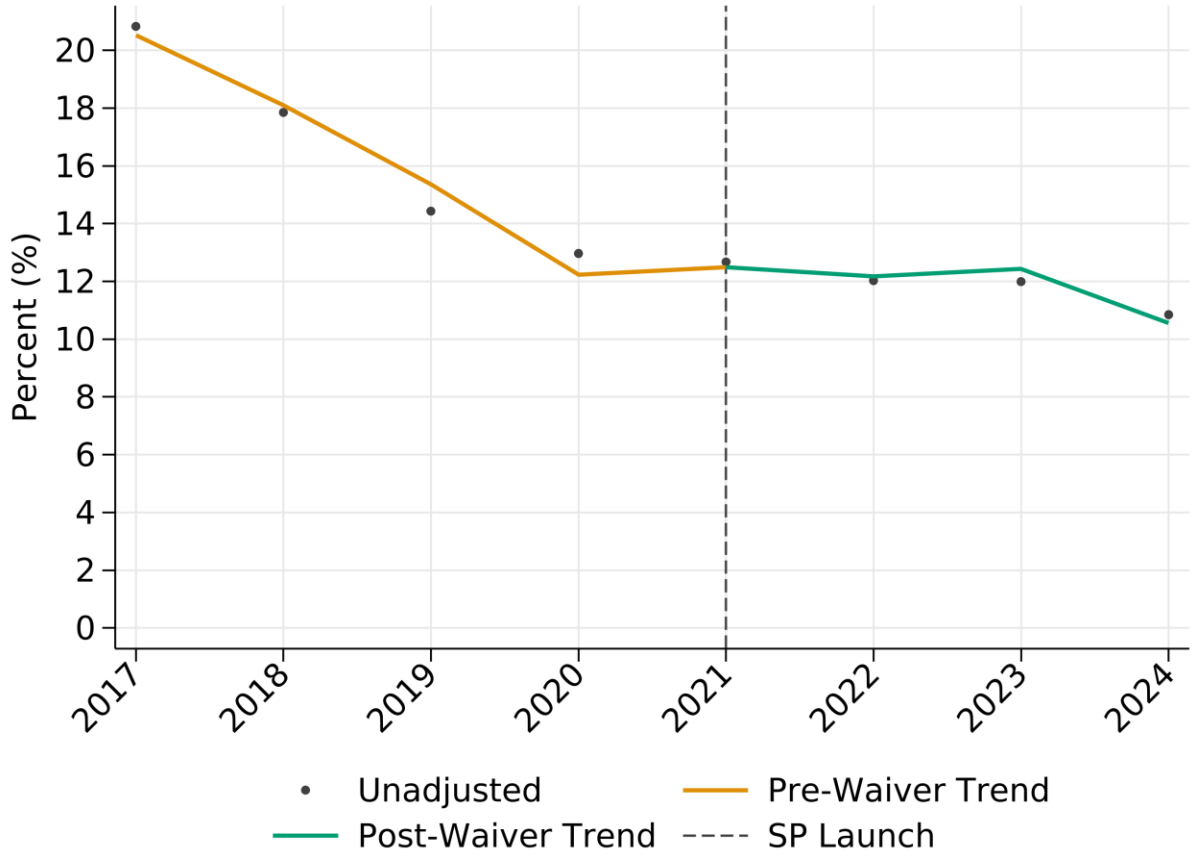
Concurrent Prescribing of Opioids and Benzodiazepines

Concurrent prescribing of opioids and benzodiazepines represents a critical patient safety concern, as this combination substantially increases overdose risk.[41]-[42] Prior to the launch of SPs, North Carolina had been making rapid progress in reducing these dangerous prescribing combinations, with rates of beneficiaries using opioids who also received at least 30 days' supply of benzodiazepines declining from approximately 20% of beneficiaries with two or more opioid dispensing events in 2017 to 13% by 2020 (Figure 54). Progress in reducing concurrent opioid and benzodiazepine prescribing slowed considerably after SP implementation, indicating that the STOP Act did not have a strong effect on this measure in the SP population after 2021, potentially due to higher levels of utilization of CSRS prior to the mandatory reporting date. We do observe a small decrease in rates in 2024.

[41] Liu S, O'Donnell J, Gladden RM, McGlone L, Chowdhury F. Trends in Nonfatal and Fatal Overdoses Involving Benzodiazepines - 38 States and the District of Columbia, 2019-2020. MMWR Morb Mortal Wkly Rep. 2021 Aug 27;70(34):1136–41.

[42] Sun EC, Dixit A, Humphreys K, Darnall BD, Baker LC, Mackey S. Association between concurrent use of prescription opioids and benzodiazepines and overdose: retrospective analysis. BMJ. 2017 Mar 14;356:j760.

Figure 54: Trends in Concurrent Use of Opioids and Benzodiazepines (COB-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Summary

In conclusion, we examined eight opioid-related metrics reflecting medications and other treatments for OUD and harmful long-term use of opioids to test Hypothesis 1.3. SP implementation was associated with increases in rates of treatment initiation and engagement for opioid use disorders and increases in receipt of MOUD. Annual trends noted improvements in measures of harmful opioid use, such as reduced co-occurring opioid and benzodiazepines prescriptions and reduced prescribing of high-dosage opioids to people without cancer diagnoses, but the contribution of SP launch on such measures cannot be determined due to limited data points in annual analyses.

Continuity of pharmacotherapy for OUD, another important measure for assessing sustained engagement with treatment, decreased after SP implementation. This finding, along with low rates of treatment engagement at the end of the study period, indicate opportunities for improvement in retaining beneficiaries with OUD after getting them to treatment.

Hypothesis 1.4: The implementation of Advanced Medical Homes (AMHs) will increase the delivery of care management services and will improve quality of care and health outcomes.

Quantitative Findings

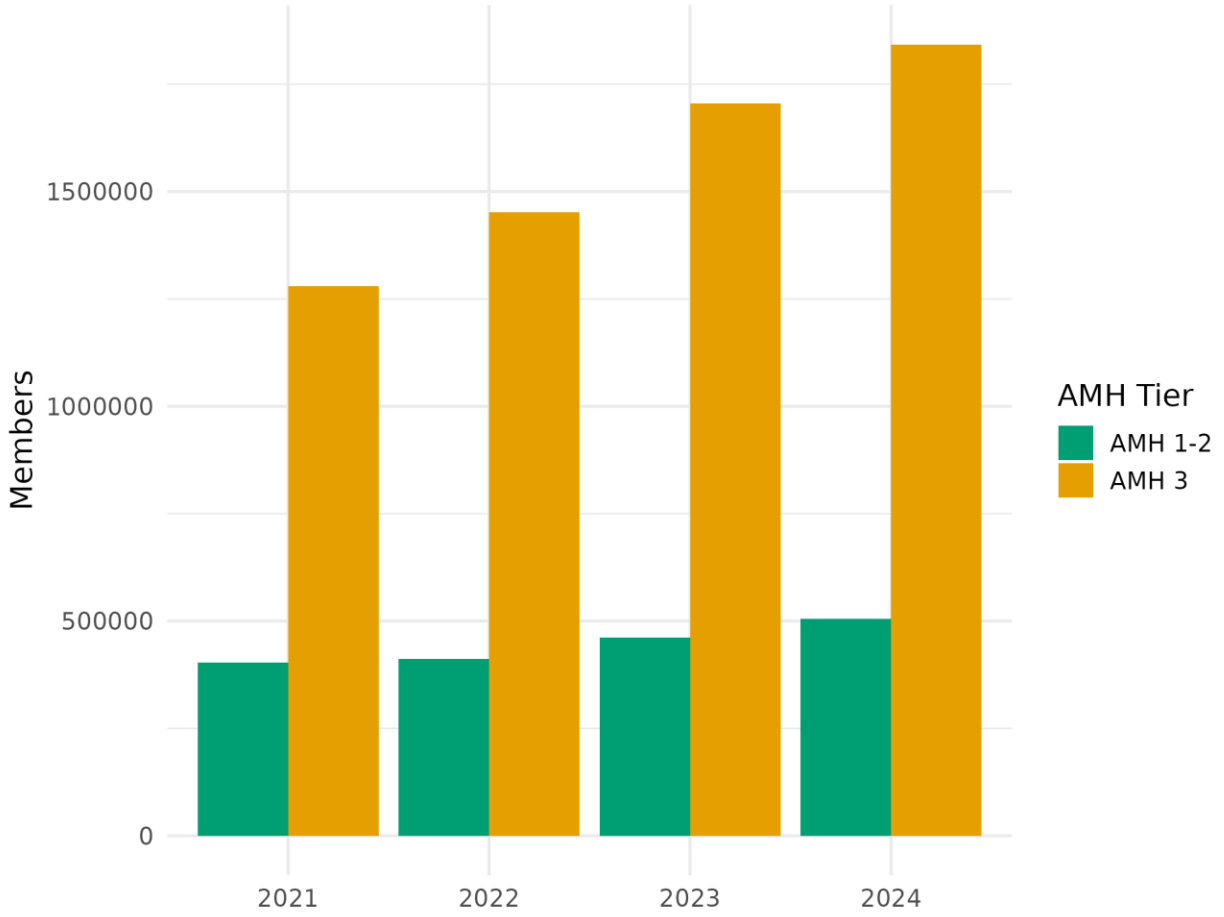
Providers and Care Management

Number of Members in AMHs

This section examines differences in metrics between beneficiaries enrolled in Tier 3 Advanced Medical Homes (AMHs) and those in Tiers 1-2 AMHs. We include metrics that are included in the AMH measure set as well as metrics that are not, in order to consider the impact of AMH tiers on a broad set of quality metrics.

The majority of members in SPs and TPs are enrolled in AMH Tier 3 practices (Figure 55 and Figure 56), with about 78% and 74% of members affiliated with these practices, respectively. Among SP members, there is an increasing trend in the number of members affiliated with AMH Tier 3 practices providers, increasing from approximately 1.25 million beneficiaries in 2021 to over 1.75 million by 2024.

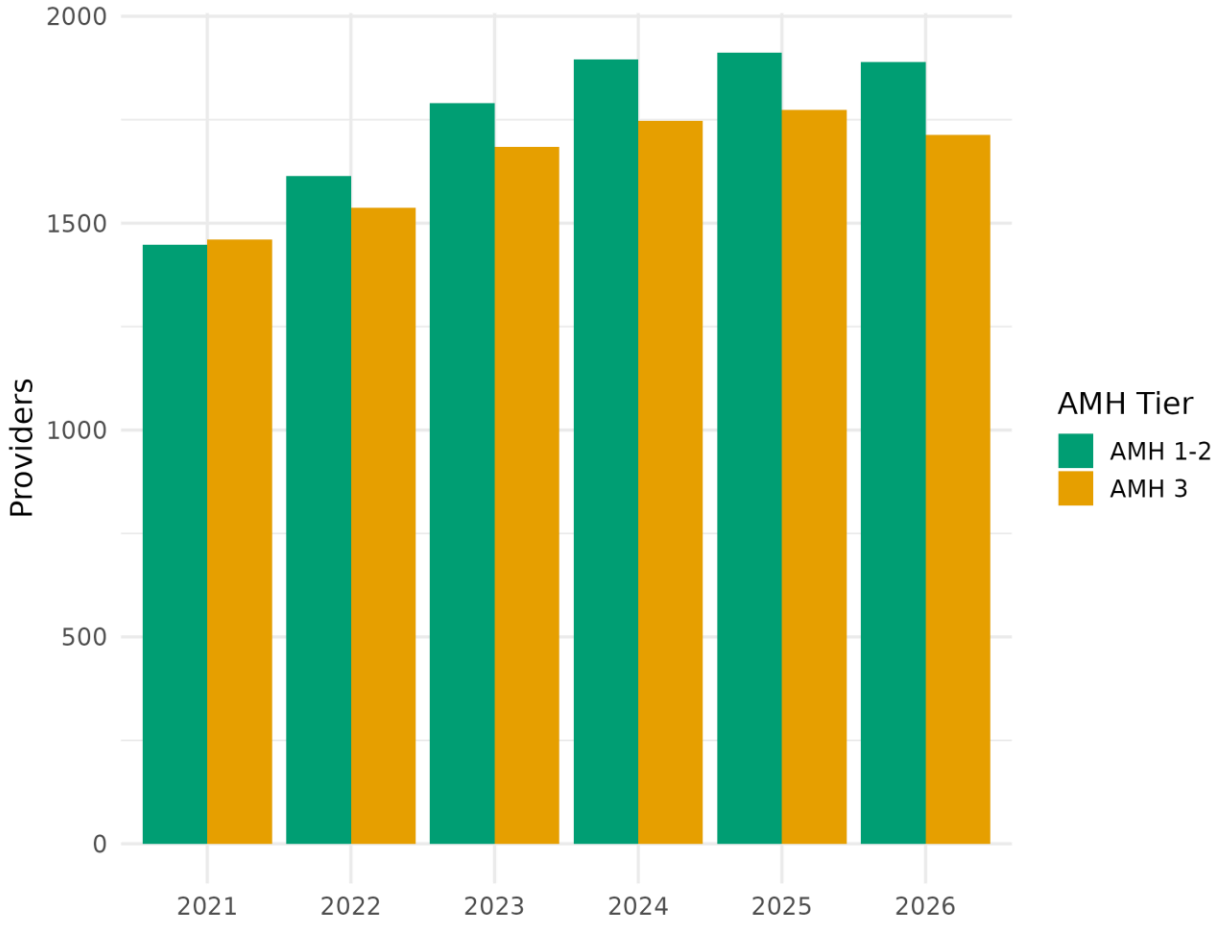
Figure 55: Counts of Number of SP enrollees attributed to an AMH



Number of Providers in AMHs

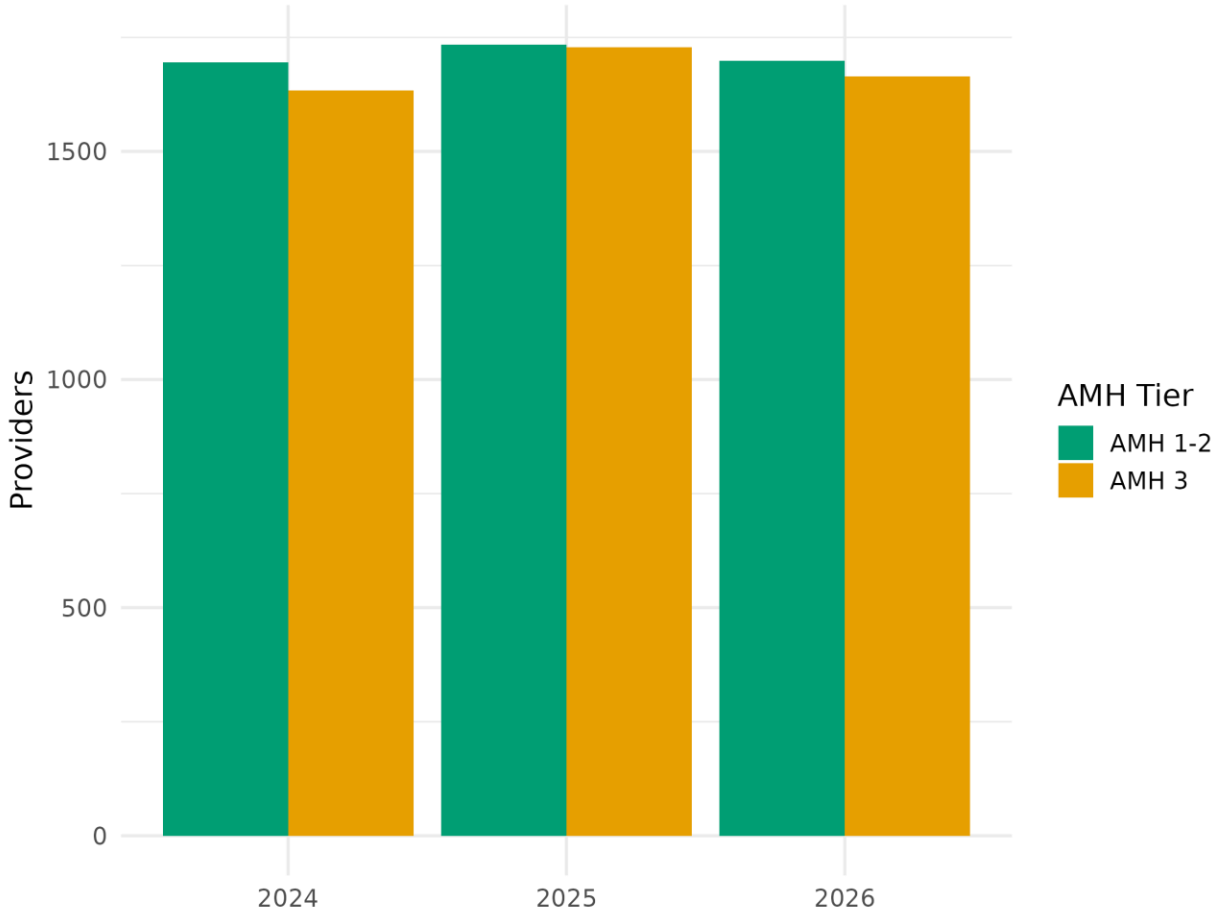
Within AMH Tiers 1-2 and Tier 3, there has been a growing number of providers since 2021, but this value leveled off in 2025. The total number of providers participating in SPs has continued to increase year over year.

Figure 57: Counts of Number of Providers that contract with a SP by AMH Level



One NPI represents a unique provider.

Figure 58: Counts of Number of Providers that contract with a TP by AMH Level



One NPI represents a unique provider.

Care Management (CM)

From Figure 59 we find that there was an increase in the percentage of SP enrollees who are receiving care management from either AMH Tier 3 practices and AMH Tier 1-2 practices. AMH Tier 3 practices have a statistically significant higher percent of enrollees who receive care management in the post period when compared to the pre-period.

Figure 59: Trends in Percent of Enrollees Receiving Care Management



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. NA Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Table 27: Difference-in-Differences Estimates of Percent of Enrollees Receiving Care Management

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	1.047** (0.417, 1.676)	1.470*** (1.101, 1.839)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.158 (-0.476, 0.791)	0.392*** (0.252, 0.533)
DiD estimate (post*AMH Tier 3 practices)	1.487*** (0.937, 2.037)	1.390*** (0.760, 2.019)
N	19,282,504	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

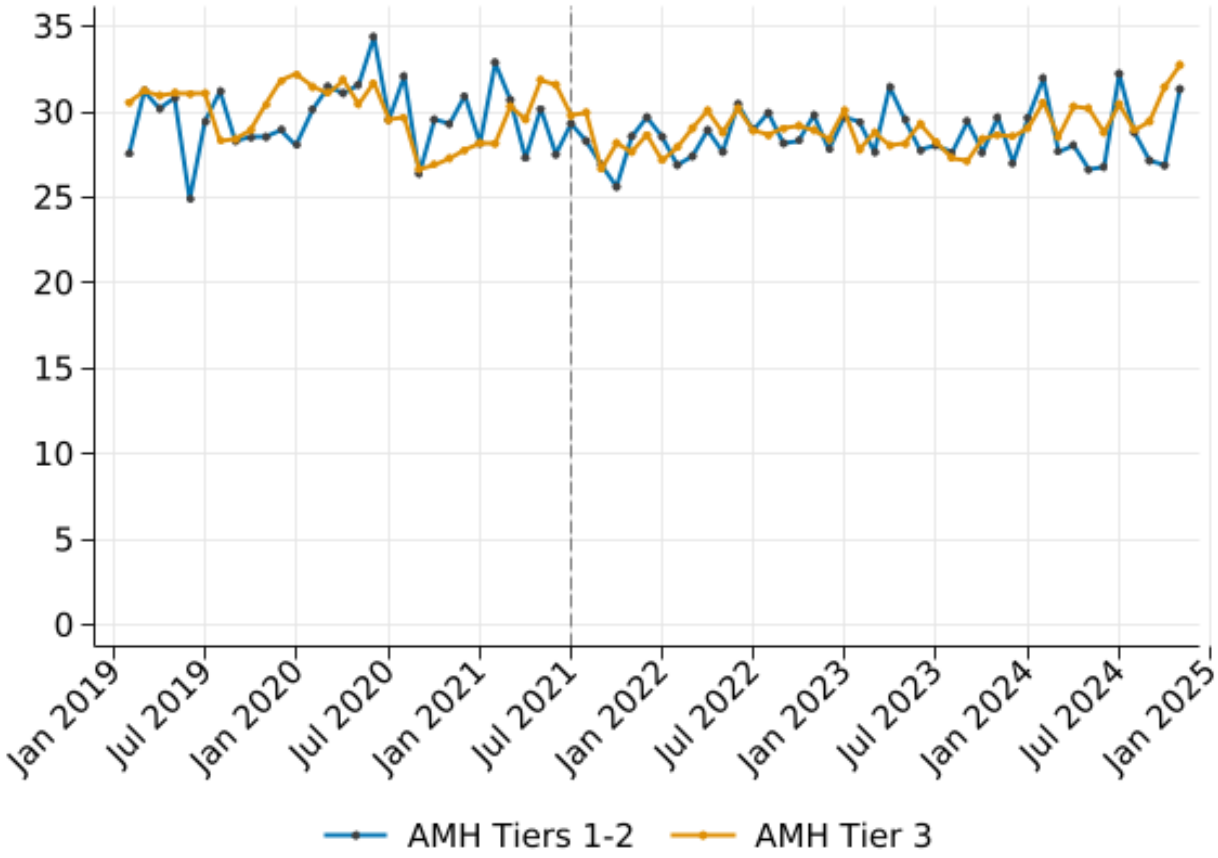
Wellness and Prevention

The Wellness and Prevention measures remained relatively consistent over 2019-2024. We describe the trends in differences in several of these metrics below, using difference-in-differences, or pre/post/case/control models.

Immunizations for Adolescents (IMA)

We do not see evidence that the AMH Tier 3 practices attained higher levels of most preventative health measures such as Immunizations for Adolescents (IMA) and Childhood Immunization Status (CIS) over rates from AMH 1-2 providers, controlling for model covariates (Table 28).

Figure 60: Trends in Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 12-13) in the NC Medicaid population as determined in the metric specifications.

Table 28: Difference-in-Differences Estimates of Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	2.358 (-0.156,4.871)	2.938 (-0.485,6.362)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.236 (-1.397,1.868)	7.346*** (4.087,10.60)
DiD estimate(post*AMH Tier 3 practices)	0.0910 (-1.699,1.881)	-0.665 (-3.996,2.666)
N	324,138	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 12-13) in the NC Medicaid population as determined in the metric specifications.*

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC)

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC) reflects the percentage of beneficiaries 3-17 years old who had an outpatient visit with a PCP or OB/GYN and had evidence in claims or encounters of: (1) BMI percentile documentation; (2) counseling for nutrition; or (3) counseling for physical activity. AMH Tier 3 practices and AMH Tier 1-2 practices had no difference for BMI percentile documentation or counseling for physical activity. However, Weight Assessment and Counseling for Nutrition for Adolescents is 2.35% points lower for beneficiaries in AMH Tier 3 practices compared to those in AMH Tier 1-2 practices after AMH launch. In the post-period, Weight Assessment and Counseling for Nutrition is shown below and other figures and tables can be found in the Appendix.

Figure 61: Trends in Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from a random 20% sample of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.

Table 29: Difference-in-Differences Estimates of Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition

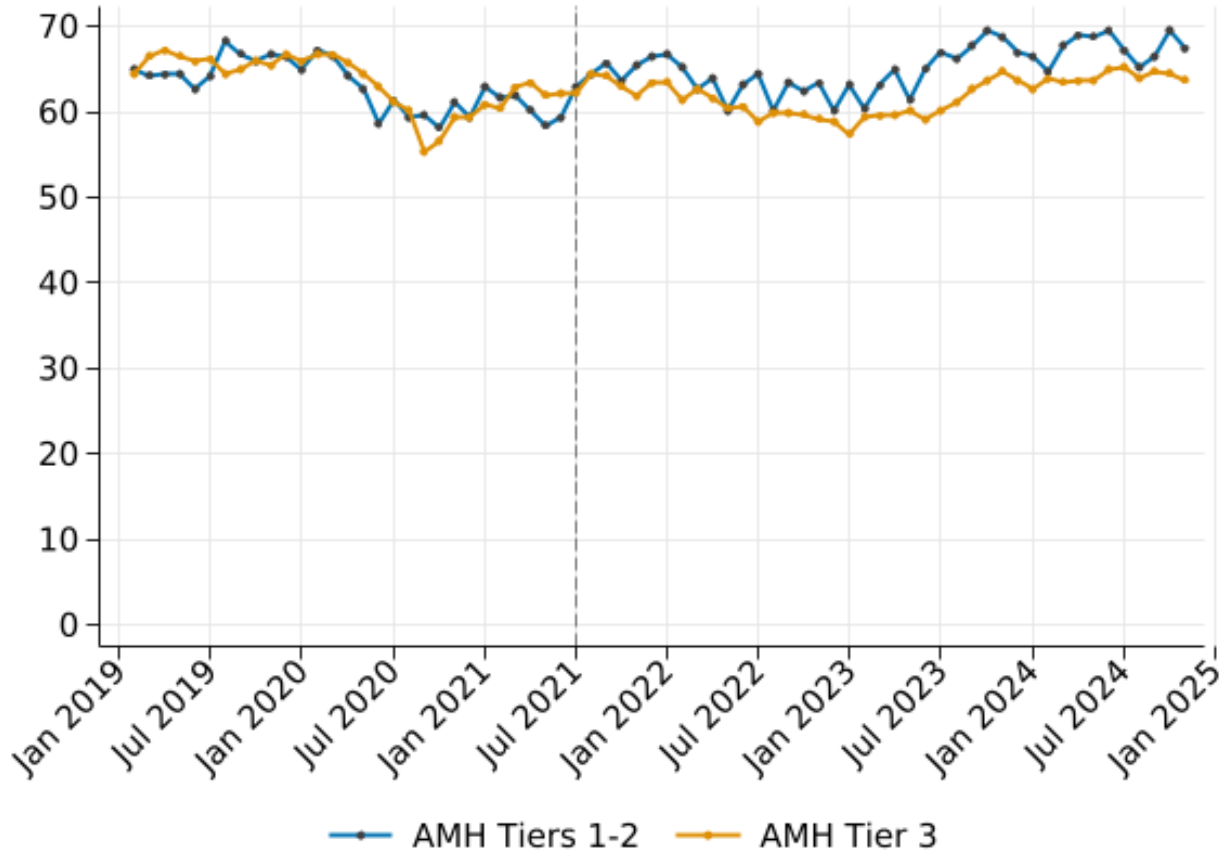
	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	5.498*** (4.092,6.905)	3.951*** (2.326,5.575)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	2.206*** (1.202,3.211)	7.033*** (4.676,9.390)
DiD estimate(post*AMH Tier 3 practices)	-2.346** (-3.899,-0.792)	-0.178 (-2.022,1.665)
N	10,096,867	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from a random 20% sample of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.*

Well-Child Visits in the First 30 Months of Life (W30)

Well-Child Visits in the First 30 Months of Life has two rates, 6 or more well-child visits in the first 15 months of life and 2 or more well-child visits in 15-30 months of life. From Figure 62 we can see that children in AMH Tier 3 practices had lower attendance in well-child visits in the first 15 months of life compared to children in AMH Tier 1-2 practices after AMH launch. However, both AMH Tier 3 practices and AMH Tier 1-2 practices had an increase in well-child visit compliance in the first 15 months of life after AMH launch. For well-child visits in 15-30 months of life, children AMH Tier 3 practices had no statistically significant difference in well-child visit from children in AMH Tier 2 practices after AMH launch.

Figure 62: Trends in Well-Child Visits (W30): Well-Child Visits in the First 15 Months of Life



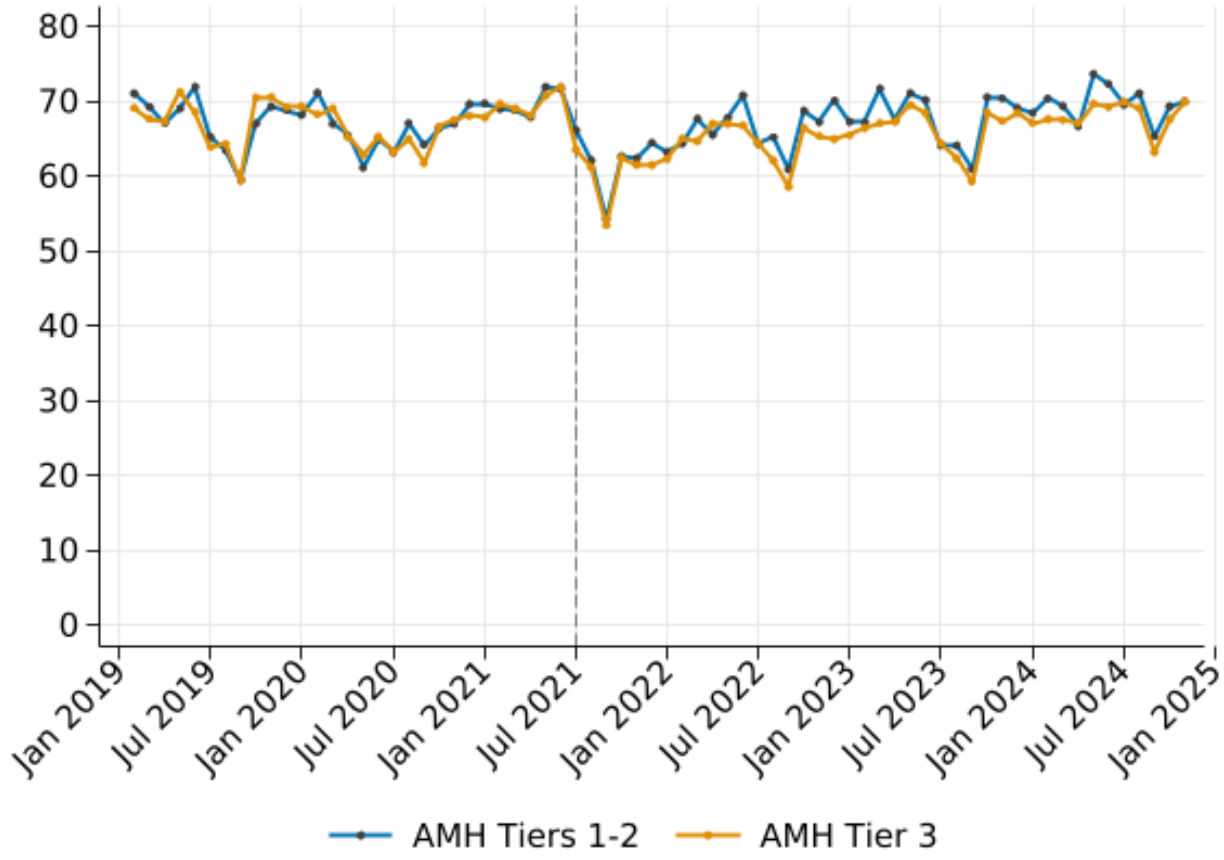
Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 15 month olds) in the NC Medicaid population as determined in the metric specifications.

Table 30: Difference-in-Differences Estimates of Well-Child Visits (W30): Well-Child Visits in the First 15 Months of Life

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	2.813* (0.437,5.189)	2.247 (-0.776,5.271)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.487 (-1.194,2.168)	3.514* (0.601,6.428)
DiD estimate(post*AMH Tier 3 practices)	-3.515*** (-5.211,-1.818)	-2.219 (-4.754,0.315)
N	323,033	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 15 month olds) in the NC Medicaid population as determined in the metric specifications.*

Figure 63: Trends in Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 30 month olds) in the NC Medicaid population as determined in the metric specifications.

Table 31: Difference-in-Differences Estimates of Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	1.677 (-0.845,4.199)	0.635 (-2.184,3.453)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	-0.220 (-1.485,1.045)	0.321 (-1.952,2.594)
DiD estimate(post*AMH Tier 3 practices)	-1.368 (-2.870,0.135)	-0.332 (-2.271,1.608)
N	368,100	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 30 month olds) in the NC Medicaid population as determined in the metric specifications.*

Women's Health

Chlamydia Screening (CHL)

Chlamydia Screening (CHL) measures the annual percentage of women who are sexually active who received a chlamydia screening in two age groups: (1) 16-20 years old and (2) 21-24 years old. For both populations, we see chlamydia screening is higher by more than 10 percentage points in AMH Tier 3 practices. However, we cannot be certain that these are due to the AMH Tier 3 practices since these are unadjusted annual percentages.

Figure 64: Trends in Women's Preventive Care: Chlamydia Screening (CHL) in Women ages 16-20

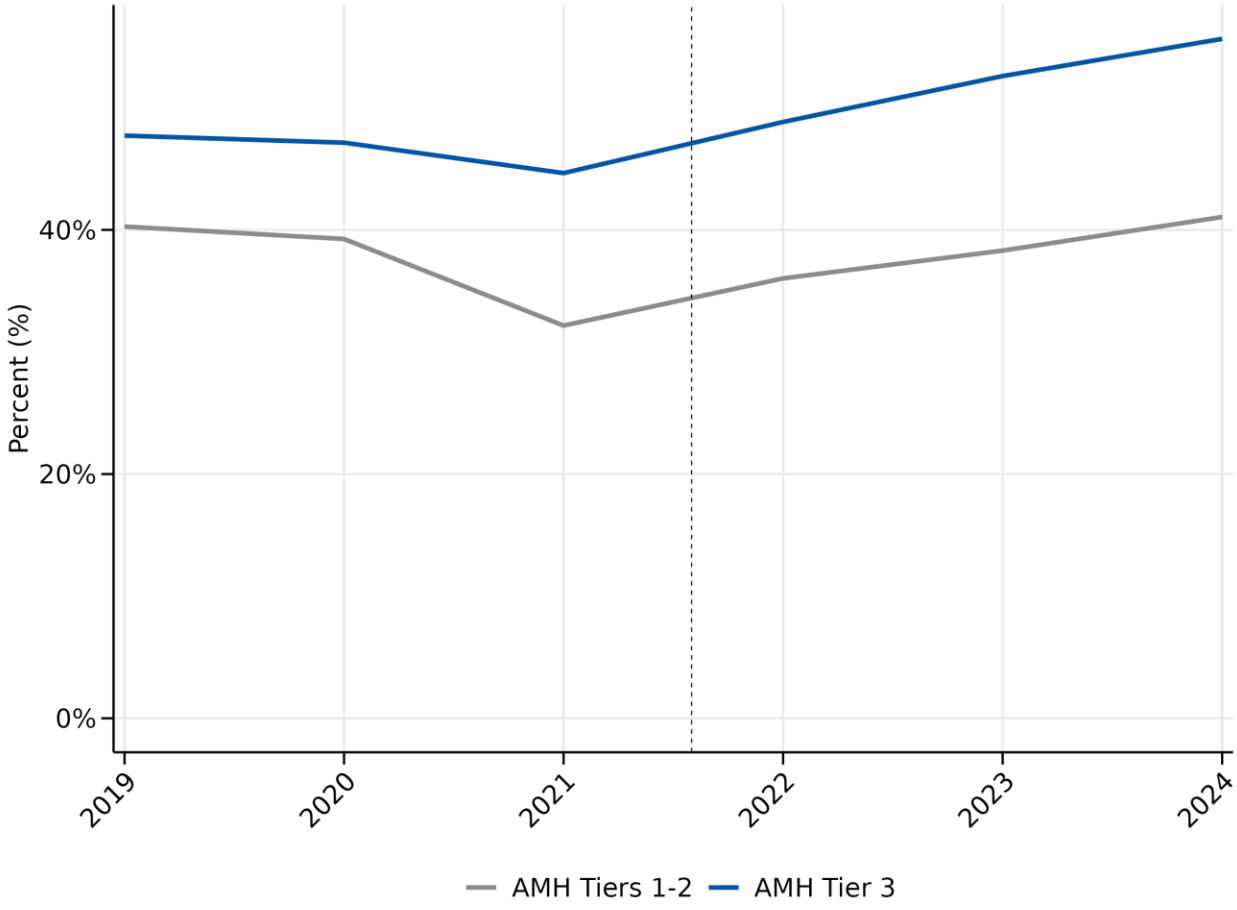
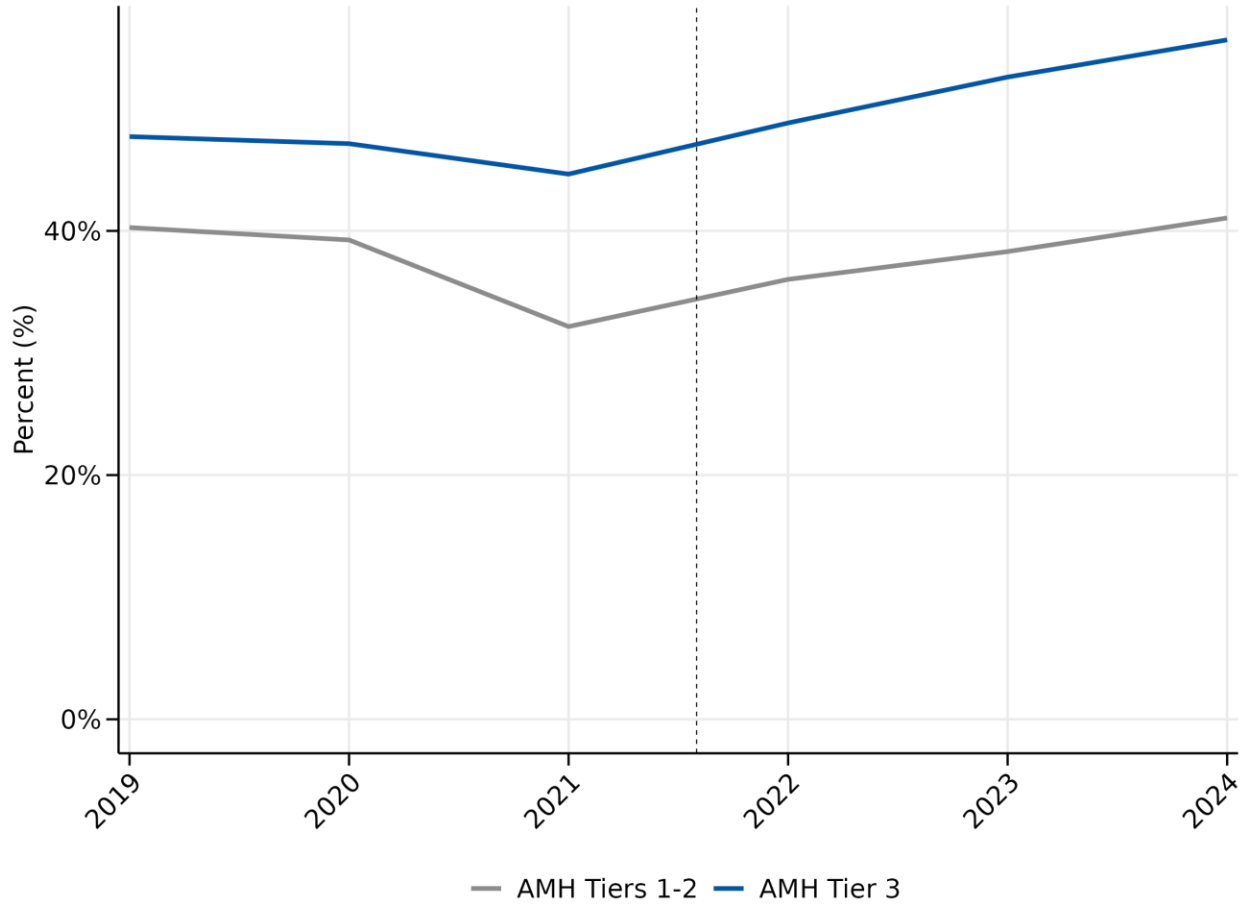


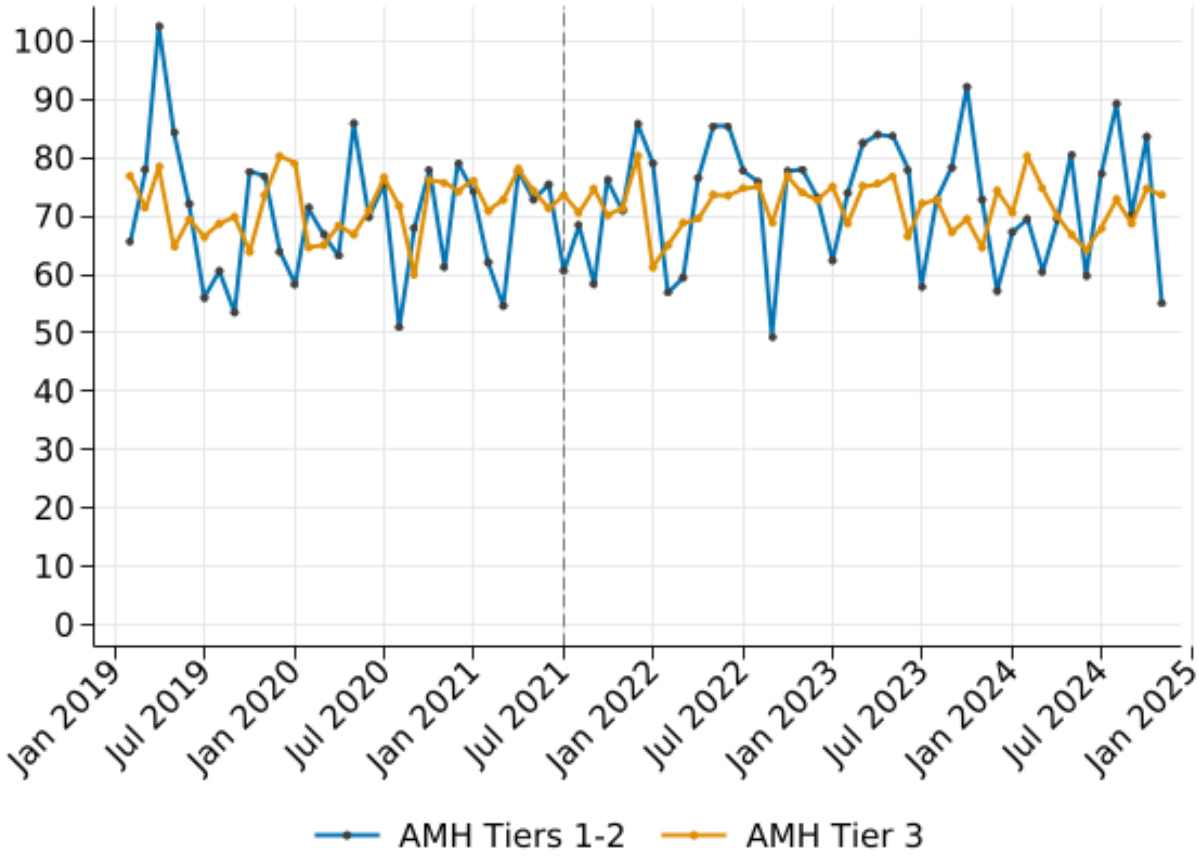
Figure 65: Trends in Women's Preventive Care: Chlamydia Screening (CHL) in Women ages 21-24



Timely Prenatal Care

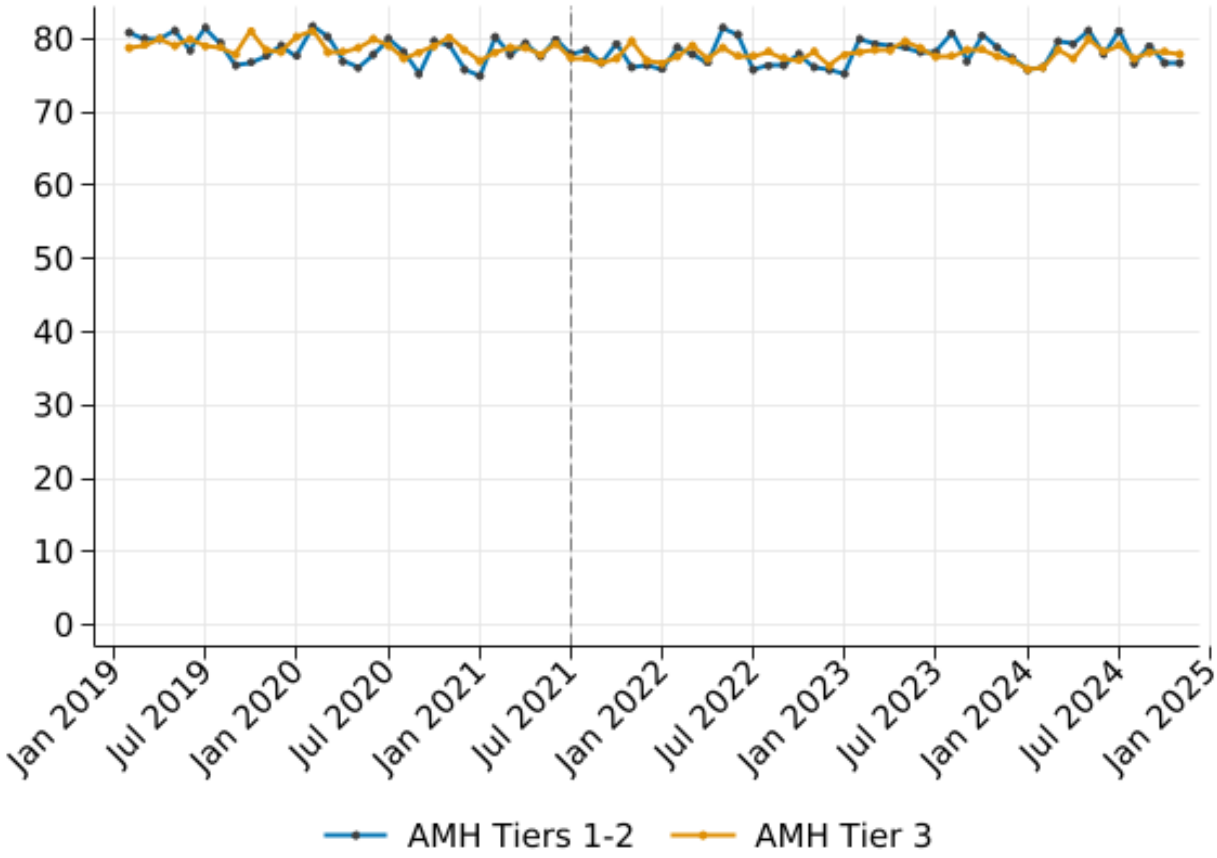
The timeliness of prenatal care is measured among members who are younger than 21 years of age and those who are 21 years of age or older. Within both groups, there does not appear to be any large changes in the percentages of members receiving prenatal care during the Demonstration period as shown in Figure 66 and Figure 67. Additionally, there appear to be no significant differences between the rates of prenatal care for both AMH Tier 1-2 practices and AMH Tier 3 practices as shown in Table 32 and Table 33.

Figure 66: Trends in Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for members under 21



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of Female (aged 0-20) in the NC Medicaid population as determined in the metric specifications.
SP attribution was assigned based on SP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.

Figure 67: Trends in Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of Female (aged 21-64) in the NC Medicaid population as determined in the metric specifications.
AMH attribution was assigned based on AMH eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.

Table 32: Difference-in-Differences Estimates of Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for members under 21

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-3.819 (-19.42,11.79)	-9.314 (-22.05,3.421)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.361 (-6.482,7.204)	-0.567 (-4.186,3.053)
DiD estimate(post*AMH Tier 3 practices)	-1.971 (-9.302,5.360)	-1.122 (-6.067,3.823)
N	5,939	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of Female (aged 0-20) in the NC Medicaid population as determined in the metric specifications. SP attribution was assigned based on SP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.*

Table 33: Difference-in-Differences Estimates of Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-1.446 (-3.992,1.099)	-1.173 (-3.584,1.238)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.251 (-1.070,1.571)	0.313 (-0.703,1.328)
DiD estimate(post*AMH Tier 3 practices)	-0.386 (-1.625,0.853)	-0.724 (-1.817,0.370)
N	155,749	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of Female (aged 21-64) in the NC Medicaid population as determined in the metric specifications.*

AMH attribution was assigned based on AMH eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.

Postpartum Care

The postpartum care measure evaluates the percentage of women who had a postpartum visit on or between 7 and 84 days after delivery with an OB/GYN or other prenatal care practitioner; women who have multiple deliveries during the demonstration period are counted multiple times. This measure is stratified by whether the birth mother is under 21 years of age or 21 years or older. For those who are 21 years or older, there is a statistically significant decrease in the percentage of members who received postpartum care in the post period compared to the pre-SP period (Figure 69), with no changes seen for those who are under 21 years of age. Within both groups of members, there are no statistically significant differences between AMH Tier 1-2 practices and AMH Tier 3 practices in the post period (Table 34 and Table 35).

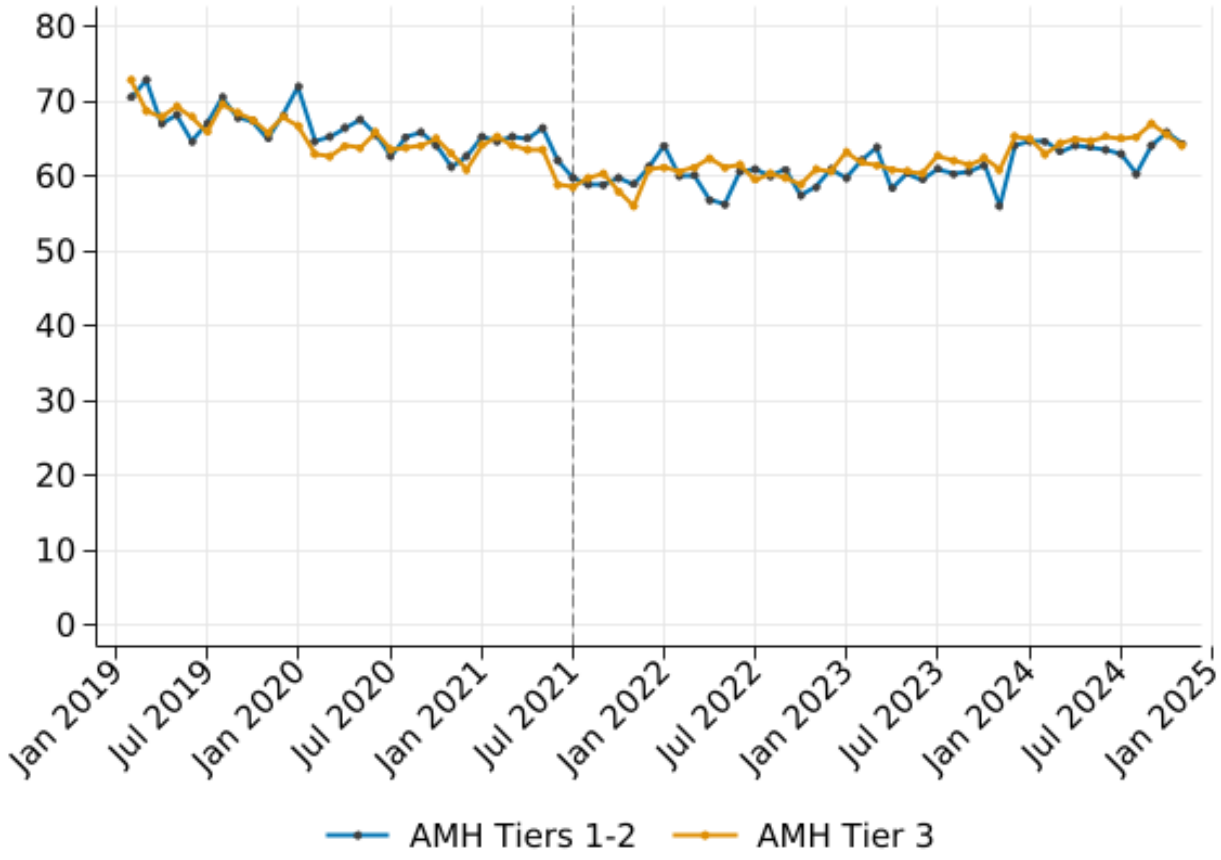
Figure 68: Trends in Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of Female (aged under 21) in the NC Medicaid population as determined in the metric specifications.

The Medicaid Expansion population has been excluded.

Figure 69: Trends in Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of Female (aged 21+) in the NC Medicaid population as determined in the metric specifications.
The Medicaid Expansion population has been excluded.

Table 34: Difference-in-Differences Estimates of Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	4.019 (-19.10,27.14)	1.315 (-15.62,18.24)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	4.158 (-4.899,13.21)	1.282 (-4.199,6.764)
DiD estimate(post*AMH Tier 3 practices)	-4.303 (-15.43,6.822)	-3.217 (-10.33,3.899)
N	4,499	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of Female (aged under 21) in the NC Medicaid population as determined in the metric specifications.*
The Medicaid Expansion population has been excluded.

Table 35: Difference-in-Differences Estimates of Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-9.346*** (-12.65,-6.047)	-10.04*** (-13.64,-6.437)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	-0.816 (-2.518,0.887)	-0.128 (-2.395,2.140)
DiD estimate(post*AMH Tier 3 practices)	1.662 (-0.151,3.476)	1.966 (-0.196,4.128)
N	177,638	

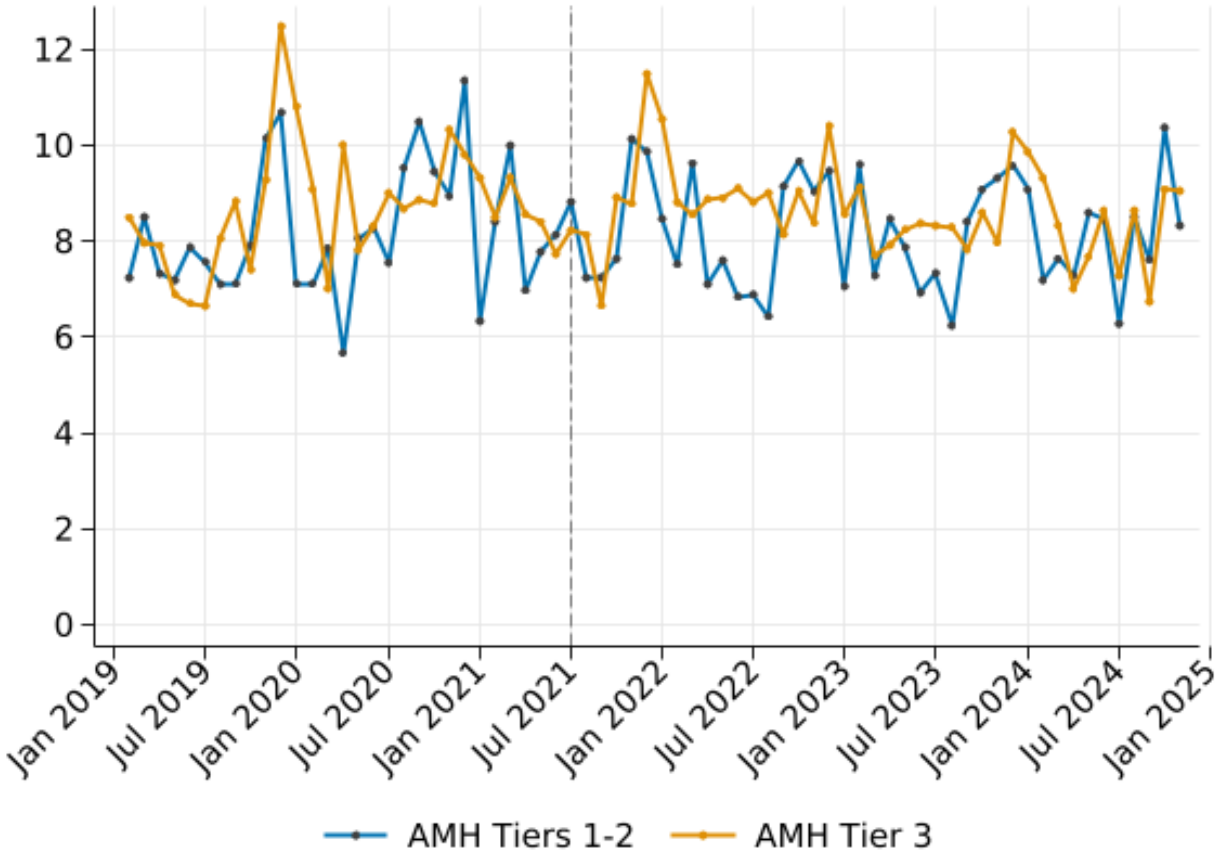
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of Female (aged 21+) in the NC Medicaid population as determined in the metric specifications. The Medicaid Expansion population has been excluded.*

Hospital care

Observed Plan All-Cause Readmissions (PCR)

Observed Plan All-Cause Readmissions (PCR) represents the proportion of beneficiaries with an initial hospital stay who had an unplanned readmission within 30 days. As shown in Table 36, there are no differences in readmissions for hospitalizations from members in AMH Tier 3 practices and those in AMH Tier 1-2 practices after controlling for covariates.

Figure 70: Trends in Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 18-64) in the NC Medicaid population as determined in the metric specifications.

Table 36: Difference-in-Differences Estimates of Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	0.663 (-0.993,2.319)	0.946 (-0.677,2.569)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.416 (-0.291,1.123)	-0.0356 (-0.552,0.481)
DiD estimate(post*AMH Tier 3 practices)	0.00929 (-0.732,0.750)	-0.190 (-0.818,0.438)
N	177,422	

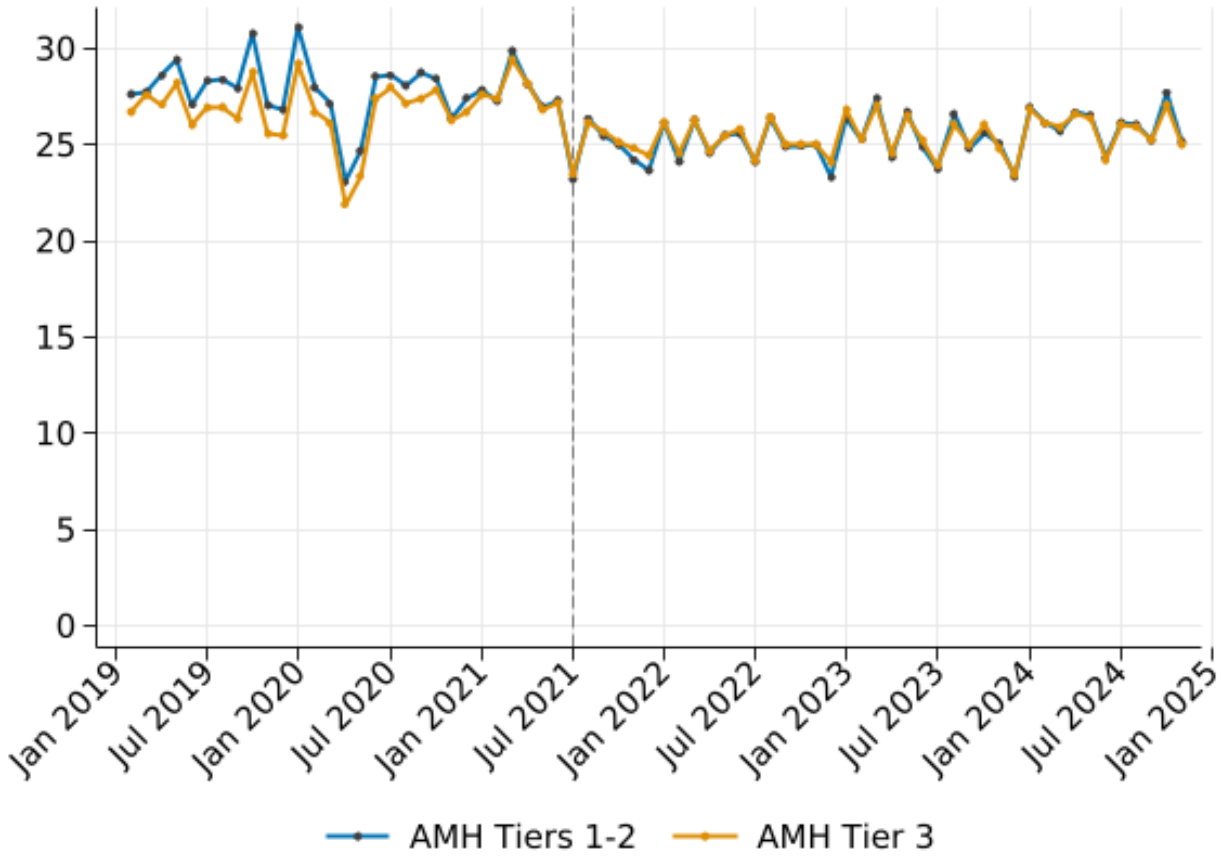
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 18-64) in the NC Medicaid population as determined in the metric specifications.*

Preventive Care

Access to Preventive/Ambulatory Health Services (AAP)

Adults' Access to Preventative or Ambulatory care visits is the percentage of adults over the age of 20 who had a preventative or ambulatory care visit. From Figure 71, we can see that there is a decreasing trend in the post period compared to the pre-period. However, AMH Tier 3 practices were statistically significantly higher by 0.84 percentage points than AMH Tiers 1-2 practices in the post period (Table 37).

Figure 71: Trends in Access to Preventive/Ambulatory Health Services (AAP)



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 20+) in the NC Medicaid population as determined in the metric specifications.

Table 37: Difference-in-Differences Estimates of Access to Preventive/Ambulatory Health Services (AAP)

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-2.506*** (-3.081,-1.932)	-2.497*** (-3.122,-1.872)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	-0.837*** (-1.272,-0.403)	-0.963*** (-1.483,-0.443)
DiD estimate(post*AMH Tier 3 practices)	0.842*** (0.408,1.275)	0.954*** (0.435,1.473)
N	6,057,193	

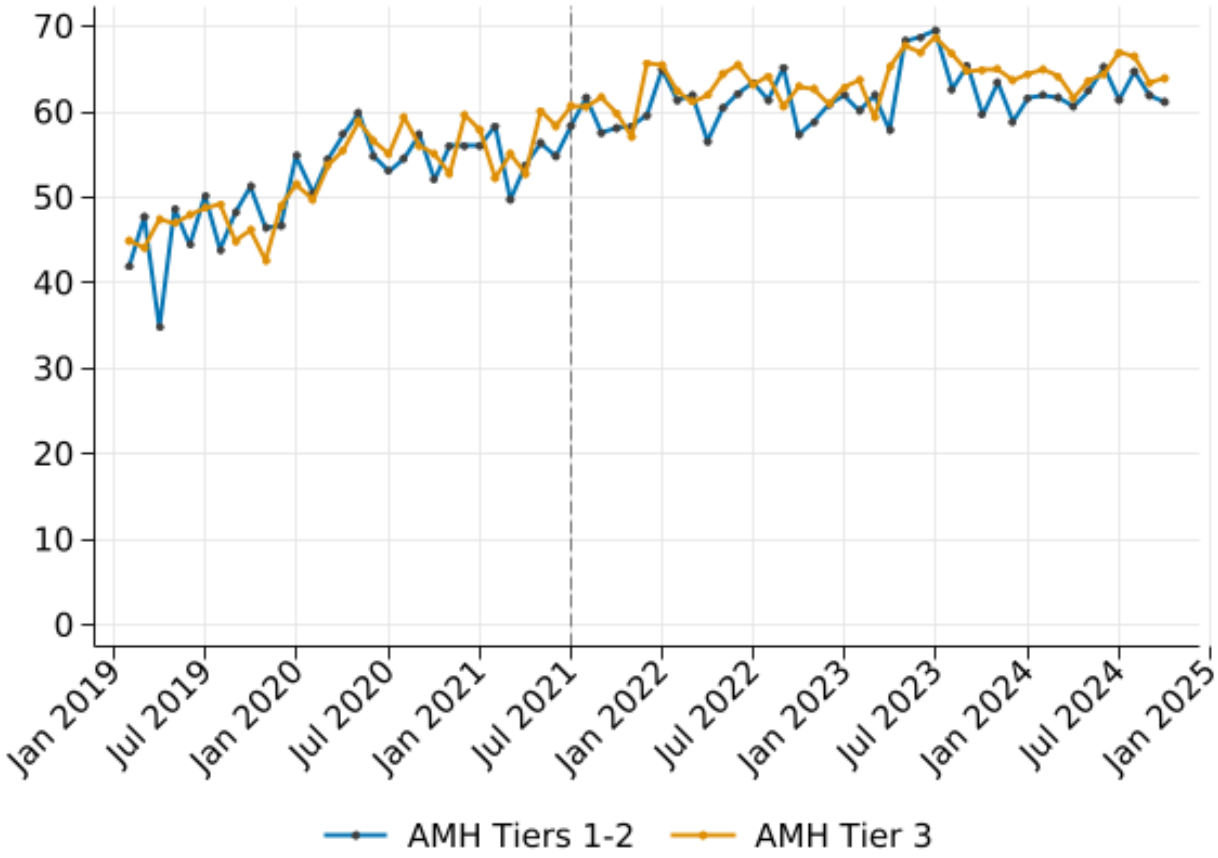
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 20+) in the NC Medicaid population as determined in the metric specifications.*

Mental Health

Antidepressant Medication Management

Antidepressant Medication Management (AMM) measures the percent of beneficiaries who remained on antidepressant medications for at least 84 days and separately, for 180 days. While there was an overall increase in the percent of SP members remaining on antidepressants, we found no statistically significant differences between rates for members in AMH Tier 3 practices and those in AMH Tier 1-2 practices despite this increase (Figure 72 and Figure 73).

Figure 72: Trends in Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates should be interpreted with caution, as pre-period trends are not parallel, suggesting that AMH Tier 1–2 practices may not be suitable comparison groups for AMH Tier 3 practices for this metric. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

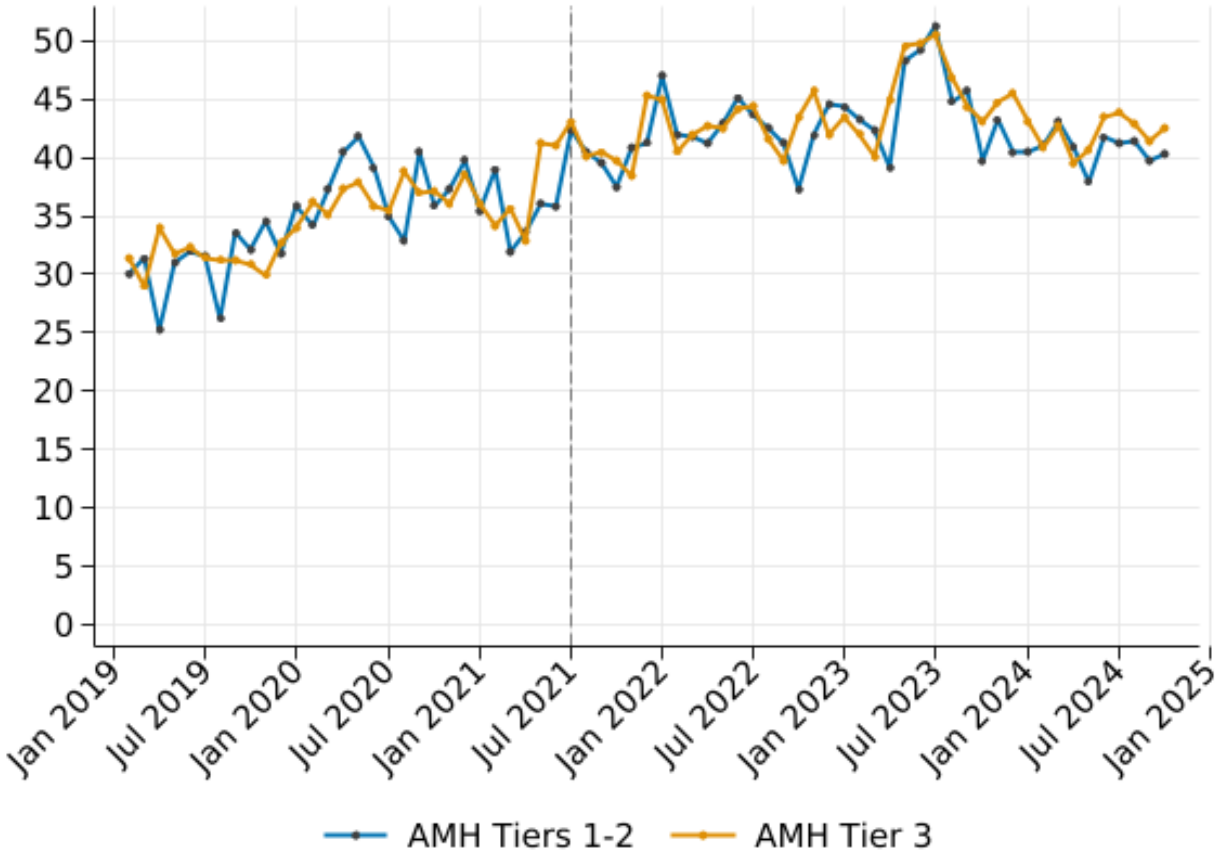
Table 38: Difference-in-Differences Estimates of Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	18.25*** (13.89,22.61)	19.68*** (15.42,23.95)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.948 (-0.802,2.697)	0.684 (-0.776,2.143)
DiD estimate(post*AMH Tier 3 practices)	0.812 (-0.960,2.585)	-0.694 (-2.394,1.007)
N	95,546	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Figure 73: Trends in Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates should be interpreted with caution, as pre-period trends are not parallel, suggesting that AMH Tier 1–2 practices may not be suitable comparison groups for AMH Tier 3 practices for this metric. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Table 39: Difference-in-Differences Estimates of Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	10.74*** (6.508,14.98)	12.23*** (8.151,16.32)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.616 (-1.014,2.245)	0.889 (-0.368,2.146)
DiD estimate(post*AMH Tier 3 practices)	0.114 (-1.636,1.865)	-1.368 (-2.913,0.176)
N	95,546	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up for ADHD Medication

Follow-up care for children prescribed ADHD Medication (ADD) is measured in two ways. The first is the percentage of children who are 6 to 12 years old and newly prescribed ADHD medication who have a follow-up visit with a practitioner during a 30-day initiation period. The second measurement is the percentage of children 6 to 12 years old who are newly prescribed ADHD medication who have remained on the medication for at least 210 days and in addition to the initiation visit, have at least 2 follow-up visits with a practitioner 270 days after the initiation phase ends.

Within both groups there were no statistically significant differences between AMH Tier 3 practices and AMH Tier 1-2 practices post waiver implementation.

Figure 74: Trends in Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

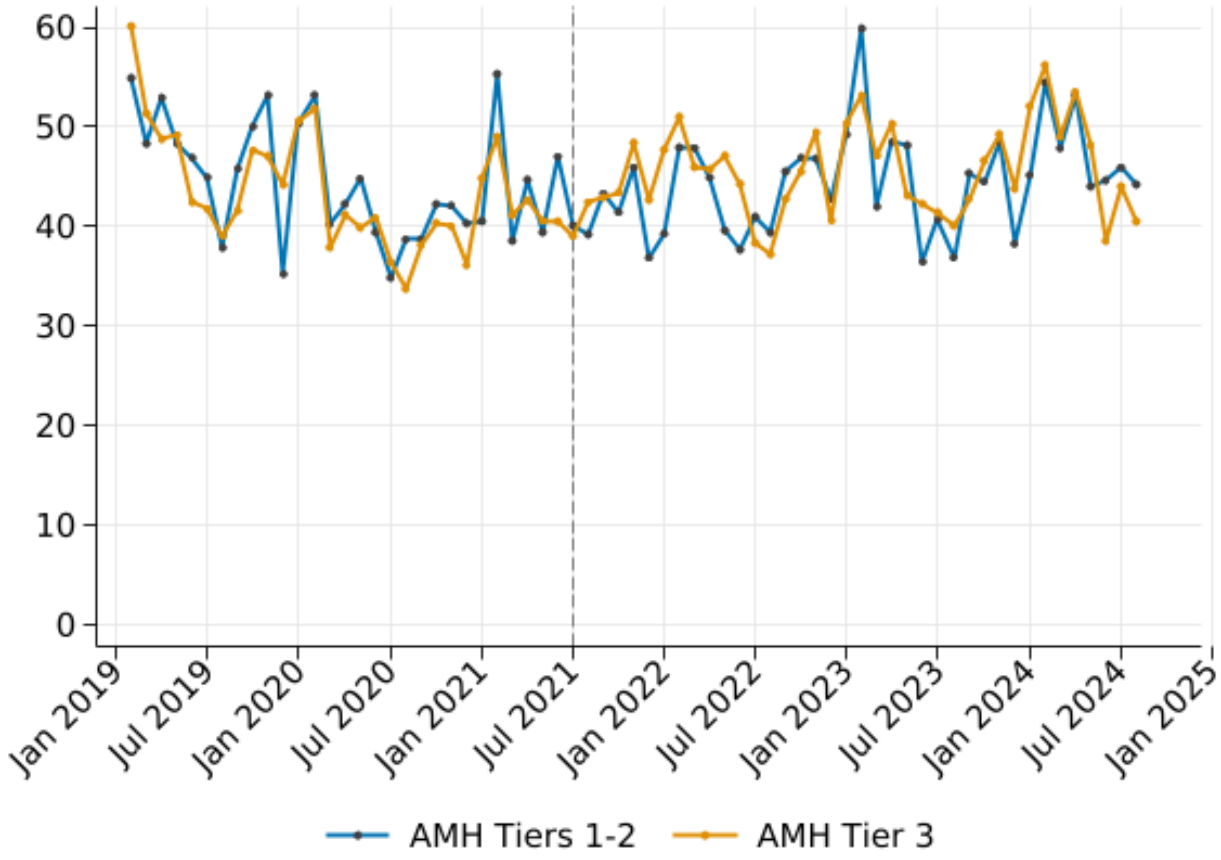
Table 40: Difference-in-Differences Estimates of Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-15.80*** (-19.86,-11.74)	-16.02*** (-19.98,-12.06)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	-0.473 (-2.898,1.953)	2.488* (0.417,4.559)
DiD estimate(post*AMH Tier 3 practices)	1.339 (-1.020,3.697)	1.305 (-0.900,3.511)
N	96,459	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.*

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Figure 75: Trends in Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Table 41: Difference-in-Differences Estimates of Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-20.10*** (-24.34,-15.86)	-20.96*** (-25.11,-16.80)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	-1.038 (-3.380,1.304)	1.692 (-0.682,4.066)
DiD estimate(post*AMH Tier 3 practices)	2.108 (-0.508,4.725)	2.410 (-0.0187,4.838)
N	83,460	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.*

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness

Follow-up After Hospitalization for Mental Illness (FUH) is measured at 7 and 30 days, separately for children (ages 6-17 years old) and adults (ages 21-24 years old). While the original measure examines only follow-up care with mental health providers, we also examined follow-up care with primary care providers, enhanced behavioral health services, and any of these three types of providers.

Across the different age groups and specifications, the measured rates are relatively consistent. Further, there appears to be no statistical difference in follow-up rates between beneficiaries in AMH Tiers 1-2 practices compared to those in AMH Tier 3 practices within any of the measured outcomes. Figures and tables for follow-up with any provider for adults are shown below. Other figures and tables can be found in the appendix.

Figure 76: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Table 42: Difference-in-Differences Estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre-launch	-13.28 (-28.36,1.811)	-14.26* (-27.21,-1.319)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	-2.534 (-8.883,3.815)	-2.025 (-6.275,2.224)
DiD estimate (post*AMH Tier 3 practices)	1.758 (-4.341,7.857)	1.312 (-3.327,5.950)
N	14,290	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Figure 77: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Table 43: Difference-in-Differences Estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-11.72 (-25.02,1.582)	-10.25 (-21.60,1.106)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	-10.03** (-16.60,-3.460)	-5.789* (-10.24,-1.336)
DiD estimate(post*AMH Tier 3 practices)	7.505* (1.253,13.76)	4.782 (-0.0424,9.607)
N	14,290	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

ǂ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Qualitative Findings

The qualitative findings provide important context for interpreting the quantitative trends observed across AMH enrollment, provider participation, and performance on clinical quality measures. While the quantitative analyses show substantial growth in member enrollment in AMH Tier 3 over time and relatively stable quality performance across tiers, provider interviews illuminate the organizational, financial, and operational dynamics underlying these patterns.

Specifically, qualitative data explain why AMH Tier 3 enrollment expanded faster than the number of Tier 3 providers, how reliance on clinically integrated networks (CINs) and external care management entities enabled broad participation despite limited internal capacity, and why enhanced care management did not consistently translate into measurable gains on standardized quality metrics. Providers' accounts of staffing instability, reimbursement inadequacy, PCP assignment challenges and attribution errors, and shifts toward virtual care management help explain the observed leveling of provider participation, the modest or null differences between AMH tiers on many measures, and the concentration of care management responsibilities within a subset of organizations. Overall, the qualitative findings

suggest that observed quantitative outcomes reflect not only the effects of the AMH model itself, but also the structural constraints and workaround strategies that shaped how the model was implemented in practice.

Provider Perceptions (2020-2025)

Across the transition to the Advanced Medical Home (AMH) model, provider perceptions reveal a consistent tension between the clinical promise of care management and the operational realities of delivering it. From pre-transition planning through mature implementation, providers across health systems, independent practices, and Federally Qualified Health Centers (FQHCs) emphasized three recurring determinants of AMH engagement: organizational capacity (data and staffing infrastructure), financial feasibility, and perceived responsibility for high-need patient populations. While these themes persisted throughout the study period, their expression evolved as AMHs moved from a theoretical redesign to an embedded component of Medicaid managed care, although one that had not yet reached full integration within routine practice. AMH processes remained variable, still evolving, and not consistently embedded across settings, often requiring additional effort to implement and sustain. Table 44 shows the tier status and provision of care management services by participating healthcare organizations (2022 to 2025).

Table 44: Advanced Medical Home Status of Organizations Participating in Interviews

Advanced medical home (AMH) Status	2022 (n=26)	2023 (n=36)	2025 (n=19)*
Not an AMH	1	3	1
Tier 2	3	3	2
Tier 3/ AMH+	18	26	14
Unsure	4	4	1
AMH Services**			
In-house	4	7	7***
Contracted with external agencies (CINs)	18	17	5
Unsure	1	8	3

**CINs are not represented in the tables besides the total number of interviews in the first row*

***Health systems that have their own internal CIN are counted as providing AMH services in-house.*

****Some health systems that were clinically integrated networks themselves are not included in this category.*

Common findings across years

Care management was consistently viewed as clinically necessary and mission aligned, particularly for Medicaid beneficiaries with complex medical and social needs. Even before the transition, providers articulated a strong belief that enhanced care coordination, longitudinal engagement, and attention to social needs represented *"good care"* and aligned with organizational missions, especially among safety-net providers and health systems serving high-risk populations. Participants acknowledged the necessity for enhanced care management but also recognized the challenge of balancing their mission to support vulnerable populations with the need for operational sustainability. A health systems leader articulated this dilemma by saying:

I believe we should have as many of our practices and patients in AMH Tier 3 as possible. I think it's good care management. I feel strongly about that. Well, I don't know whether we've got the resources to do it.

By 2023–2025, care management was widely accepted as a core expectation for transitioning to value-based contracting under Medicaid managed care, most organizations in our sample attesting to Tier 3.

At the same time, capacity constraints repeatedly shaped what providers could realistically deliver. Across all years, participants described data infrastructure and staffing as the primary bottlenecks. Smaller independent practices and FQHCs lacked the internal technology needed for identifying potential assignment issues to address with plans, quality reporting, and care management workflows. Consequently, reliance on external partners, most commonly clinically integrated networks (CINs) and care management entities, emerged early and intensified over time. As one administrator from a federally qualified health center reflected during early implementation, external partners *"created this portal, where all claims' data from all the PHPs is funneled through to generate scorecards and reports… it tells us what the clients need and what they're overdue on."*

Reimbursement inadequacy was a constant, cross-cutting concern. From pre-transition interviews through 2025, providers widely reported that care management per-member per-month (PMPM) payments failed to cover the true costs of Tier 3 care management. Administrative expenses, staffing salaries, training, software licenses, and documentation time were consistently cited as exceeding reimbursement. This concern shaped tier decisions early on and resurfaced later as anxiety about sustainability and downside risk. A health system leader captured this bluntly during the preparation period:

If you come to me with $2 and it costs me $10, there's no way I could do this right. Even if I wanted to, I just couldn't.

Workforce instability also persisted throughout the transition, initially exacerbated by the COVID-19 pandemic and later by market competition for care management staff. Organizations described care managers as being in *"huge demand,"* with remote work options and competing employers driving turnover. Even large systems that invested heavily in workforce stabilization struggled to align a "*static revenue stream to support increasingly expensive work,"* raising concerns about long-term viability.

Evolving Challenges and New Constraints

While early concerns centered on whether organizations could build capacity, later perceptions increasingly focused on whether the AMH model itself was structurally workable under real-world conditions.

By 2022–2023, attribution accuracy [appropriate assignment] and data integrity emerged as dominant operational frustrations. Providers described persistent delays in receiving assignment (including individuals enrolled in plans they did not contract with) lists,

inaccurate attribution lists from PHPs and difficulties reconciling denominators used for quality measurement. Although some participants acknowledged gradual improvement, assignment and attribution remained destabilizing forces that undermined providers' confidence in performance evaluations and financial incentives. As one independent practice leader explained:

If we're being beholden to or accountable for patients' wellness and disease management who are not our patients, it potentially impacts us financially… at some point down the line, it could be a risk to us because a penalty is paid if you don't achieve certain measures.

These concerns intensified by 2025 as providers contemplated expanded downside risk. Even organizations philosophically aligned with value-based care expressed reluctance to assume risk without reliable member assignment and attribution and clean data pipelines, summarized succinctly by one participant: *"Why take risk when you can't even tell us who our patients are?"*

Another notable shift over time was the changing nature of care management delivery. Early implementation often emphasized embedded, practice-based care managers working alongside clinical teams. By 2025, many participants described a move toward virtual or CIN-run care management models, which were perceived as less effective despite being operationally efficient. Pediatric and primary care leaders repeatedly described the loss of co-located teams as a step backward:

We had a great Medicaid program and care managers in the practice. Now it's care management light, mostly virtual, dumbed down, watered down.

The Central and Ambivalent Role of CINs

Across all years, CINs evolved from optional supports into indispensable infrastructure for many practices. Early on, CINs were described as pragmatic partners that enabled participation in AMH by providing data systems, staffing, contracting expertise, and analytic support. Over time, however, providers, particularly independents and FQHCs, described CINs as increasingly central, with limited flexibility in staying independent. While CINs offered critical leverage with PHPs, standardized contracts, and operational tools to manage AMH requirements, reliance on CINs also constrained autonomy. By 2025, several participants framed CIN participation not as a strategic choice but as a necessity, noting that exiting a CIN would require rebuilding care management infrastructure that most practices could not afford.

Anticipation of Policy Change and Uncertain Futures

Unique to the later years were anticipatory concerns about the future of AMH itself. Participants in 2025 described active scenario planning amid waiver negotiations and uncertainty about whether AMH's Tier 3 Medicaid-designated care management rates would persist.

Health-system leaders expressed concern that rising uncompensated care, coupled with uncertain plan profitability and potential shifts toward value-based contracting. Despite these uncertainties, providers consistently emphasized what they believed was required for AMH to reach its potential: standardized metrics, adequate reimbursement, clean and timely data, preserving embedded care managers, and sustained investment in frontline care management capacity. Sustained investment in frontline care management reflected coordinated contributions from the state, health plans, and providers, and depends on alignment across all three. Providers reported that the state established and maintained funding levels; as one provider noted, *"The state gives us care management money that we can therefore utilize for what we deem best services."* Health plans (PHPs) are responsible for consistently passing these funds through to providers, "*supported through the care management fees through the PHPs, as basically a funnel-through,"* while providers sustain the investment over time by building and maintaining care management teams, often embedded in practice: *"we decided to build an in-office practice so our care management staff are in the offices full time"*.

Essentially, providers emphasized that investment must be ongoing and reliably implemented. As one provider cautioned, when funds are not consistently directed toward care management, *"if you're not sending the money downstream, what's the purpose?"*, underscoring that sustained impact depends on continuous, coordinated commitment across all stakeholders.

Beneficiary perceptions (2023 to 2025)

Beneficiary experiences across the study period highlight why quantitative analyses show limited and inconsistent differences between AMH tiers on preventive, chronic disease, and mental health quality measures, despite substantial enrollment in AMH Tier 3. While some beneficiaries reported meaningful support through care management, embedded social workers, or responsive clinical teams, many described fragmented care, inconsistent outreach, and a heavy reliance on self-coordination. Together, these narratives suggest that AMH care management, as experienced by beneficiaries, often lacked consistency, continuity, and integration that may explain the lack of measurable improvements in population-level outcomes.

Common findings across years

Across all years, beneficiaries consistently described care management as unevenly available. Some participants benefited from coordinated supports, while others experienced little to no engagement despite being told a care manager had been assigned. A recurring theme was uncertainty, whether care management existed, who was eligible, how to access it, and what it could realistically accomplish. Beneficiaries did not describe a clear pathway that determined their eligibility for care management. Our data showed multiple, diverse pathways by which study participants were assigned a care manager.

Table 45: Eligibility Pathways for Care Management

Eligibility Pathway	Examples in interviews
High-risk clinical status	High-risk pregnancy → automatic CM assignment at the local health department (Care Management for High-risk Pregnancy Program)
Enrollment in a Tailored Plan (behavioral health/I/DD)	Tailored Plan enrollment → CM assigned
Participation in LTSS programs (CAP/DA)	Community Alternative Program/DA → case manager through intermediary organizations
Provider referral	Providers initiated CM contact
Post-hospital discharge transitions	Nurses call after hospitalization to help connect to care managers.

Uneven Care Management and Reliance on Self-Coordination

Repeated assessments without follow-through were particularly discouraging. Beneficiaries questioned the value of screening when no action followed: "*Why ask me if there's nothing you can do? I'm not going to be hones*t." Another said, "*No follow-up after two screeners, it made me feel ignored*." Several beneficiaries reported that they were told a care manager had been assigned but experienced little to no ongoing contact. In some cases, care managers were described as effectively unreachable, undermining their intended role as a stable point of navigation. One beneficiary summarized the experience of plan-based inaccessibility bluntly: "*You can never get in contact with 'em ever*." Another participant was unsure whether they had a care manager at all: "*I'm not really sure if I have one. I have not really been in contact with them.*" Even when care managers were formally in place, contact was described as infrequent or dependent on the patient's initiative: *"We don't really hear from her unless we reach out."* This variability shaped the perceived legitimacy of care management.

When care management was absent or ineffective, the burden of care coordination frequently shifted to patients and caregivers. Beneficiaries described acting as the *"messenger"* between providers, repeating histories, tracking referrals, and managing administrative tasks. This self-coordination burden was especially evident when care spanned systems (e.g., behavioral health vs. primary care) or when providers did not communicate directly.

This widespread reliance on self-coordination helps explain why quantitative outcomes, such as follow-up after hospitalization, chronic condition management, and mental health continuity, did not differ significantly by AMH tier. Even when systems were nominally designed to support coordination, beneficiaries often bore that responsibility themselves.

Primary Care as the Most Reliable Anchor

Over the years, primary care providers (PCPs) have consistently emerged as the most trusted and effective coordinators of care, particularly when operating within integrated health systems. Beneficiaries frequently described PCPs as managing referrals, prescriptions, communication with specialists, and follow-up, even when formal care management was limited or absent. Integrated electronic health record systems and patient portals were cited as critical facilitators of coordination. As one beneficiary stated: *"MyChart is a game changer because everybody knows what everybody else is doing*." Another echoed this sentiment: "*My medical records are all in one place*." These narratives help contextualize quantitative findings showing relatively stable performance across AMH tiers.

Addressing health-related social needs

Over the years, beneficiaries consistently identified transportation, food insecurity, housing instability, and continuity of coverage as critical determinants of access to care.

Transportation was repeatedly cited as a primary barrier to attending appointments. Even when transportation benefits existed, there were challenges: "*I'm outside waiting on a ride that's not going to show up. I understand that there are only so many cancellations that I can have, you know? And I don't blame them [providers] for that. You know, it just boils down to the whole transportation issue.*" Food insecurity carried both practical and emotional weight. One beneficiary stated simply: *"That's the thing that bothers me—food*." Another noted that SNAP resources were limited: "*We get very little*." While a care manager could provide some food support ("sends food boxes"), such assistance was not consistently framed as comprehensive or stable enough to fully resolve ongoing needs, potentially explaining why improvements in downstream health outcomes were not consistently observed.

Fragmentation, Repetition, and Administrative Fatigue

A dominant and consistent theme across years was fragmentation across providers, settings, and systems, leading to repeated screenings, re-telling of personal histories, and confusion about care pathways. Beneficiaries described both intra-organizational fragmentation (seeing different clinicians within the same clinic) and cross-organizational fragmentation (primary care, specialty care, behavioral health, and health plans not communicating). One beneficiary described this fragmentation with exhaustion: *"I'm tired of saying the same thing."* Another described a referral experience where coordination had clearly failed: *"They were like, 'I don't know why you're here, why this doctor referred you.'"*

Evolving Challenges and New Constraints

In 2025, a smaller but important pattern was that some beneficiaries declined care management, not because it was unnecessary in principle, but because they perceived the service as redundant, poorly timed, or misaligned with their autonomy and schedules. For example, one participant stated: *"I denied services. I already had everything pretty much planned out."* They elaborated that logistical alignment was difficult: *"It was hard to coordinate a time because my [work] hours are pretty much the same as their hours."* Another framed care management as feeling supervisory: *"I just started doing it on my own. It seemed like I had somebody over me."* These accounts underscore that care management engagement depends not only on need, but also on how services are offered, how flexible they are, and whether patients experience them as respectful and individualized, rather than scripted or compliance-oriented.

While these qualitative findings are not specific to the AMH tier and therefore do not directly explain differences across tiers, they provide important context for beneficiaries' experiences of care management. In particular, they highlight factors that may influence patient engagement with care management services more broadly, including reliance on self-coordination or existing care relationships. While care management existed in name for many

beneficiaries, its reach, consistency, and integration varied widely. Beneficiaries' reliance on self-coordination and trusted clinicians may help contextualize patterns observed in quantitative analyses, particularly the presence of both areas of improvement and ongoing challenges across outcomes.

PHP perceptions (2024)

The Advanced Medical Home (AMH) model was widely described by PHP representatives as a successful program within North Carolina's Medicaid transformation. Respondents emphasized that, unlike in other states where managed care transitions were chaotic, North Carolina's rollout demonstrated stability and effectiveness even under unusually difficult circumstances during the COVID-19 pandemic. This stability was attributed in part to pre-existing care management infrastructure, particularly the Community Care of North Carolina (CCNC), which had already established care management processes and provider networks that could be adapted within the AMH framework.

One interviewee noted that the shift *"has not [been a trainwreck] despite launching in the middle of a pandemic, plus the behavioral health integration."*

The AMH program was also described to foster consistent relationships between practices and Medicaid beneficiaries, with members becoming *"embedded in those practices and well-known care managers."* SP respondents described that continuity distinguishes North Carolina's model and makes third-party aggregator models less suitable for the state's landscape.

A particularly effective component described was the supportive coaching framework, which *"meets the practice where they are and coaches them to success, sharing performance data transparently."*

Despite the strengths of the AMH model, SP participants consistently identified substantial administrative burdens for providers. These challenges were described primarily in relation to the AMH models serving as a primer for the transition to value-based payment arrangements. In early implementation, variation across PHPs contributed to confusion and inefficiencies, as providers were subject to plan-specific expectations and quality measure reporting requirements. Although North Carolina established a state-standardized set of quality measures for AMHs, plans could select different measures from this menu of approximately 15 core measures,[43] resulting in variation in performance expectations across contracts. While this flexibility was limited, providers still perceived it as burdensome, particularly when

[43] North Carolina Department of Health and Human Services. (2025). *North Carolina Medicaid managed care quality strategy*. https://medicaid.ncdhhs.gov/2025-nc-medicaid-managed-care-quality-strategy/download?attachment

participating in multiple plan arrangements, including Medicaid, Medicare, and commercial contracts, which increased the complexity of managing quality metrics within Medicaid and across payers.

One respondent described this challenge clearly: *"Providers [Tier 3] felt like they were being held accountable to different measures for each plan. And even though the state had a series of standardized requirements from a quality perspective, think about immunization for young people and pediatrics. All of those things were standard, but there were some nuances."*

SPs reported that their experiences of Tier 3 provider frustration persist, as some continue to perceive requirements as *"abrasive, too burdensome."* SPs also voiced concerns about misaligned accountability, describing the model as *"administratively expensive [with] requirements [that] don't translate down to the providers in the same way."*

Across interviews, the AMH model was consistently framed as a key steppingstone toward value-based payment (VBP) arrangements. Interviewees described the AMH model as foundational for preparing providers to take on financial risk, noting that once providers develop comfort with AMH expectations, *"then you're ready to take on value-based payment arrangements."* However, VBP adoption across North Carolina remains uneven. While some regions or provider groups have strong VBP experience, the state overall exhibits variation, with one participant noting the need for such experience to be *"proliferated across the state*." SP respondents described that many providers remain hesitant, as illustrated by the metaphor of walking to the end of a diving board, looking down, and *"climbing back down,"* which captures the reluctance to adopt risk-bearing contracts.

The now-discontinued Making Care Primary program, an optional CMS demonstration model for providers serving Medicare patients, was seen as the next natural evolution of AMH Tier 3, capable of sustaining and accelerating VBP readiness. Respondents expressed optimism that a care model such as Making Care Primary can *"produce continued incentive and pressure"* for providers to transition to VBP. As MCP was piloted in North Carolina, it likely contributed to the observed momentum toward more advanced value-based arrangements. As a multi-payer model, MCP emphasized alignment across Medicare, Medicaid, and other payers, reinforcing consistent expectations for care delivery and accountability.[44] This broader context may have amplified the pressure described by respondents, including expectations that practices would move beyond *"visit by visit"* care to *"managing a population over a longitudinal relationship."* At the same time, SP participants noted that providers were being asked to *"get comfortable with that level of accountability"* and prepare for "the next iteration

[44] Centers for Medicare & Medicaid Services. (2023). *Making Care Primary (MCP) model*. https://www.cms.gov/priorities/innovation/innovation-models/making-care-primary

of accepting some risk differently," reflecting how MCP-aligned policies may have reinforced these shifts in practice expectations.

Conclusion

Overall, findings indicate that North Carolina's AMH model achieved broad structural uptake, reflected in the rapid growth and sustained dominance of AMH Tier 3 enrollment, with limited evidence of consistent, measurable improvements across most standardized quality outcomes. Quantitative analyses show limited differentiation between AMH tiers on preventive, chronic disease, maternal, and mental health measures, while qualitative findings help explain these patterns by revealing uneven care management implementation, constrained staffing and data capacity, persistent assignment and attribution challenges, and misalignment between reimbursement and care management expectations. Providers and beneficiaries emphasized that Tier 3 attestation often reflected organizational capacity and reliance on clinically integrated networks rather than uniformly enhanced, embedded care delivery, and that coordination frequently depended on primary care clinicians, patient self-navigation, or peer supports rather than formal practice-based care management.

Hypothesis 1.5: The implementation of Medicaid managed care will reduce disparities (increase equity) in the quality of care received across rurality, age, race/ethnicity and disability status.

Health disparities exist across a variety of populations, for various reasons. We hypothesized that Standard Plan implementation would affect population groups of interest differentially. For each of the monthly metrics, we conducted stratified analyses, comparing populations across multiple population characteristics:

- Age: 0-18, 19-64, 65 or more
- Rurality: NCHS 2013 Urbanization Metro vs. Non-Metro
- Ethnicity: Hispanic vs Not
- Sex: Female vs. Male
- Disability: yes or no
- Race: for each self-reported race category, assessed those who indicated this race versus those who did not (e.g. White vs Not White; Black vs Not Black, Asian / Pacific Islander vs Not Asian / Pacific Islander).

Some metrics did not lend themselves to stratification analyses. For example, pediatric measures are not appropriate for those over the age of 18 and thus no comparison was available. Therefore, across all the metrics, there were approximately 800 models testing whether there was heterogeneity of treatment effects. For this report, we took a broad view

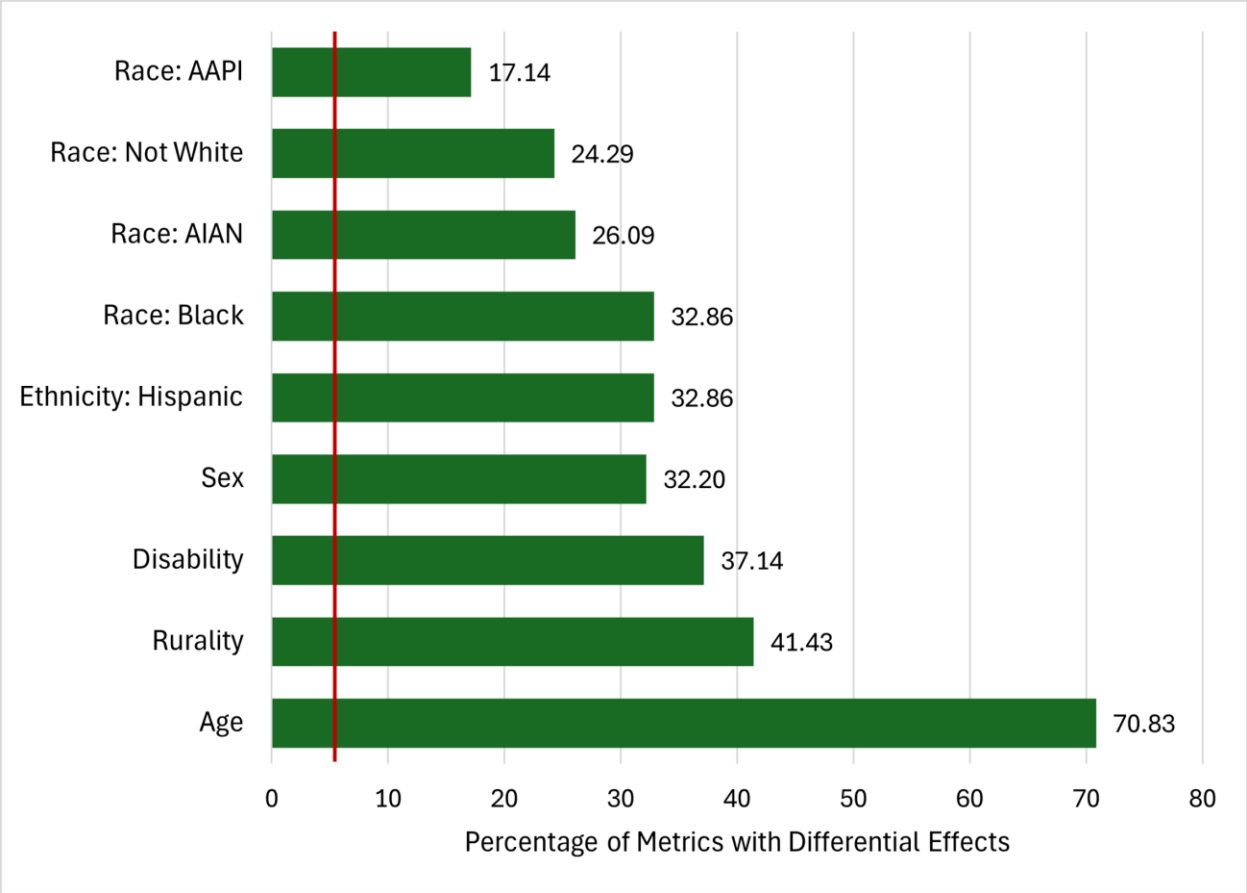
and looked for evidence of differential effects; subsequent analyses will investigate these issues in more detail. It is important to understand that with the hundreds of models used in this report, there will be some that are deemed statistically significant when in fact there is no true effect; analysts must be careful in the context of this multiplicity. Based on the 95 percent confidence interval, we would expect at least 5 percent of models to return statistically significant results when there is no true effect; to conclude there is heterogeneity, we would be looking for considerably more than 5 percent of models to return statistically significant results.

Two types of figures are presented below. The first chart (Figure 78) shows, by subgroup category, the percentage of metrics for which there is evidence of differential effects by the final month of the study period. The differential effects presented in Figure 78 represent statistically significant differences in the predicted effect by the final month of the study period between a subgroup and the respective comparison group. It does not indicate whether the difference between groups was negative or positive. The vertical red line denotes 5 percent, the percent we expect if there was no true effect.

For six stratification variables – rurality, age, disability, Sex, Black race, and Hispanic ethnicity – nearly one third or more of the models have evidence of differential effects of SP implementation. All have substantially more cases with differential effects than the 5 percent expected level. Approximately a quarter or more of metrics identified differential effects for AIAN and non-White race. There is good evidence of differential effects across these populations. Note that two of the three stratification variables less likely to have differential effects have small populations. Interestingly, the race stratification comparing Not White to White individuals is one of the least likely to identify differential effects (but still shows some differences).

The metrics tending to be most likely to have differential effects are those with the broadest inclusion criteria – for example, expenditures and metrics for whom a large number of beneficiaries are eligible (e.g. dental visits). Statistically, this makes sense; the larger sample size strengthens the precision of the model.

Figure 78: Differential Effects Across Subgroups



The second set of charts below show the direction of a difference in predicted effect by the end of the study period in the context of the hypothesized and predicted direction of the overall SP effect for that metric. Results are classified using two dimensions. First, whether the overall SP effect on the metric was in the hypothesized direction, and second, whether the subgroup's predicted effect at the end of the study was better or worse than the reference group. This leads to four categories:

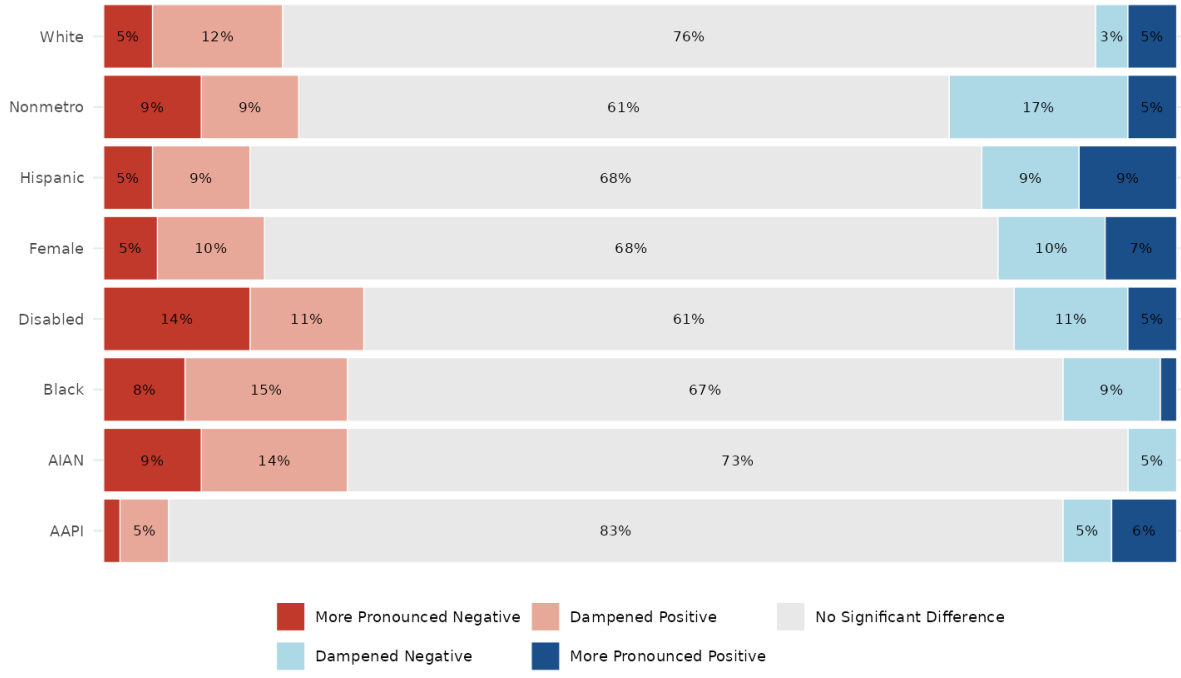
- **More pronounced negative**: The overall average predicted effect was worse under SP, and the subgroup had a worse predicted effect than the reference group at end of study
- **Dampened positive**: The overall average predicted effect was better under SP, but the subgroup had a worse predicted effect than the reference group at end of study
- **Dampened negative**: The overall average predicted effect was worse under SP, but the subgroup had a better predicted effect than the reference group at end of study

- **More pronounced positive**: The overall average predicted effect for the metric was better under SP, and the subgroup had a better predicted effect than the reference group at end of study

Only monthly metrics with a stratified analysis and a clear hypothesized direction were included in this set of charts.

Looking across topic areas, several patterns emerge. The majority of metrics did not have any statistically significant differential effects for any subgroup, as shown in Figure 79 below. Where differential effects did occur, unfavorable patterns were more common than favorable ones for most subgroups, with enrollees with disabilities and Black and AIAN enrollees having the largest proportion of negative differential effects in comparison to their reference groups.

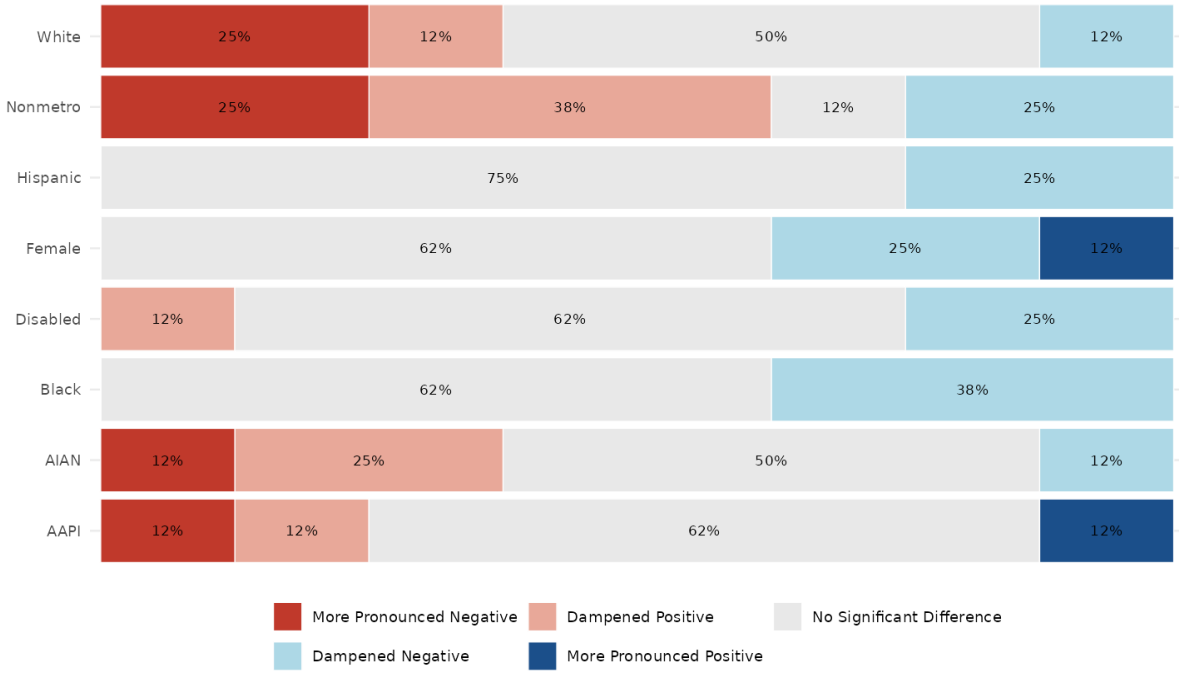
Figure 79: Proportion and Direction of Differential Effects Across All Metrics



Child Wellness

Most metrics in the child wellness category did not have evidence of differential effects, but subgroup differences were more prevalent in this category than most others. Black, female, and Hispanic enrollees had better predicted effects than the respective reference group for all metrics with a differential effect for those groups (38%, 37% and 25% respectively). In contrast, enrollees in non-metro areas as well as White, AIAN, and AAPI enrollees had more unfavorable than favorable predicted effects compared to their respective comparison groups.

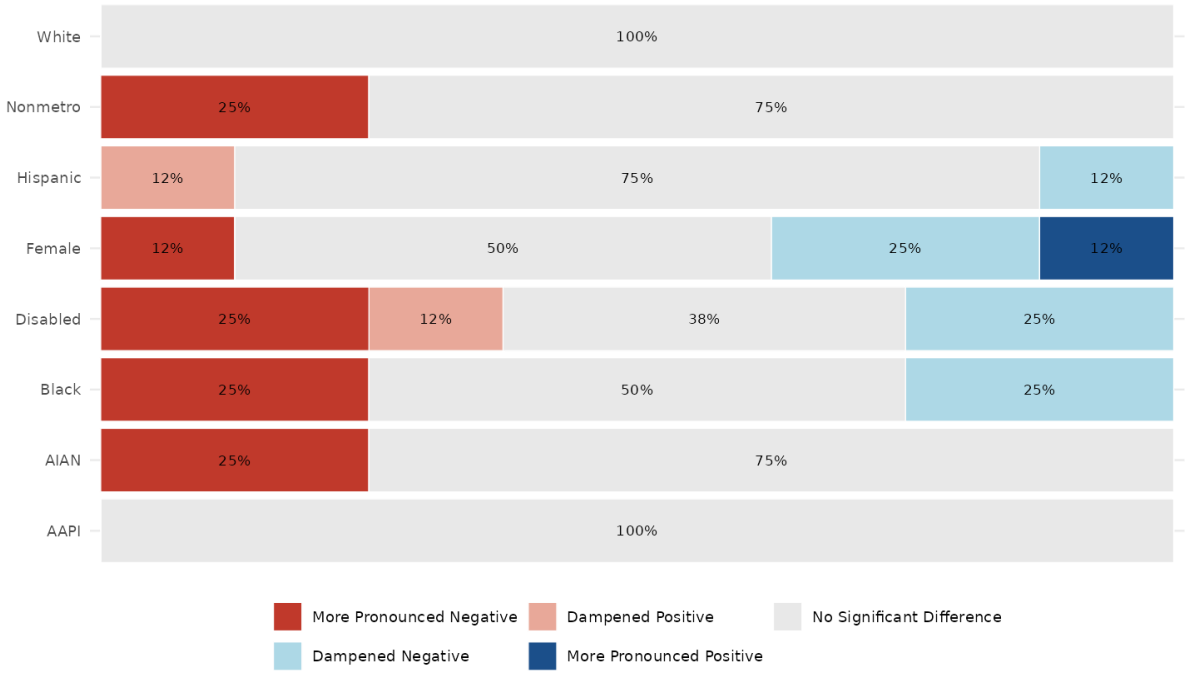
Figure 80: Proportion and Direction of Differential Effects on Child Wellness Metrics



Behavioral Health

Among eight behavioral health metrics, most subgroups showed predominantly no statistically significant differences. Enrollees with disabilities had the most unfavorable effects, with worse predicted effects than enrollees without disabilities on three metrics, and a better predicted effect on one. Nonmetro, Black, and AIAN enrollees each showed more pronounced negative effects on two metrics. Black enrollees had a better predicted effect than non-Black enrollees on one metric for which the overall predicted effect under SP worsened. Female enrollees had better predicted effects than male enrollees on three metrics.

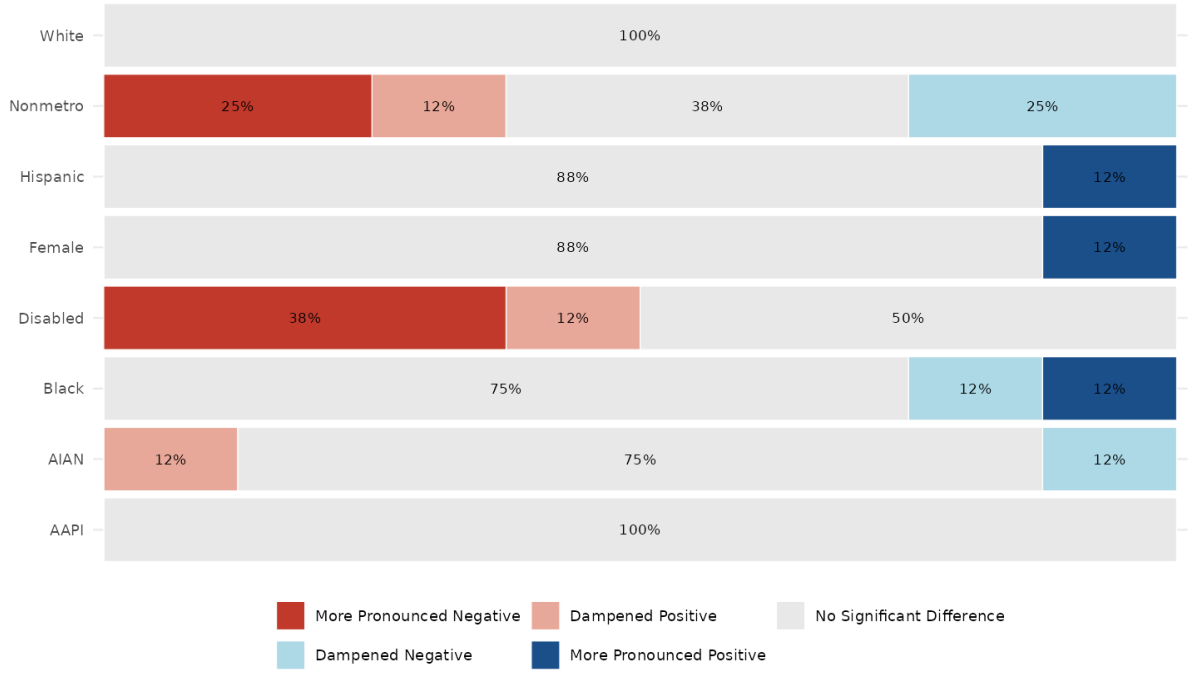
Figure 81: Proportion and Direction of Differential Effects on Behavioral Health Metrics



Initiation and Engagement of Alcohol and Other Drug Treatment (IET)

Across eight IET metrics, enrollees with disabilities had the most negative differential effects out of examined subgroups; half of all IET metrics showed less favorable outcomes for disabled enrollees. Nonmetro enrollees showed a mixed picture, with worse predicted effects than metro enrollees on three metrics but better predicted effects on two. Female and Hispanic enrollees each had a better predicted effect than their reference group on one metric for which the overall predicted outcome improved. Black enrollees had better predicted effects than non-Black enrollees on two metrics, including one metric that had a worse overall predicted effect under SP, and no negative differential effects in this category.

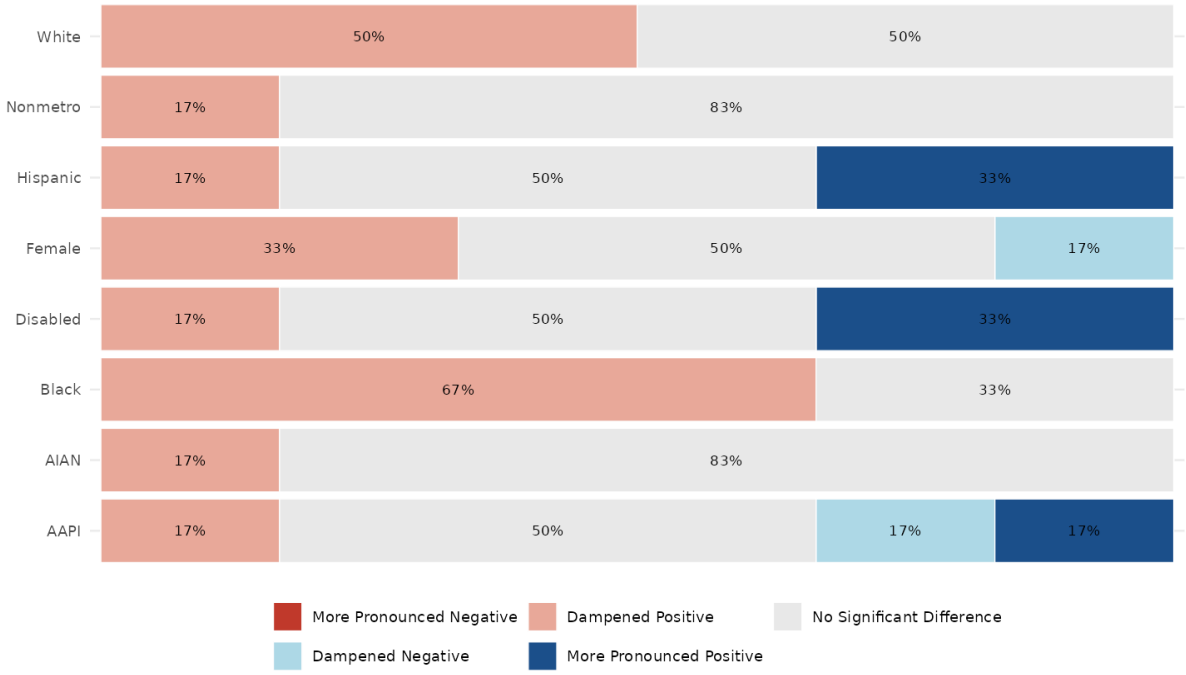
Figure 82: Proportion and Direction of Differential Effects on Initiation and Engagement in Treatment Metrics



Hospital and ED Use

Across six hospital and ED use metrics, all subgroups had a worse predicted outcome than the respective reference group on at least one metric that improved overall under SP. For Black enrollees, this pattern occurred on two-thirds of the metrics in this category. Simultaneously, Hispanic, disabled, and AAPI enrollees had better predicted effects than their reference groups on at least one metric that moved in a favorable direction.

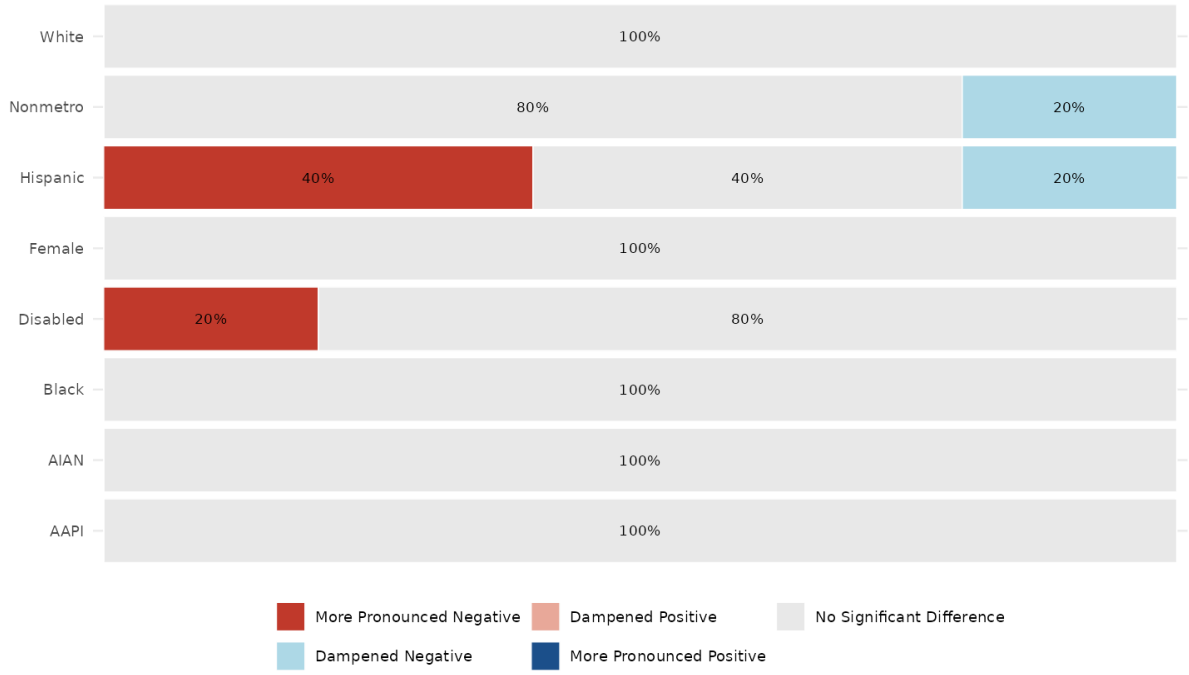
Figure 83: Proportion and Direction of Differential Effects on Hospital and ED Use Metrics



Chronic Care

Among 5 chronic care metrics, Hispanic enrollees and enrollees with disabilities both had worse predicted effects compared to the reference groups on metrics that also had worse predicted effects overall under SP (2 metrics, 1 metric respectively). Enrollees in nonmetro areas were the only group with a slightly favorable pattern, with a better predicted effect than enrollees in metro areas on one metric for which the overall SP effect was negative. All other subgroups showed no statistically significant differential effects across all 5 metrics.

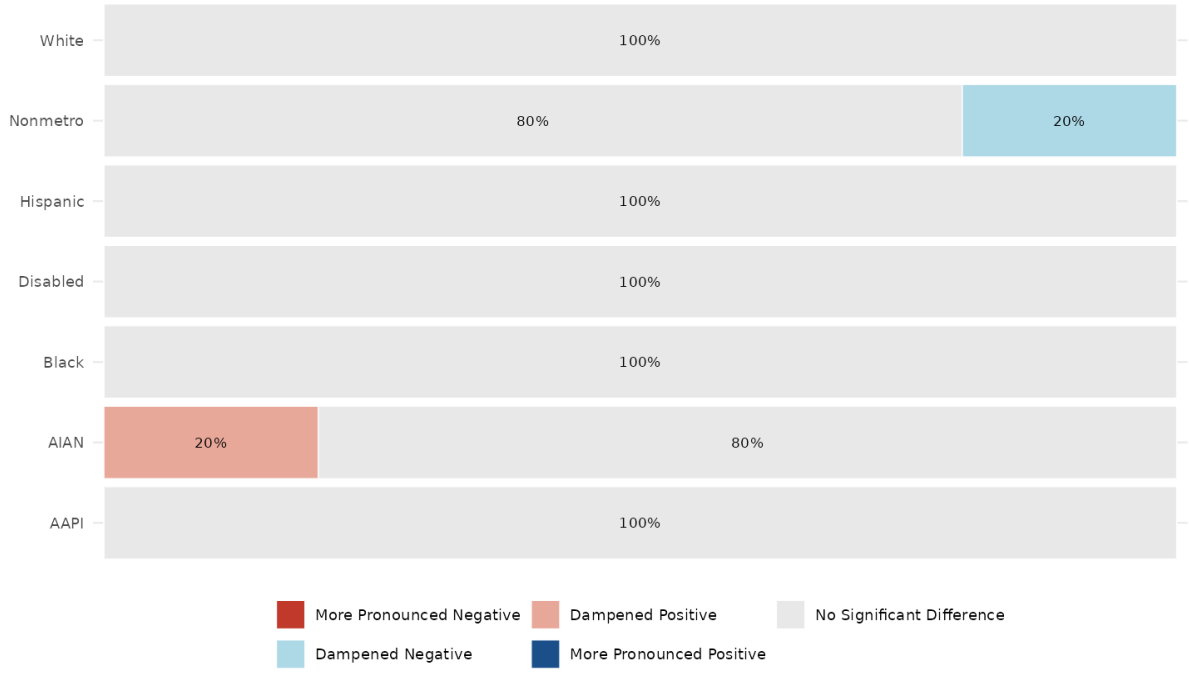
Figure 84: Proportion and Direction of Differential Effects on Chronic Care Metrics



Maternal Care and Contraception

Most metrics in this category showed no subgroup differences. Enrollees in non-metro areas experienced a more positive effect on members receiving timely prenatal care than enrollees in metro areas, despite the overall predicted effect being lower under SP. AIAN enrollees over 21 years old fared worse on postpartum visit rates than non-AIAN enrollees over 21 years old while the overall predicted effect improved under SP.

Figure 85: Proportion and Direction of Differential Effects on Maternal Care and Contraception Metrics



Finally, our lens here is statistical, rather than clinical – just because there is statistical evidence of heterogeneity, does not mean that the effect is of a meaningful size. Many of these statistically significant results are of inconsequential magnitude.

Hypothesis 2.1: The implementation of Medicaid managed care will decrease the use of emergency departments for non-urgent use and hospital admissions for ambulatory sensitive conditions.

Quantitative Findings

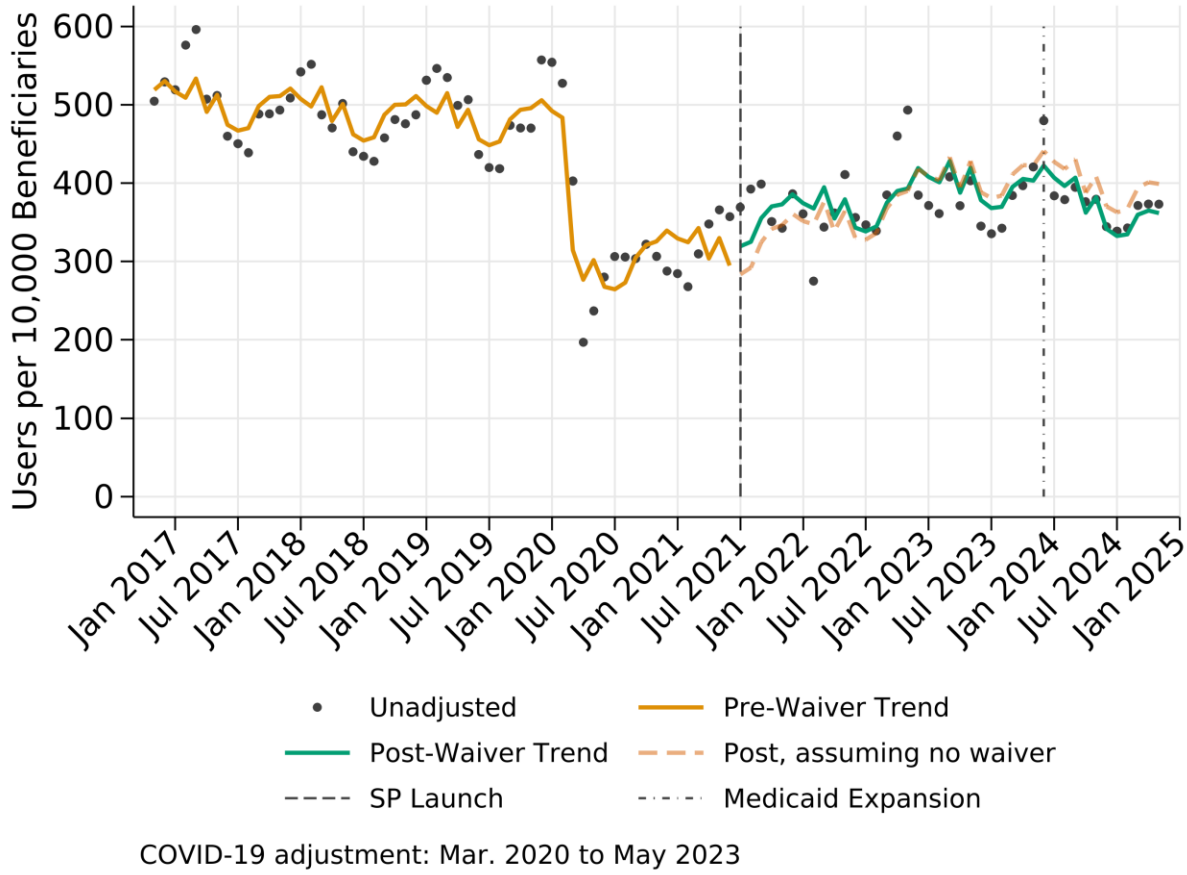
This hypothesis examines whether improved access and quality of care through Standard Plans reduced healthcare use in high-cost settings such as emergency department visits and inpatient hospitalizations, and improved care transitions following discharge. Use of inpatient and ED care may be a for reactive, high-acuity services, or it may be for care that could have been addressed in a lower-cost setting or avoided altogether. We discuss five metrics: the proportion of members with an emergency department visit, and the proportion of members with ED visits classified as potentially avoidable or preventable, the proportion of members with a hospital admission, average length of stay among those admitted, and the Transitions of Care composite measure.

Emergency Department Visits

The rate of members with an emergency department visit dropped dramatically at the start of the COVID-19 public health emergency and never returned to its prior level. Figure 86 also displays a visible seasonal pattern, with more members having ED visits in winter months, consistent with well-documented surge periods, likely from increased respiratory illness[45].

[45] Anesi, G.L., Xiong, R., Delgado, K.M. (2023). Frequency and Trends of Pre-Pandemic Surge Periods in U.S. Emergency Departments, 2006–2019. Critical Care Explorations 5(8). DOI: 10.1097/CCE.0000000000000954

Figure 86: Trends in Emergency Department Visits: Rate of members with emergency department visits



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

At SP launch in July 2021, we estimate an immediate increase in ED use of 30 enrollees with an ED visit per 10,000 total enrollees relative to the counterfactual (366 vs. 336 per 10,000), which may reflect transitional dynamics at the time of implementation. However, the month-over-month growth rate declined more in the post-implementation period, from -0.8 per 10,000 enrollees per month in the baseline period to -2.9 per 10,000 enrollees per month following launch. By November 2024, the predicted number of members with an ED visit was 364 per 10,000 total enrollees under managed care compared to a projected 422 per 10,000 in the absence of SP implementation a difference of 58 enrollees per 10,000, a nearly 14 percent reduction.

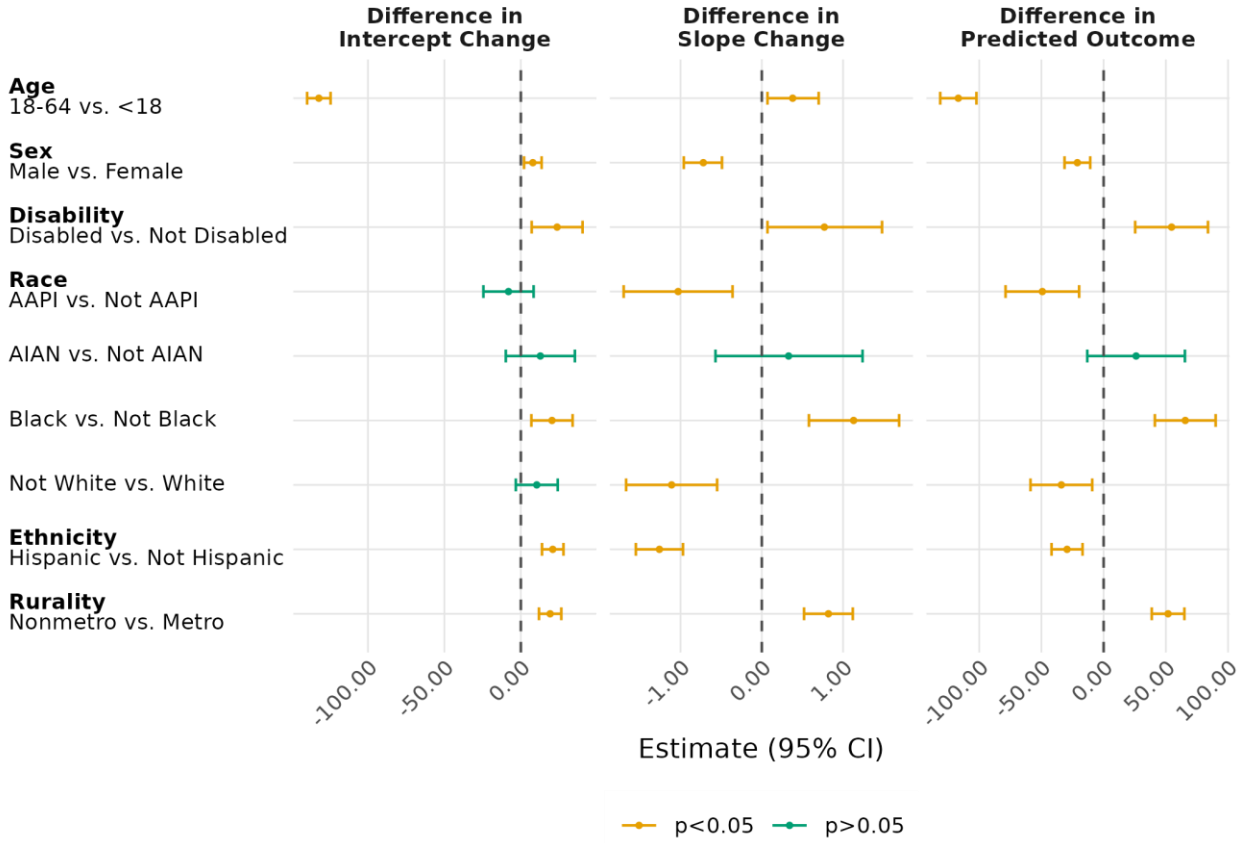
Table 46: Interrupted time series estimates of Emergency Department Visits: Rate of members with emergency department visits

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	336.14* (329.41, 342.86)	365.95* (357.78, 374.13)	29.82* (22.62, 37.02)
Monthly Change	-0.75* (-1.12, -0.39)	-2.93* (-3.35, -2.51)	-2.18* (-2.70, -1.65)
Predicted Average Outcome Nov 2024	421.69* (400.87, 442.52)	364.43* (352.72, 376.13)	-57.27* (-76.95, -37.59)
N			33,008,115

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Subgroup analyses found that adults aged 18-64 had a larger difference in ED visits at the end of the study period relative to the effect among children under 18. Beneficiaries who are Black experienced a more muted effect of SP at launch, and an increase in ED use rather than a decrease as seen among non-Black members. In general, we see some heterogeneity of differences post-SP implementation by subpopulation.

Figure 87: Comparison groups in Emergency Department Visits: Rate of members with emergency department visits



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

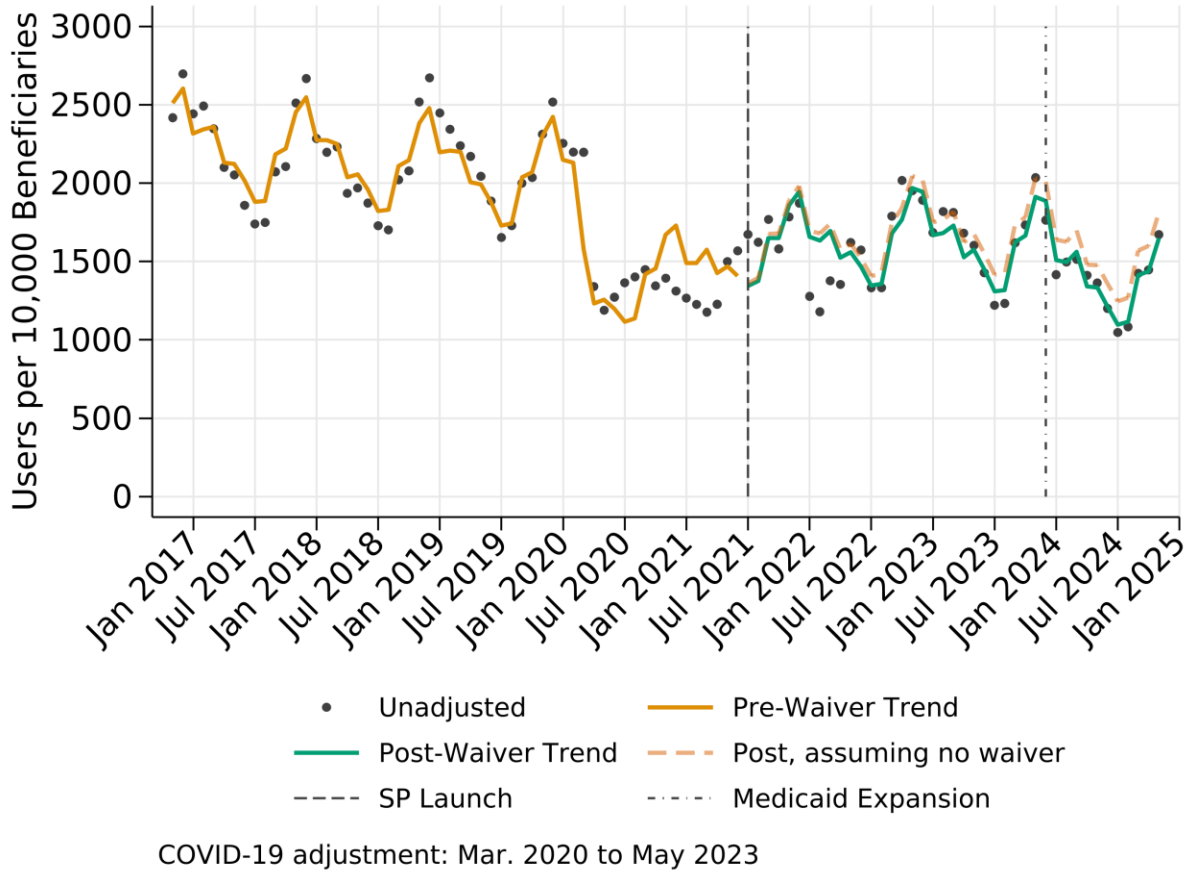
Avoidable or Preventable Emergency Department Visits

Avoidable or preventable (sometimes "potentially avoidable") ED visits include back problems, ear infections, headaches, respiratory infection, urinary tract infections, allergic reactions, chemotherapy, infertility, radiotherapy, some inflammatory conditions, normal pregnancy and delivery, and others.[46] These are conditions for which there is believed to be some ability to decrease the rates with adequate access to outpatient care; note that this

[46] Potentially Avoidable Emergency Department Visits Technical Specification: HEDIS® 2018 Technical Specifications for Health Plans, Volume 2, and California Department of Health Care Services Medi-Cal Managed Care Division's statewide collaborative quality improvement project on avoidable ER visits.

does NOT mean that all of such visits could have been addressed in a less costly setting, just that some of them could have. The rate of ED visits classified as avoidable or preventable was declining prior to SP implementation, falling from approximately 2,500 per 10,000 enrollees with an ED visit in early 2017 to around 1,500 per 10,000 by mid-2021, again with a notable disruption during the COVID-19 PHE. Figure 88 again displays a seasonal pattern that is more pronounced for avoidable ED visits than for overall ED visits, with winter peaks and summer troughs visible throughout the pre- and post-implementation periods.

Figure 88: Trends in Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

At SP launch, there was a small but statistically significant immediate reduction of 17 enrollees with an avoidable ED visit per 10,000 enrollees with any ED visit relative to the counterfactual. More notably, the monthly rate of decline steepened somewhat, from 7 per 10,000 enrollees per month in the pre-waiver period to 10 per 10,000 per month following implementation. By November 2024, the predicted rate of members with potentially avoidable ED visits (out of members with an ED visit) was 1,465 per 10,000 enrollees with an ED visit under managed care compared to a projected 1,629 per 10,000 in the absence of SPs, a difference of 164 per 10,000 enrollees with an ED visit.

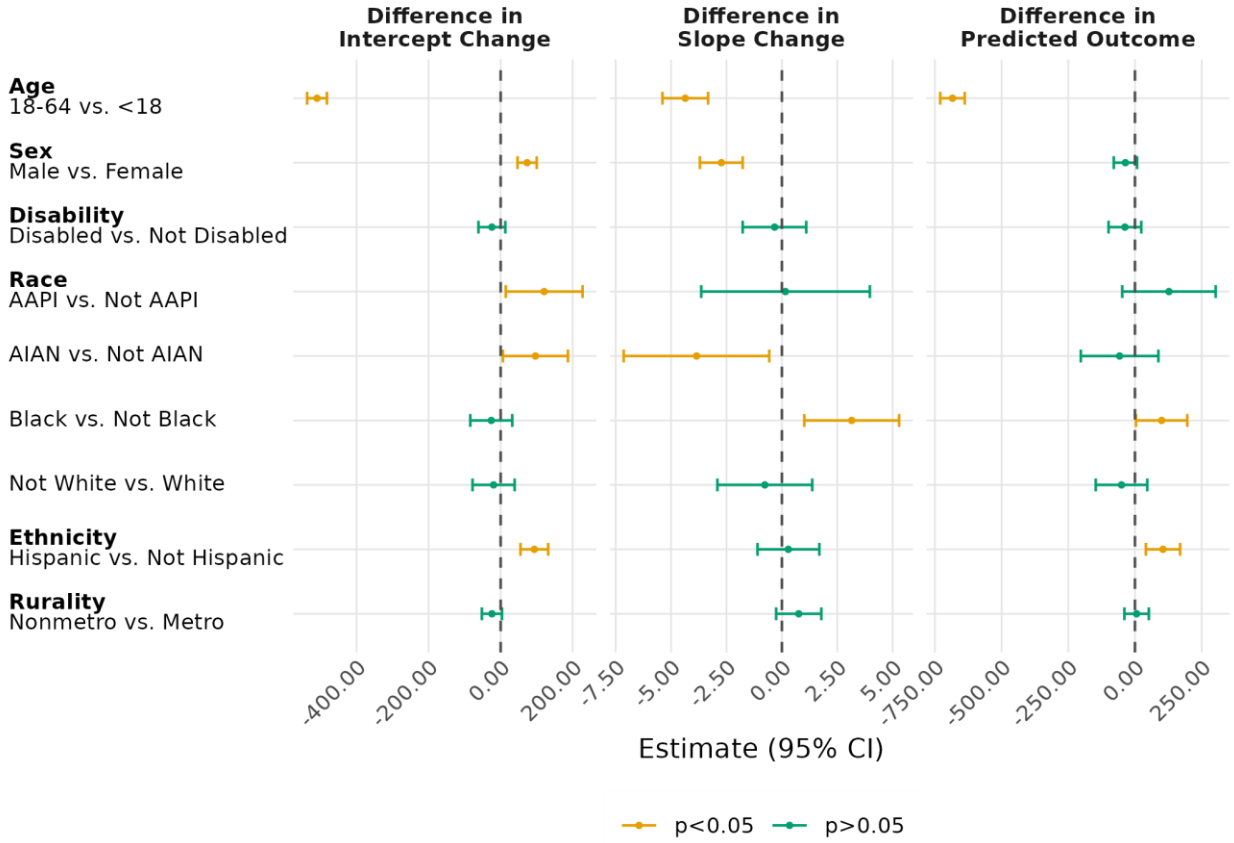
Table 47: Interrupted time series estimates of Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	1578.81* (1569.22, 1588.41)	1561.43* (1550.14, 1572.73)	-17.38* (-33.43, -1.33)
Monthly Change	-6.58* (-6.96, -6.20)	-10.26* (-10.83, -9.69)	-3.68* (-4.49, -2.87)
Predicted Average Outcome Nov 2024	1629.42* (1600.30, 1658.55)	1464.82* (1455.71, 1473.92)	-164.61* (-196.92, -132.29)
N			6,687,049

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

We again see substantial heterogeneity in the differences after SP implementation, especially by age group. The differences in avoidable ED use were dampened at the end of the Demonstration period for Black and Hispanic beneficiaries.

Figure 89: Comparison groups in Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit



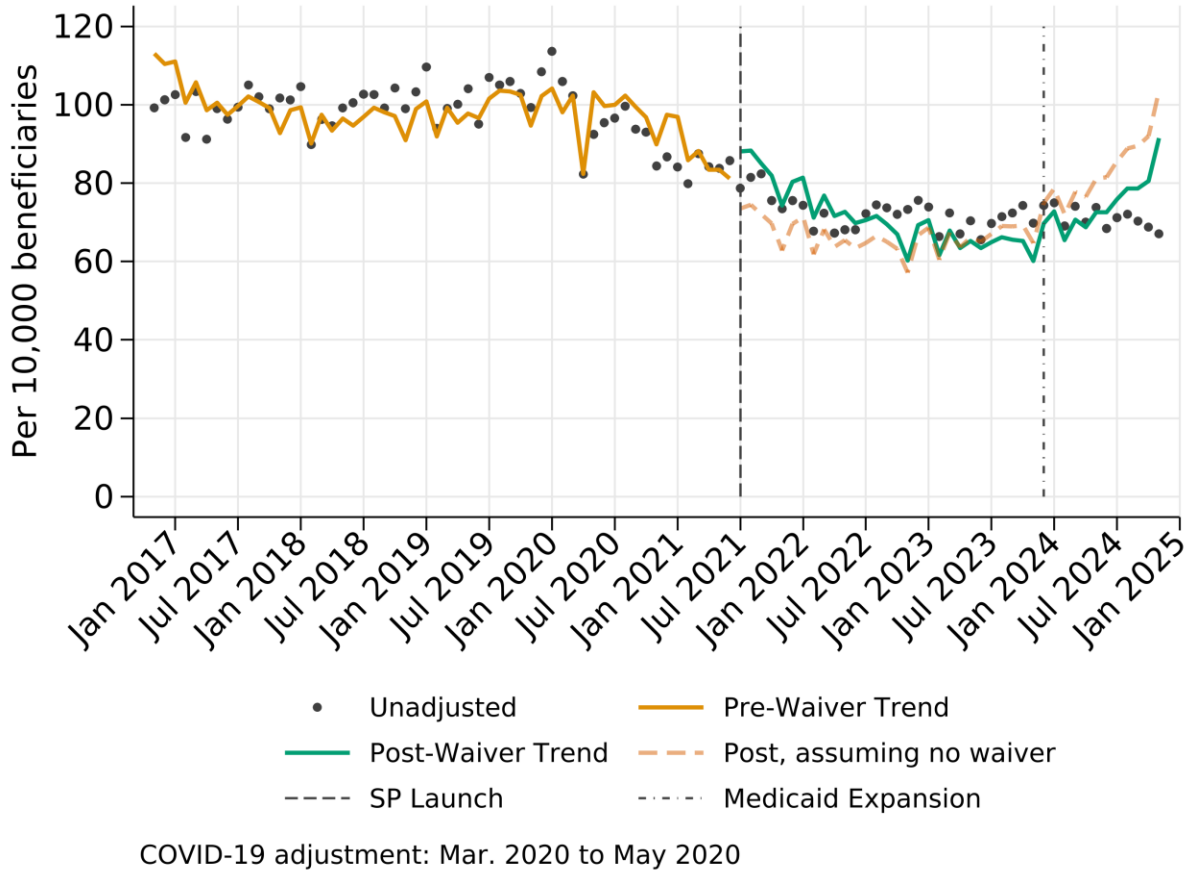
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Taking the two emergency department measures together tells a story where SP launch led to a decline in ED use and a decline in the rate of ED visits that were avoidable. This is a major win for the Transformation and is consistent with the qualitative findings of a deliberate emphasis of the SPs on ED use – with ED use being especially important for non-avoidable issues. As a forecast of the next set of metrics, when combined with the inpatient results, we see a detectable movement away from high-cost settings like inpatient and ED occurring after SP launch.

Hospital Admissions

The rate of members with a hospital admission declined steadily throughout the study period, consistent with a long-term trend predating SP implementation. At SP launch, the predicted rate was slightly higher under SPs than the counterfactual (39 vs. 24 per 10,000 enrollees). Over the post-implementation period, the monthly rate of decline was marginally steeper under managed care, and by November 2024 the predicted outcome was 0.14 per 10,000 enrollees below the counterfactual, a modest but proportionately large and statistically significant decrease. The difference attributed to SP implementation was approximately 2 percent of the rate predicted in the absence of SP implementation – roughly 1,600 fewer admissions per month.

Figure 90: Trends in Hospital Admissions: Proportion of members with a hospital admission



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

The Medicaid Expansion population has been excluded.

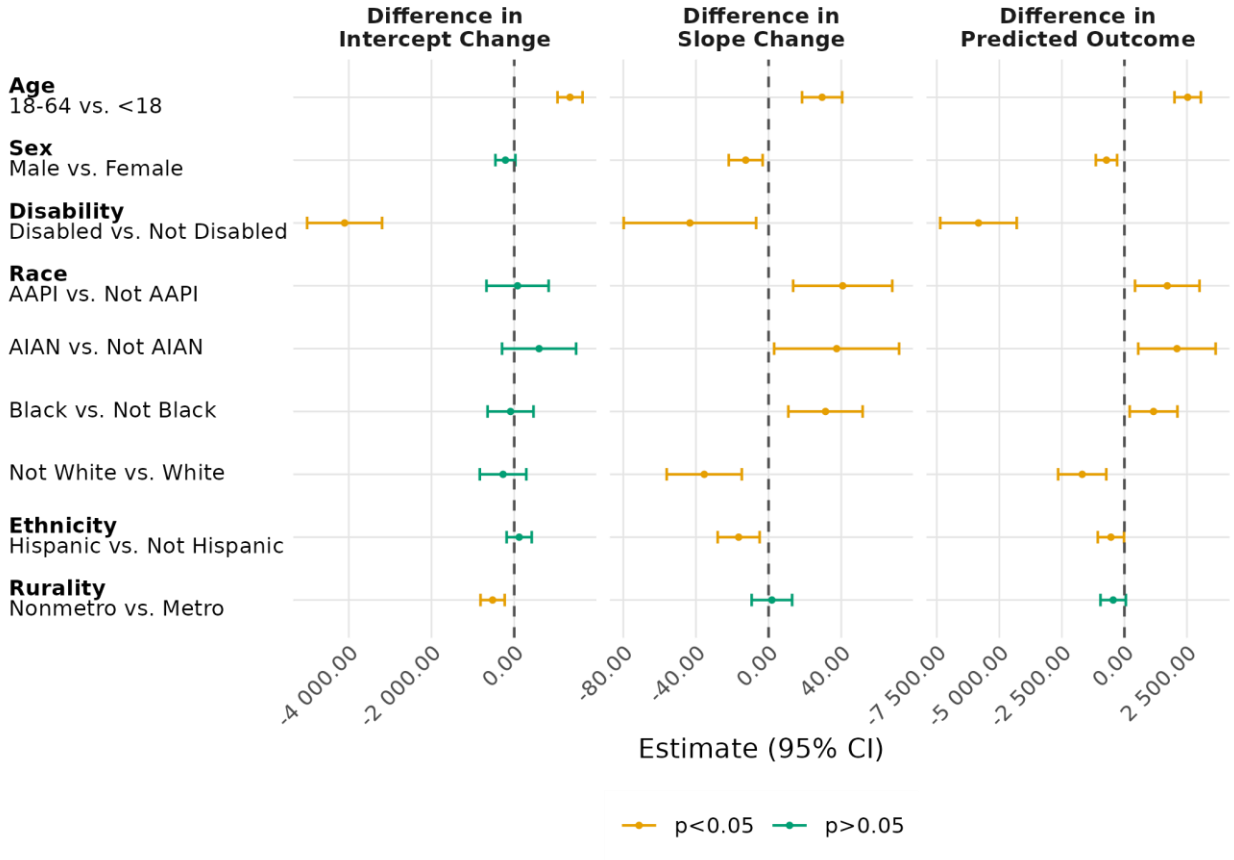
Table 48: Interrupted time series estimates of Hospital Admissions: Proportion of members with a hospital admission

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	23.96* (20.92, 27.00)	39.30* (37.29, 41.31)	15.34* (13.22, 17.45)
Monthly Change	-9.61* (-9.91, -9.32)	-10.35* (-10.61, -10.09)	-0.74* (-0.84, -0.64)
Predicted Average Outcome Nov 2024	-360.56* (-374.96, -346.15)	-374.73* (-386.24, -363.22)	-14.17* (-18.88, -9.46)
N			32,134,963

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*
The Medicaid Expansion population has been excluded.

Subgroup analyses revealed variation in the effect of SP implementation on hospital use across the Medicaid population. The most notable findings were by age and disability status. Adults aged 18-64 showed a smaller immediate effect of SP implementation on the proportion of beneficiaries with a hospital admission at SP launch than children under 18, but had a greater effect of SPs on hospital admissions by the end of the study period. Members with a disability had a larger predicted negative effect of SP implementation on hospital admission relative to non-disabled members, as well as a larger negative effect at launch. Rural members and Hispanic members had greater negative SP effects (saw larger declines) on hospital admissions relative to their comparison groups. In contrast, AAPI and Black members had dampened effects of SPs on hospital admission relative to their respective comparison groups. Recall that a similar result was found for Black patients for ED use.

Figure 91: Comparison groups in Hospital Admissions: Proportion of members with a hospital admission



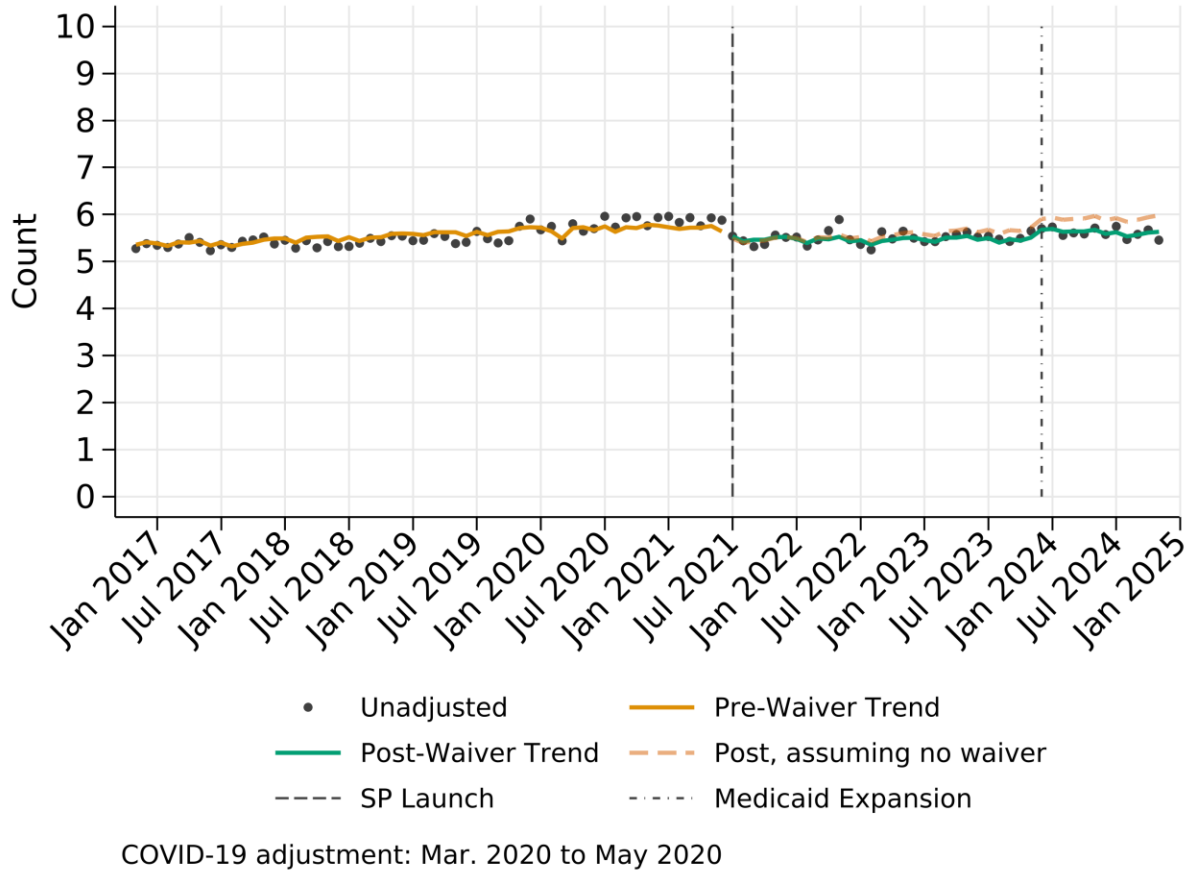
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

Number of Days Admitted Per Month

Prior to SP launch, the number of hospital days in a month for those using hospital care was slowly increasing by approximately 0.002 days per month. At SP implementation, there was an immediate and statistically significant reduction of 0.18 days relative to the counterfactual (5.66 vs. 5.83 days), and the pre-SP upward trend stopped, with number of inpatient days per month remaining essentially flat in the post-implementation period. By November 2024, the predicted average hospital days in a month was 5.63 days under managed care compared to a projected 6.30 days in the absence of SPs, a difference of 0.67 days, or approximately a 10 percent relative reduction.

Both of these results – the lower rate of hospitalization and fewer days per month –are consistent with the qualitative findings where providers and SPs report an emphasis on these measures and an accountability that incentivizes reductions.

Figure 92: Trends in Hospital Admissions: Number of days per month for beneficiaries with a hospital admission



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE negative binomial regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.
The Medicaid Expansion population has been excluded.

Table 49: Interrupted time series estimates of Hospital Admissions: Number of days per month for beneficiaries with a hospital admission

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	5.70* (5.67, 5.73)	5.64* (5.60, 5.67)	-0.061* (-0.10, -0.017)
Monthly Change	0.0016* (0.0014, 0.0017)	-0.0004* (-0.0007, -0.0001)	-0.0020* (-0.0023, -0.0017)
Predicted Average Outcome Nov 2024	6.07* (6.01, 6.13)	5.55* (5.51, 5.58)	-0.52* (-0.59, -0.45)
N			1,375,865

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE negative binomial regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

The Medicaid Expansion population has been excluded.

Summary of Quantitative Findings

Across most metrics, the evidence points in a consistent direction: following SP implementation, both ED utilization and inpatient admissions declined relative to what would have been expected in the absence of the waiver, and among those who were admitted, the number of days admitted per month also decreased. The rate of ED visits classified as avoidable or preventable also fell, suggesting not only lower ED use overall but more appropriate use. The utilization findings are consistent with a gradual shift away from high-acuity care following SP implementation. These findings are relatively robust across the different analyses, but it is also fair to point out the magnitude. The 14 percent reduction in the ED rate, for example, is 58 visits per 10,000 enrollees. With roughly 2.2 million standard plan enrollees in November 2024, this translates to roughly 13,000 ED visits per month. A notable decrease, to be sure, but with 80,000 visits each month, there is still an opportunity for further improvement. This is a theme in the next section.

Qualitative Findings

While the quantitative findings show statistically significant declines in emergency department and inpatient use at the population level, the qualitative data provide insight into the mechanisms at both the provider and patient level that influence the use of emergency department use, and identify frictions that likely contribute to the modest effect sizes (e.g. a 2 percent reduction in inpatient use), including persistent barriers to primary care continuity, attribution challenges, uneven patient engagement, and administrative complexity. Providers described ED and inpatient use as downstream consequences of fragmented primary care engagement, attribution challenges, and uneven care coordination, while beneficiaries emphasized access barriers, deliberate triage decisions, and difficulties reconnecting to outpatient care after acute episodes. Leaders from Standard Plans described meaningful but gradual improvements in care coordination and value-based incentives, while acknowledging challenges related to patient engagement and the delayed impacts of new programs. The findings are described in detail below.

Provider Perceptions

In provider interviews across multiple years of the Demonstration, ED and urgent care utilization emerge not as a simple story of *"inappropriate use,"* but as a downstream consequence of care discontinuity, misaligned accountability structures, and plan- and system-level incentives that shape both patient pathways and provider responses. Interviewees repeatedly positioned ED/urgent care visits as the endpoint of problems that begin much earlier, when patients cannot, do not, or simply fail to remain connected to primary care.

Primary care discontinuity is described as an upstream driver of reliance on ED/urgent care. A foundational finding is that ED and urgent care become the *"default"* when primary care relationships are fragile. One participant described a familiar cascade: missed appointments lead to worsening symptoms and increased acuity, and patients reappear only when the situation is urgent and costly. In this account, the core problem is not just clinical; it is engagement and follow-through. *"[Patients] often don't make it to their appointments, so things get 10 times worse, and they show up in the ER or the urgent care, and costs go through the roof."*

These findings highlight ED/urgent care utilization as a symptom of limited continuity rather than an isolated behavioral choice. It also clarifies why participants emphasize strategies that *"capture"* patients sooner, before conditions escalate and result in urgent care or ED use.

Participants from practices and clinically integrated networks described using monitoring and outreach to reduce avoidable ED visits. One participant described a workflow in which staff proactively review ED lists and then contacted patients to arrange follow-up and provide real-

time education on the appropriate site of care. For example, a primary care administrator described:

She calls and tries to educate the patient on, you know, went to the ED 'cause you had a sniffle. We're open these days, these hours… tries to educate them on what's an emergency and what's not an emergency, what could wait.

Importantly, this educational work is not described as a one-off public message. It is embedded in practice operations and paired with appointment-making support, suggesting that effective ED diversion depends on having the infrastructure to quickly identify ED use and respond in a coordinated way.

Urgent care functions as a *"safety valve"* for minor acute needs, high volume, and high throughput for many patients. Several accounts clarify that urgent care occupies a pivotal middle ground: it absorbs large volumes of low-acuity complaints that might otherwise spill into EDs, but it does so through a business model centered on throughput and short, protocol-driven visits. An urgent care leader described the case mix in practical terms, emphasizing the predominance of minor respiratory complaints and standardized testing and treatment:

75 percent of what we're seeing is an upper respiratory issue. Patients had a cough, runny nose, and headache. We're going to give them a Covid, a flu, a strep test, maybe a chest X-ray, a shot, and a prescription, and they're going to go.

According to participants, urgent care diversion can efficiently resolve minor acute problems but is not designed to replace longitudinal, complex chronic care management.

A major structural barrier across interviews is incorrect assignment and attribution, in which patients are assigned to practices that do not actually see them. Providers explained that both of these errors and especially attribution undermine the ability of primary care to truly take accountability for ED use because clinics can be held responsible for utilization patterns they cannot influence. One provider participant captured this bluntly: *"What is [the patients'] ED utilization? We just have no control over that. But yet we're, they would hold us responsible."* Another provider described the magnitude of the issue, citing attribution may be wrong in some settings, including scenarios in which patients did not intend to visit the assigned clinic. *" [Our providers] estimate about 25 percent of their . . . patients attributed to them that have no intention of ever going to them. Maybe to urgent care."* This quote and the larger sentiment of provider perceptions shared during interviews encompasses two separate issues. First, issues with inaccurate PCP assignment, such as beneficiaries being assigned to a PCP that does not serve their age group, such as adults assigned to a pediatric practice. Second, there is an issue of beneficiaries who are formally assigned to a practice but do not

engage in primary care even after outreach from the primary care practice. These figures (25%) reflect provider perceptions rather than validated assignment issues, and interviewees themselves acknowledged uncertainty about the precise scope of the issue; however, they are informative for how providers perceive and thus respond to the problems and incentives surrounding improving ED utilization.

Attribution problems and patient disengagement, therefore, operate as a cross-cutting mechanism that weakens ED reduction efforts: outreach, education, and care management depend on knowing who is *"yours,"* yet the interviews depicted a system in which panels are often inaccurate and difficult to correct. Hence, attribution problems and structural barriers to patient engagement in primary care converged in value-based payment and quality measurement, where practices may be held responsible for ED utilization among patients they either do not see or cannot consistently engage.

Participants also described the influence of payer administrative tactics on ED and inpatient care. Participants described a landscape in which plans have become more *"aggressive,"* including through downgrading (a retrospective process where an insurance payer reviews a submitted hospital claim and reduces the reimbursement amount by reclassifying the patient's condition or service to a lower-weighted, less costly level) and post-authorization reversals. One participant connected these tactics directly to ED and inpatient services, noting that what had been prominent on the commercial side may be *"bleeding"* into Medicaid: *"Payer policies seem to have gotten more aggressive. The downgrading is another issue that has been happening both in the ED space and the inpatient space."*

Despite these barriers, participants suggested that reducing potentially avoidable ED visits is one of the few areas where stakeholders tend to agree as a population health goal. One participant stated plainly, *"We all agree on the reduction of ED use."* However, the same interview illustrated how this consensus around ED reduction can coexist with financial pressures tied more closely to inpatient admissions and overall hospital utilization, creating internal tension within health systems. As one participant described, *"It's a two-headed devil, reduce services. But on the revenue cycle side. 'You need more admissions.' Very dual personality."* In this framing, ED visit reduction was discussed as a quality and cost-containment objective, while inpatient admissions were referenced primarily in relation to hospital revenue dependence, underscoring how misaligned incentives across settings can complicate the sustainable implementation of ED reduction strategies.

Finally, participants suggested that managed care's impacts are complex and not uniformly experienced across health systems or time periods. One participant reported stable ED

utilization at a population level while describing changes in inpatient length of stay and improvements in readmissions, attributed to tighter post-discharge engagement as described by a health system leader:

The global ED utilization rate has remained constant, while the length of stay has lengthened. Yet the readmission rate has improved, with members engaging within a couple of days of discharge.

This system-specific account does not negate the aggregate quantitative finding of declining ED utilization following SP implementation; rather, it illustrates how care management interventions may yield measurable improvements in readmissions and post-discharge engagement even when ED rates are slower to shift within individual systems, reinforcing the broader theme that infrastructure and follow-up capacity, rather than coverage design alone, shape how and when utilization changes materialize across different care settings.

Beneficiary perceptions (2024 and 2025)

Across the 2024 and 2025 beneficiary interviews, findings suggest consistent patterns of care navigation that may contextualize observed modest declines in ED use, avoidable ED visits, inpatient admissions, and length of stay following SP implementation. These patterns center on primary care access and continuity, beneficiaries' decision-making under uncertainty, and what happens or fails to happen after acute care encounters. Data from the 2023 beneficiary interviews were excluded because the interviews did not focus on emergency room or urgent care use.

Beneficiaries in both years frequently described difficulty obtaining timely primary care appointments due to restrictive scheduling systems, limited same-day availability, or unstable provider relationships. One parent explained that "*you have to call at 8:00 o'clock in the morning and by the time you get through, the appointments may be taken*," describing how this uncertainty pushed them to seek care elsewhere when symptoms could not wait. Others described relying on episodic care because continuity felt elusive: "*I try to go to urgent care if I can't get in to my provider*," or, reporting that they did not have a primary care doctor at all. For some individuals in particularly transitional situations, issues with access to primary care providers sometimes leave the emergency department as the only predictable access point to care. In our data, this was seen in groups such as individuals without stable housing, those newly enrolled in Medicaid, or those experiencing plan transitions. One beneficiary experiencing homelessness described how acute life instability made continuity of care nearly impossible: "*This past winter, when I was livin' in a tent—and at one point my tent got completely flooded, washed downriver—I was just in a miserable state. I was in despair… I*

never have regular doctor's appointments. It was just too hard to follow up with all of it." When asked about how she accessed care during this period, the same participant explained that care occurred only in crisis or acute situations, "maybe in some, like, emergency situations, like if I had to go to the emergency room." This account illustrates how housing instability undermine the feasibility of scheduled appointments, follow-up care, and longitudinal primary care relationships, rendering episodic emergency care the most reliable option when health needs arise.

At the same time, beneficiaries consistently described deliberate decision-making that constrained ED use to situations perceived as truly emergent. Participants articulated an internal triage process rooted in fear, unfamiliarity, and perceived danger. One beneficiary with seizures explained having "*a couple of hospital visits due to the seizures*," framing ED use as unavoidable. Another described seeking emergency care during a prolonged migraine because *"I thought I was having a stroke—it was all in my face."* These accounts suggest that beneficiaries reserved ER for circumstances that exceeded their threshold for safe outpatient management.

This decision-making logic was reinforced by post-visit experiences. In the 2025 interviews, especially, beneficiaries described acute care encounters that addressed immediate symptoms but failed to connect them back to primary care. Some described delays in obtaining medications or specialty referrals for chronic conditions such as hypertension, heightening anxiety about waiting when symptoms felt dangerous. These gaps reinforced a cycle in which beneficiaries used ED services selectively but remained vulnerable to repeat acute care when outpatient continuity failed.

Cost relief under Medicaid enabled earlier care-seeking in both years. Beneficiaries described previously delaying or avoiding care due to cost, whether uninsured or with private insurance, highlighting experiences when "*ER was $200 copay, urgent care was $50*," or when the ED was used because "*they couldn't deny me*" with the reassurance that Medicaid coverage allowed them to seek preventative care sooner. As one participant put it, "*Thank God for Medicaid. I'd be thousands of dollars in medical debt.*" These accounts suggest that cost relief under Medicaid facilitated earlier care-seeking in both study years, which may contribute to reduced illness severity over time. These insights provide a potential insight into how improved access could support declines in ED use and inpatient care. The qualitative data cannot speak to causal comparison around SP implementation due to very limited data prior to launch of managed care; rather, these results suggest that efforts by Medicaid or plans themselves to inform beneficiaries of the low costs of preventive care may support beneficiaries in seeking and obtaining outpatient care through primary care and other sources, upstream of ED use.

Beneficiaries' narratives indicate that perceived affordability of care under Medicaid coverage and deliberate triage decisions on the part of patients operated alongside persistent challenges in primary care continuity, highlighting both the gains achieved under SP implementation and the areas where further strengthening of outpatient systems may sustain utilization improvements.

PHP Perceptions (2024)

Participants from SPs reported that managed care is improving care coordination, incentivizing preventive care, and using data to reduce avoidable ED visits and hospitalizations. For example, plans are using value-based payment models to incentivize preventive care and reduce avoidable utilization. This strategy was described as encouraging preventive care that can reduce ED visits and hospital admissions.

However, participants observed that patient engagement, administrative complexity, and the delayed impact of new programs may limit or slow these improvements. Some providers struggle to manage patients who don't actively engage with their assigned PCPs, leading to continued ED use. This suggests that non-engaged patients may still rely on EDs, limiting the impact of managed care, indirectly through lower effectiveness of PCPs. Additionally, participants shared that programs like the Healthy Opportunities Pilot (HOP) may reduce ED use, but its impact is long-term and still emerging, indicating that cost and utilization reductions may take time to materialize.

Conclusion

Interviews with providers, enrollees, and PHP leaders help contextualize the modest but consistent quantitative improvements observed for this hypothesis. Provider accounts described active practice-level infrastructure aimed at reducing avoidable ED use, including workflows in which staff proactively review ED lists, contact patients following visits, and provide real-time education about appropriate sites of care. This coordinated outreach is consistent with a gradual trend toward ED reduction observed in the quantitative data, suggesting that the growing divergence from the counterfactual may reflect these practice-level efforts taking hold over time. One provider also described stable ED utilization at a population level alongside reductions in length of stay and improved readmission rates, attributed to tighter post-discharge engagement. PHP leaders described value-based incentives as encouraging preventive care and care coordination, while acknowledging that patient engagement is difficult and that the impacts of new programs are long-term and still emerging. The qualitative findings suggest that the quantitative improvements seen to date reflect real but early-stage changes, and that further reductions in ED and especially inpatient utilization will likely require continued investment in care management infrastructure, accurate patient attribution, and primary care access, particularly for populations facing

structural barriers to consistent engagement with the health care system. Overall, the qualitative evidence contextualizes why utilization declines are modest and gradual, uneven across populations, and experienced by clinicians and providers as incremental and hard-fought rather than uncomplicated or straightforward processes.

Hypothesis 2.2: The implementation of Medicaid managed care will increase the number of enrollees receiving care management, overall and during transitions in care.

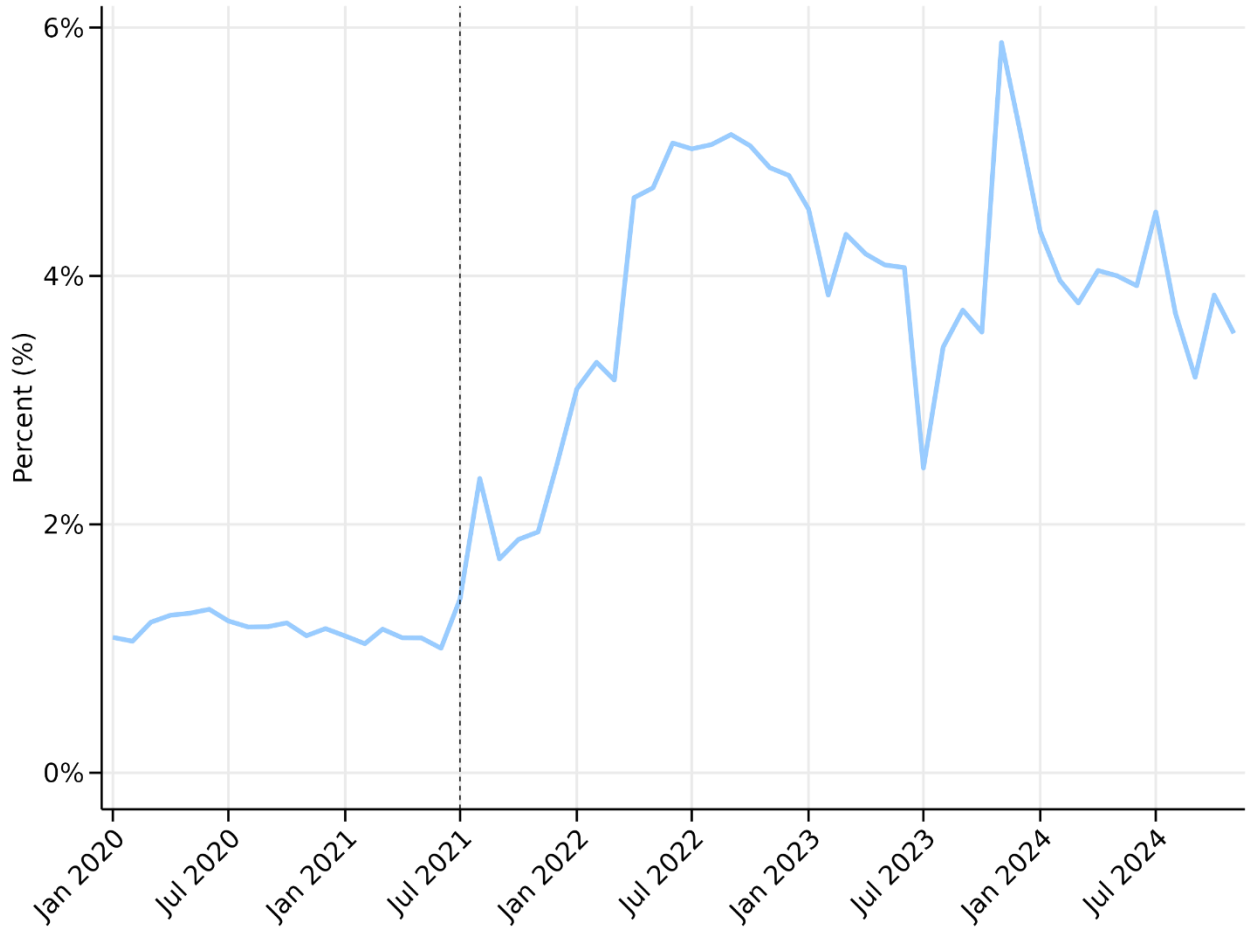
Quantitative Findings

A Primary Driver of the transformation, as shown in the Driver Diagram was to Deliver care with a whole person care orientation. Care management was hypothesized to be a major contributor to this component; this is based on multiple studies showing the effectiveness of care management on outcomes, including decades of Community Care of North Carolina among Medicaid beneficiaries specifically.[47] Figure 93 shows a dramatic increase in the percent of beneficiaries receiving care management after the launch of SPs, from around one percent in the pre-SP period to over four percent within a year, and then remaining in the three to five percent range for the remainder of the post period.

As expected, SP launch led to a large increase in the provision of care management services. As noted in the Data section, there are data quality challenges for the BCM051 care management data that results in a likely underestimate of true volume of care management activities. For example, the drop in July 2023 is because one SP did not report any CM that month. This means that the percentages reported are likely the lower bound of true care management provided for SP members. Because the data are known to have quality issues, and because the simple trend shown here makes a very strong case that care management increased, we did not report ITS results for this metric.

[47] Beat D. Steiner, Amy C. Denham, Evan Ashkin, Warren P. Newton, Thomas Wroth, L. Allen Dobson. Community Care of North Carolina: Improving Care Through Community Health Networks. The Annals of Family Medicine Jul 2008, 6 (4) 361-367; DOI: 10.1370/afm.866

Figure 93: Trends in Percent of Enrollees Receiving Care Management



Time to SDOH Screening from PHP Attribution

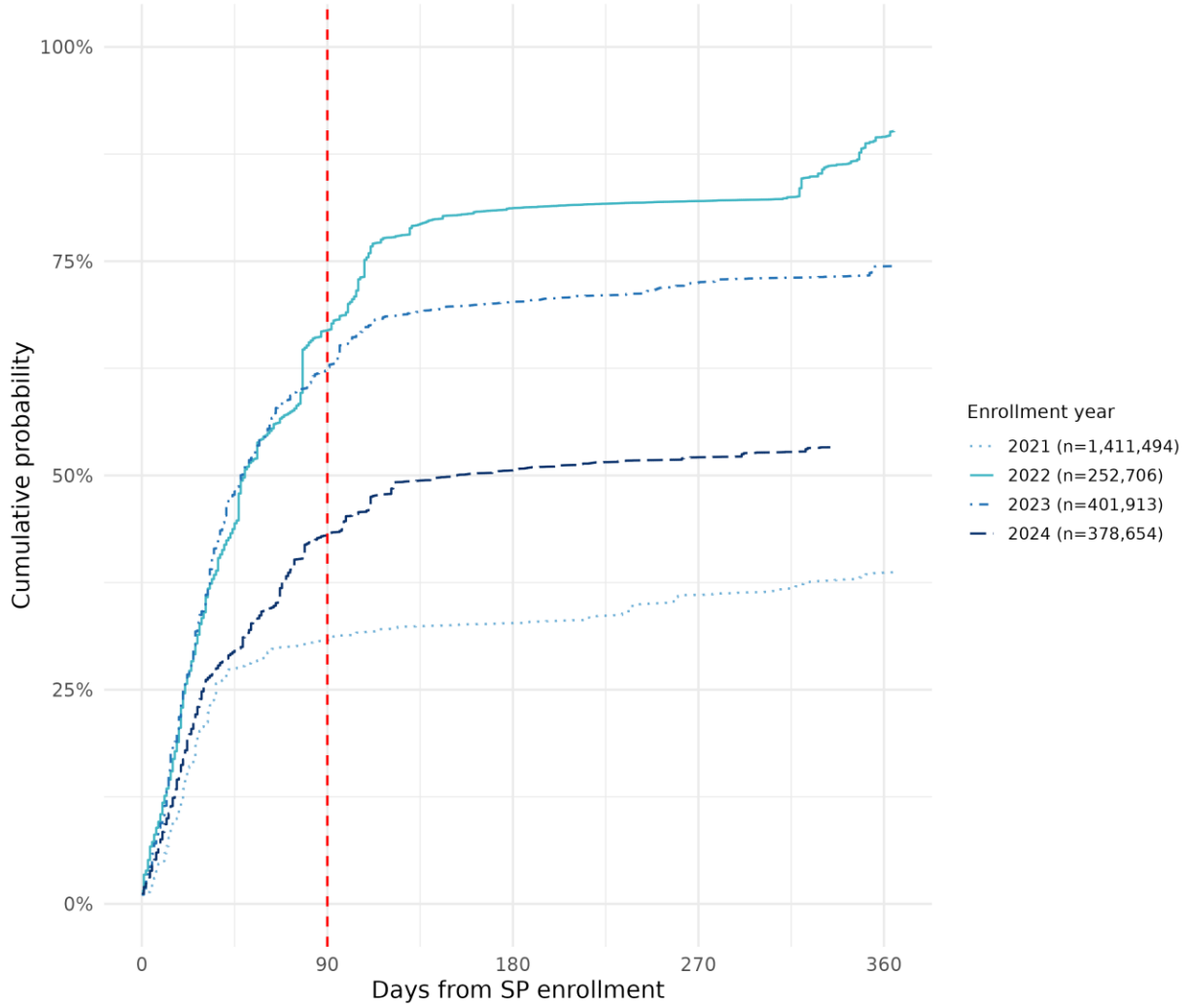
Distinct from care management, we also analyzed the time to Social Determinants of Health (SDOH) screening after attribution to a Standard Plan. A secondary driver of the transformation is addressing SDOH through screening; thus, this is an important component. (Of course, the separate SER on Healthy Opportunities Pilots addresses this in a much more in-depth analysis.) Per contract requirements, SPs are responsible for making best efforts to complete a Care Needs Screening for every member within 90 calendar days of the effective date of enrollment, with best efforts defined as at least two documented contact attempts if the initial attempt is unsuccessful. [48] This analysis captures time to first screening contact

[48] https://www.medicaid.gov/medicaid/downloads/mce-checklist-state-user-guide.pdf

attempt and time to completed screening response among SP members enrolled or re-enrolled between 2021 and 2024, using data through November 30, 2024.

https://medicaid.ncdhhs.gov/nc-medicaid-standard-plan-withhold-program-guidance/download?attachment

Figure 94: Cumulative Incidence of Time to first SDOH Screening Contact Attempt from PHP Enrollment Date

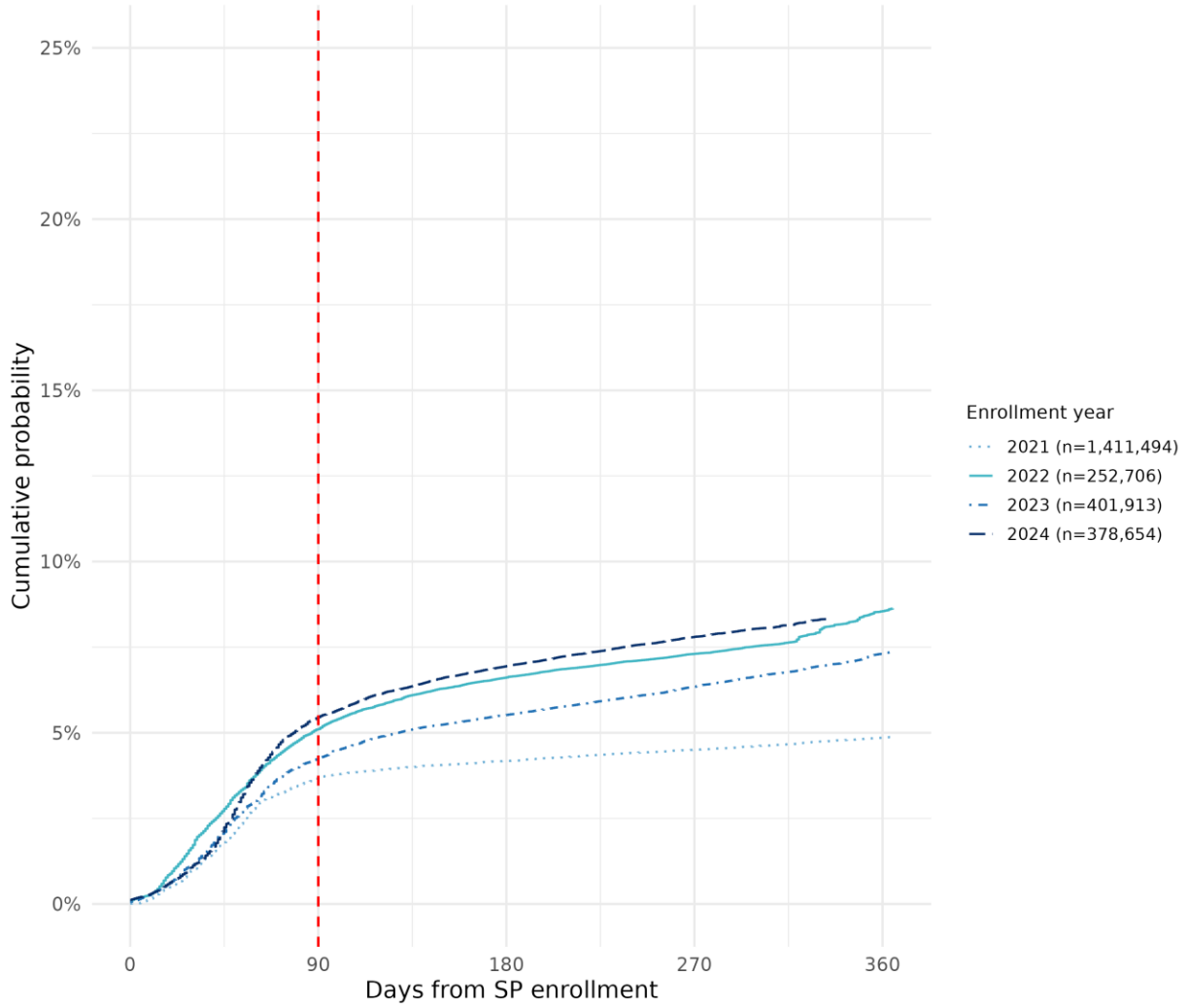


Notes: Predictions estimated from a cumulative incidence function model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications. SP launched in July 2021; the 2021 cohort reflects approx. 6 months of program activity. The enrollment year represents beneficiaries who were newly enrolled or re-enrolled in that year. The red dashed line indicates the 90-day requirement by which PHPs must make best efforts to conduct an initial care needs screening for each enrolled or re-enrolled member (NC DHHS Care Management Strategy under Managed Care). Analyses reflect a study period ending Nov 30, 2024.

By one year after enrollment, SPs had documented a contact attempt for 39% of 2021 enrollees and 53% of 2024 enrollees, compared with approximately 75% to 90% of 2022 and 2023 cohorts. The lower cumulative incidence in 2021 is likely attributable in part to the July

2021 launch of SPs, which limited early-year exposure and may have reduced the opportunity for outreach. The lower estimate in 2024 may reflect a combination of implementation disruption and data-quality issues, whereas the higher values in 2022 and 2023 may partly reflect improved capture or reporting of contact attempts rather than a true increase in outreach activity. Accordingly, the 2022 and 2023 estimates should be interpreted cautiously.

Figure 95: Cumulative Incidence of Time to first SDOH Screening Completion from SP Enrollment Date



Notes: Predictions estimated from a cumulative incidence function model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications. SP launched in July 2021; the 2021 cohort reflects approx. 6 months of program activity. The enrollment year represents beneficiaries who were newly enrolled or re-enrolled in that year. The red dashed line indicates the 90-day requirement by which PHPs must make best efforts to conduct an initial care needs screening for each enrolled or re-enrolled member (NC DHHS Care Management Strategy under Managed Care). Analyses reflect a study period ending Nov 30, 2024.

The cumulative incidence of completed SDOH screening within one year of enrollment remained low across all cohorts, ranging from 5% in the 2021 cohort to 8% to 9% in the 2022, 2023 and 2024 cohorts. Screening activity was distributed across the 365-day fixed follow-up period, with cumulative incidence curves continuing to rise beyond the 90-day threshold for

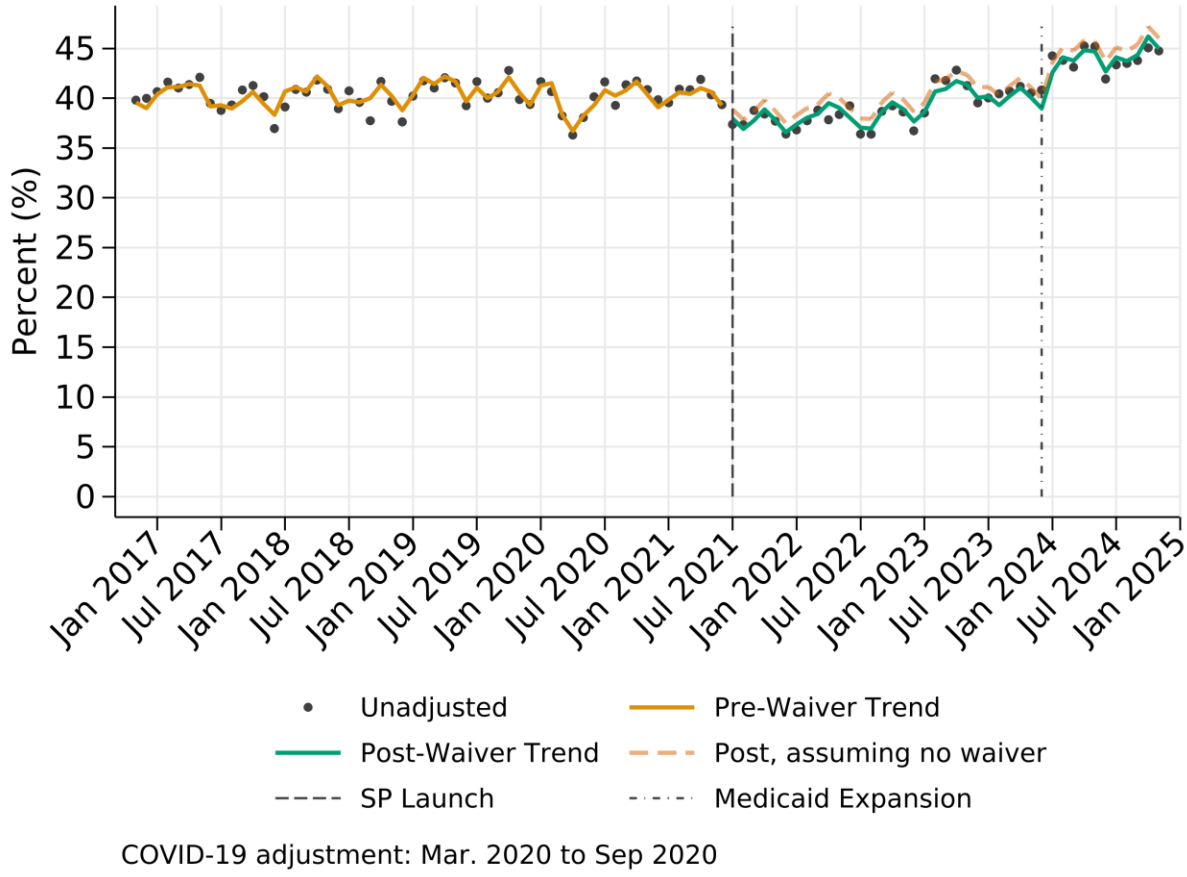
all cohort years, indicating that a meaningful share of screenings may have occurred outside the contractually required window. Fewer than 5% of members in any cohort had a completed screening documented by 90 days.

The substantial gap between contact attempt rates and completed screening rates across all cohort years suggests that PHPs are initiating outreach, but most outreach efforts do not result in a completed SDOH screening interaction. Differences between completion source contributions across cohort years should also be considered: NCCARE360 records, which began March 15, 2022, contribute a growing share of completion events over time, particularly for longer follow-up windows.

Transitions of Care

The Transitions of Care (TRC) composite measure captures the percentage of discharges from long hospital, rehab, or residential stays for which key care transition activities were completed, including patient engagement in outpatient services after discharge or medication reconciliation post-discharge. Higher values are better. The TRC composite was relatively stable throughout the pre-implementation period, fluctuating around 40-41%.

Figure 96: Trends in Transitions of Care (TRC)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

At SP launch in July 2021, there was a small but statistically significant immediate reduction of 0.92 percentage points relative to the counterfactual (40.02% vs. 40.95%). This difference persisted and modestly widened through November 2024, where the predicted TRC composite was 40.23 percent under managed care compared to 41.25 percent in the counterfactual, a statistically significant difference of 1.02 percentage points. Neither the pre-SP nor post-SP monthly trends were statistically significant, indicating that the gap between the waiver and counterfactual remained relatively stable rather than widening or narrowing over time. While statistically significant, the magnitude of the difference in the average predicted outcome is modest but suggests that SP implementation was associated

with a small but persistent reduction in the completeness of care transition activities following discharge. This result is consistent with challenges in coordinating care identified in the qualitative interviews, as the TRC can be improved through better information sharing. It is notable that the most recent values in the post-expansion period are all above the values in the remainder of the study period. While an "eyeball test" of the figure shows a higher rate post-launch than pre-launch, the regression does not detect a change; this suggests that changes in the demographics of the population may be driving the steeper prediction line.

Table 50: Interrupted time series estimates of Transitions of Care (TRC)

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	40.95* (40.63, 41.26)	40.02* (39.67, 40.38)	-0.92* (-1.39, -0.46)
Monthly Change	0.0077 (-0.0012, 0.017)	0.0052 (-0.0098, 0.020)	-0.0025 (-0.020, 0.015)
Predicted Average Outcome Nov 2024	41.25* (40.60, 41.91)	40.23* (39.88, 40.58)	-1.02* (-1.77, -0.28)
N			666,691

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

Hypothesis 2.3: The implementation of Medicaid managed care will reduce Medicaid program expenditures.

Quantitative Findings

The objective of Hypothesis 2.3 was to assess whether the implementation of Medicaid Managed Care Standard Plans (SP) reduced overall Medicaid program expenditures and expenditure components. For this purpose, we take the perspective of "expenditures by Medicaid (pre-launch) and the Standard Plan (post-launch)". That is, this is NOT from the State's perspective which would use capitated rates post-launch. To evaluate this hypothesis, we conducted interrupted time series analyses and generalized estimating equations to estimate both the proportion of beneficiaries in SPs with any expenditure and, among those with spending, the average expenditure. These models were applied to the periods before and after the launch of Standard Plans. This approach disaggregates the analyses into two separate questions:

1. whether MC implementation affect whether beneficiaries had any health care spending, and
2. among those with a positive value, whether MC implementation affected how much it was.

This is a common approach in health econometrics but does not always lend itself well to interpretability. Therefore, to further contextualize expenditure patterns, we also examined unadjusted per-person-per-month (PMPM) spending to describe overall trends. Importantly, these PMPM spending calculations are for descriptive purposes only and cannot assess changes in expenditures attributable to the introduction of Standard Plans. For example, they do not account for the changes in the demographic makeup of the sample that changed over the Demonstration period. All analyses were conducted for total managed care spending as well as major service categories, including inpatient, emergency department, outpatient, prescription, and behavioral health expenditures.

Overall, the percentage of beneficiaries with any Medicaid managed care expenditure increased substantially from 95.67% in July 2021 at baseline to 98.17% in November 2024 at the end of the follow-up period, inclusive of capitated payments to providers, such as for care management services. This represents an adjusted increase of 7.65% points attributable to SP implementation. Unadjusted PMPM expenditures also rose markedly at the launch of SP, increasing from approximately $300 PMPM to approximately $400 PMPM. There is a critically important caveat to this, however: as will be shown in analyses of inpatient expenditures, there was a substantial change in the payment mechanisms for inpatient services rather than an increase in inpatient utilization. It is important to note that this rate increase was largely

due to the elimination of supplemental state payments and instead increasing the inpatient rates directly and thus may not represent a net increase in Medicaid expenditures[49].

It is also important to recognize explicitly that the expenditures in the post-SP period among SP beneficiaries are not costs to the State – they are the dollars paid by the SPs. Although the perspectives vary, then, between the pre-SP and post-SP periods, this approach examines how healthcare spending on care for beneficiaries changed. In other words, this approach does not answer "Did Transformation save the State money?" That is more a question for the cost neutrality analysis.

Inpatient Expenditures

We do not find evidence of any change in the proportion of beneficiaries with an inpatient expenditure, but consistent with the change in payment rates, we do find that average inpatient expenditures rose significantly concurrent with SP launch. Among those with an inpatient expenditure, adjusted costs more than doubled from $4290.93 per calendar month under the baseline model to $9754.71 under SP implementation in July 2021. These inpatient expenditures remained elevated for the duration of the Demonstration period. As indicated above, coinciding with the transition to Medicaid Managed Care there was a change in reimbursements to hospitals moving from supplemental payments to a base payment methodology. Hospitals were assigned individual diagnosis related groups, in part to better account for uncompensated care, that applied new rates to both fee-for-service Medicaid and Medicaid Managed Care. Because of these concurrent changes in reimbursement, we are unable to accurately estimate the independent effect of Managed Care implementation on inpatient expenditures.

In unadjusted per-person per-month models, prior to SP launch in July 2021, PMPM inpatient spending was less than $50. At launch, PMPM inpatient expenditures immediately increased to approximately $100. While PMPM expenditures decreased somewhat over time, they remained higher than the pre-SP levels. Much of the substantial increase in inpatient expenditures is likely directly attributable to changes in reimbursement rates for inpatient services occurring concurrently with the launch of managed care, although changing beneficiary characteristics may have contributed.

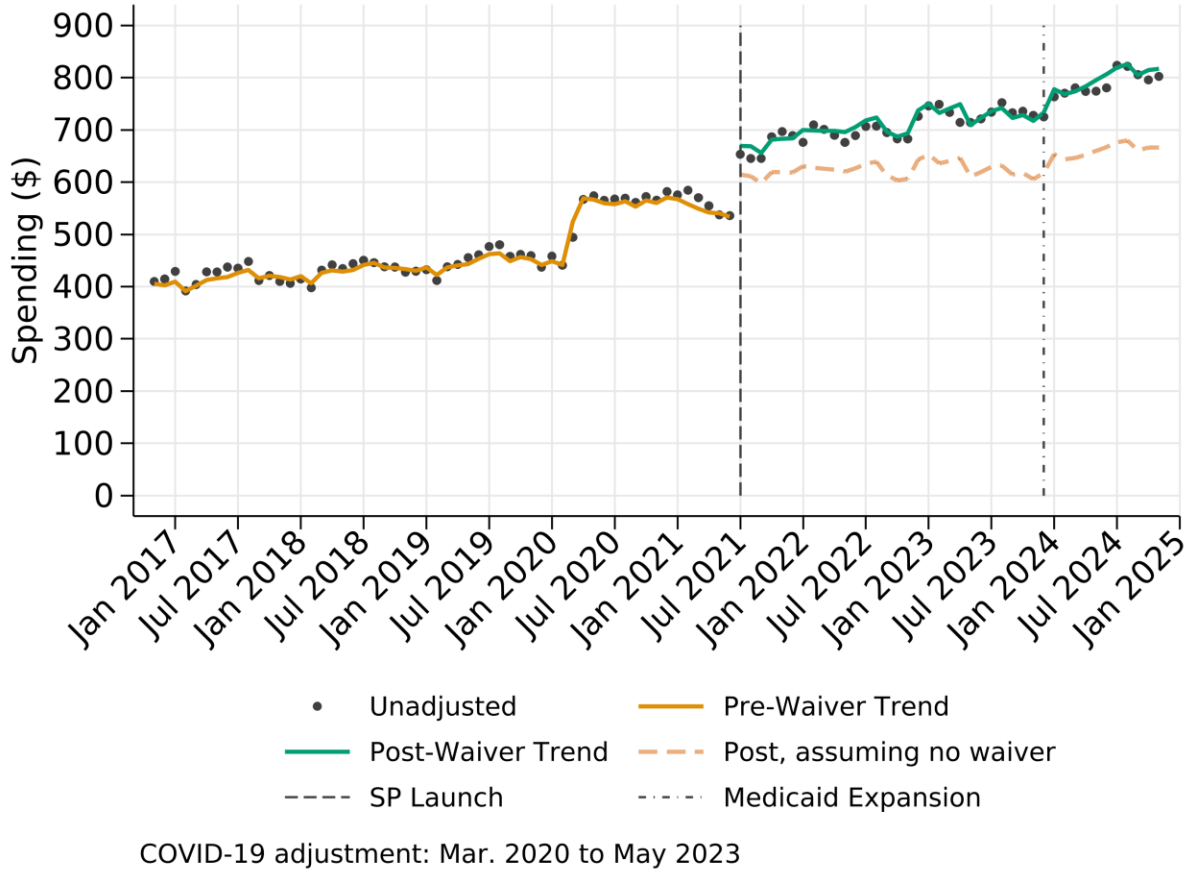
Emergency Department Expenditures

The proportion of beneficiaries with an emergency department (ED) expenditure decreased following SP launch. By the end of the follow-up period in November 2024, 3.34% of

[49] North Carolina Department of Health and Human Services. "Addressing Hospital Supplemental Payments in the Transition to Managed Care", November 21, 2017, https://medicaid.ncdhhs.gov/addressing-hospital-supplemental-payments-transition-managed-care/download?attachment

beneficiaries had an ED expenditure under Managed Care, compared with an estimated 3.28% had SPs not been implemented. Similar to inpatient spending for users, there was an immediate increase in estimated ED expenditures among those who used the ED, at the time of Managed Care launch, going from $534.24 to $681.31, and this higher level persisted throughout the remainder of the Demonstration period. Again, it is important to remember that this value is the average among those with an ED expenditure; it is NOT the average among the entire population. It is close to the average cost of an ER visit, but it is slightly higher because it aggregates multiple visits in a month by a beneficiary.

Figure 97: Trends in Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an ER expenditure

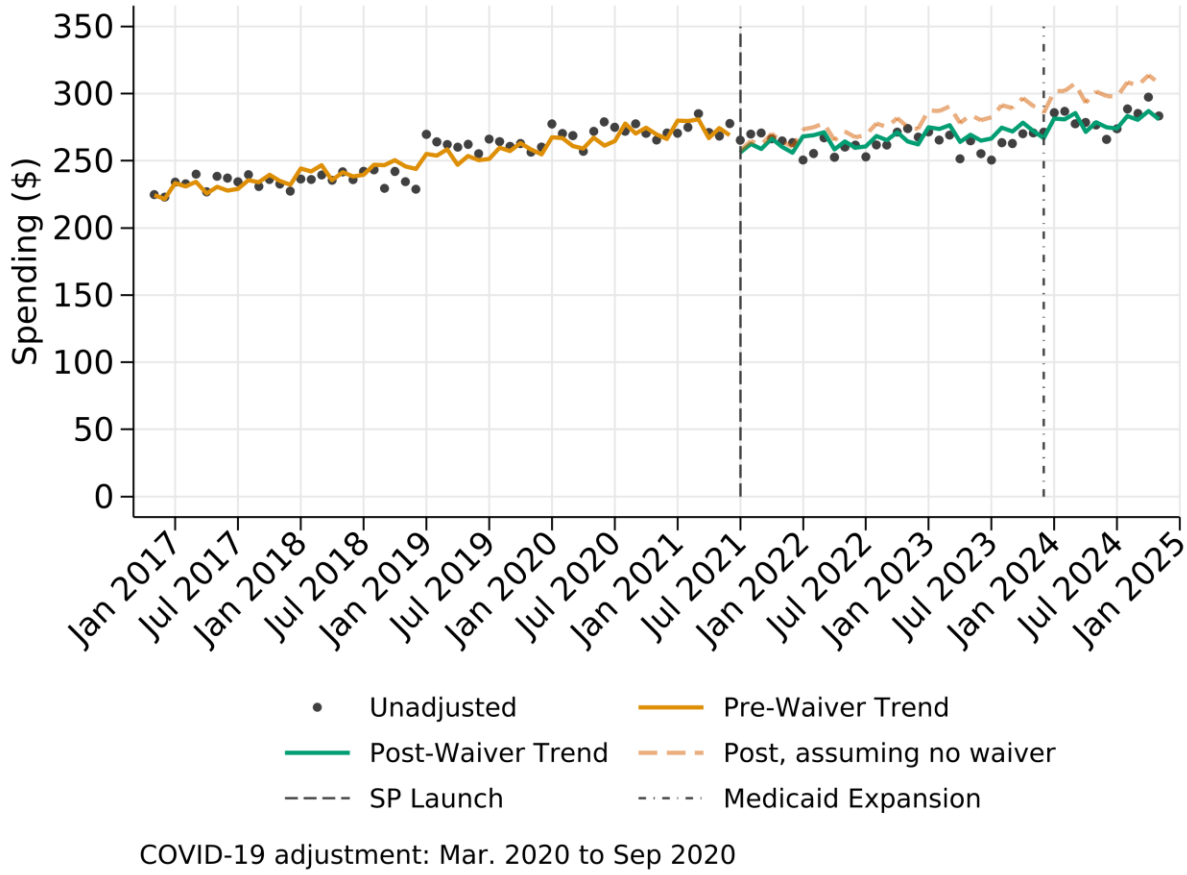


Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Outpatient Expenditures

In contrast to the trends observed for inpatient and ED services, outpatient (OP) expenditures declined after SP Implementation (relative to the baseline trend). At the end of the follow-up period in November 2024, the predicted average outpatient expenditure was $311.32 assuming SP had not been introduced, compared with an estimated $270.42 under SP, an adjusted difference of $40.89 – a decrease of about 13 percent. There is a noticeable pattern of decline in outpatient expenditures per outpatient user after SP launch. OP expenditures appear to be increasing since approximately July 2023, however this date was not part of formal hypothesis testing.

Figure 98: Trends in Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient expenditure



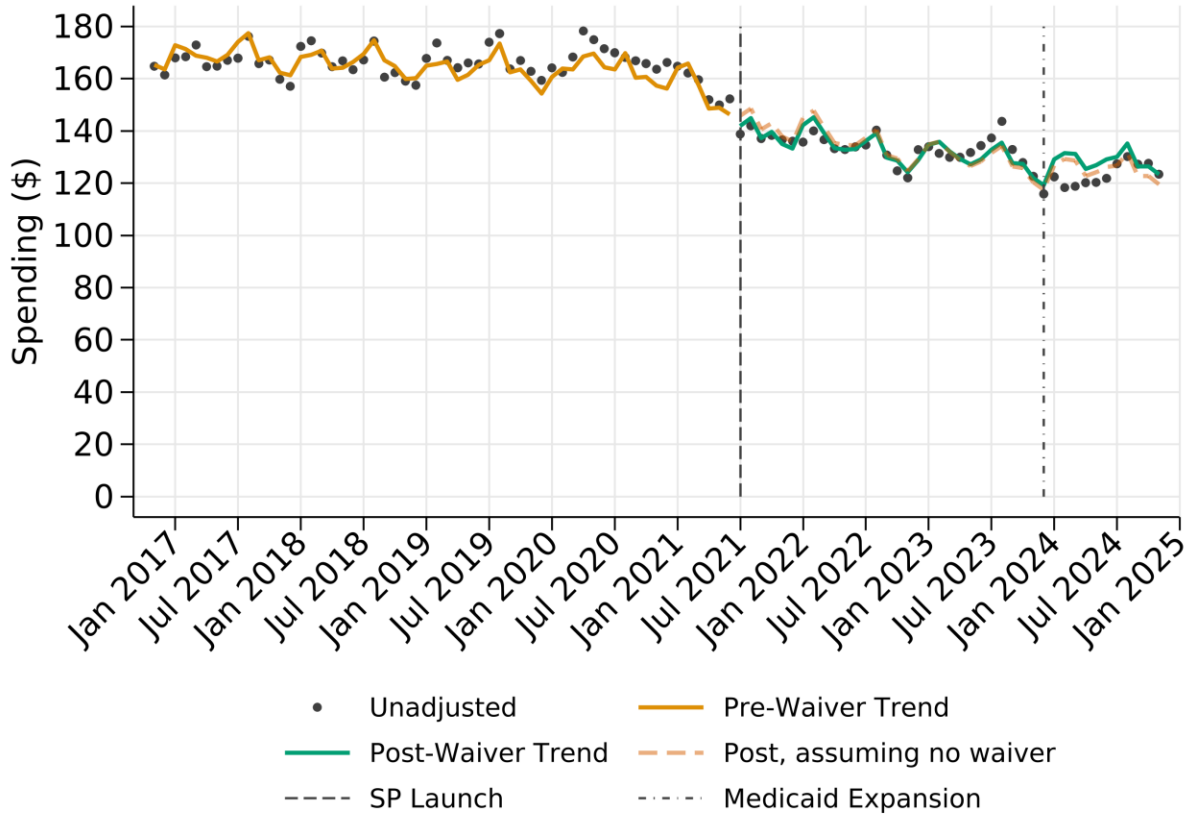
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Pharmacy Expenditures

The proportion of beneficiaries with a pharmacy (Rx) expenditure increased modestly after SP launch. In July 2021, the percentage with an Rx expenditure rose from 18.39% to 21.22%, and this increase persisted through November 2024. The level of spending among Rx users declined from the pre-SP period, as seen in Figure 99. However, very little of the decline is attributable to SPs, as the trend under SPs is very similar to what we project would have happened without SP implementation. During this same period, unadjusted Rx PMPM

spending increased from approximately $75 in July 2021 to approximately $100 in November 2024.

Figure 99: Trends in Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had a prescription expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

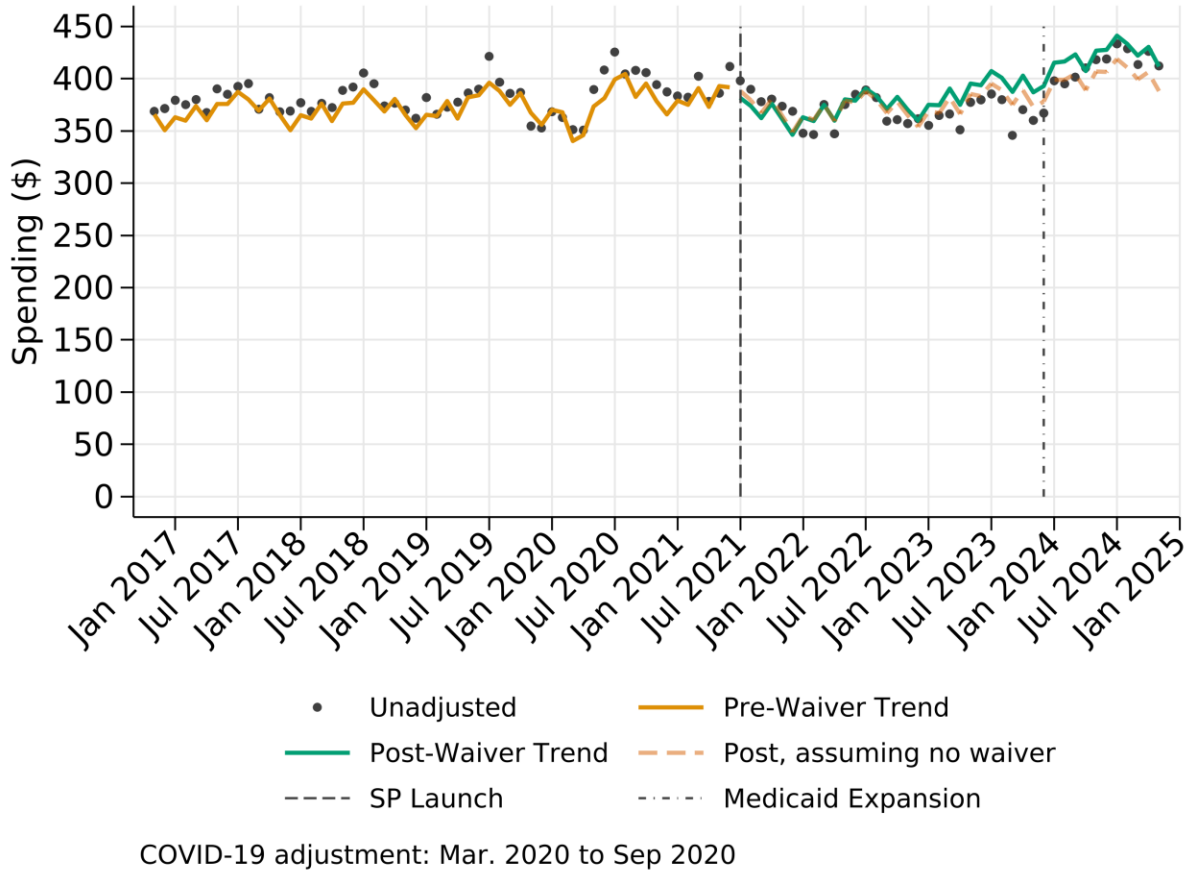
Behavioral Health Encounters

At SP launch, the percentage of beneficiaries with a behavioral health (BH) expenditure decreased from 8.41% to 7.67% immediately, however this percentage increased by the end of the study period to 9.63%. We find no difference in the rate of use of BH services attributable to SPs by the end of the Demonstration. Among those with a BH expenditure, remained relatively unchanged immediately at launch. After SP implementation, BH

expenditures significantly increased from $388.90 in July 2021 to $438.90 at the end of the study period in November 2024. Unadjusted PMPM spending for BH services increased at launch, rising from approximately $40 prior to launch to approximately $50 in July 2021, and continued to increase to approximately $60 by November 2024. Notably, affecting the SP behavioral health estimates, there was an increase in reimbursement rate for certain behavioral health services offered within standard plans in January 2024. This increase is evident in the data, with a notable increase from December 2023 to January 2024.[50]

[50] https://medicaid.ncdhhs.gov/blog/2023/11/15/nc-medicaid-behavioral-health-services-rate-increases

Figure 100: Trends in Medicaid Expenditures: Behavioral health expenditures among beneficiaries with a BH expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

In summary, the implementation of SP in North Carolina was associated with increased total expenditures, driven largely by higher inpatient payment levels and increased emergency department spending; accounting for the inpatient fee adjustment would undoubtedly lower this increase, but it is not clear by how much. Similarly, behavioral health expenditures also rose after SP launch. Outpatient spending declined, while pharmacy expenditures showed more modest changes. The upward trajectory in PMPM costs across multiple service categories underscores the importance of continued monitoring of spending patterns and

evaluating the alignment of observed expenditures with budget neutrality expectations. These findings collectively highlight both the financial implications of the transition to Managed Care and the need for ongoing assessment of cost drivers within the program.

Hypothesis 2.4: The Implementation of Medicaid managed care will increase provider satisfaction and participation in the Medicaid Program.

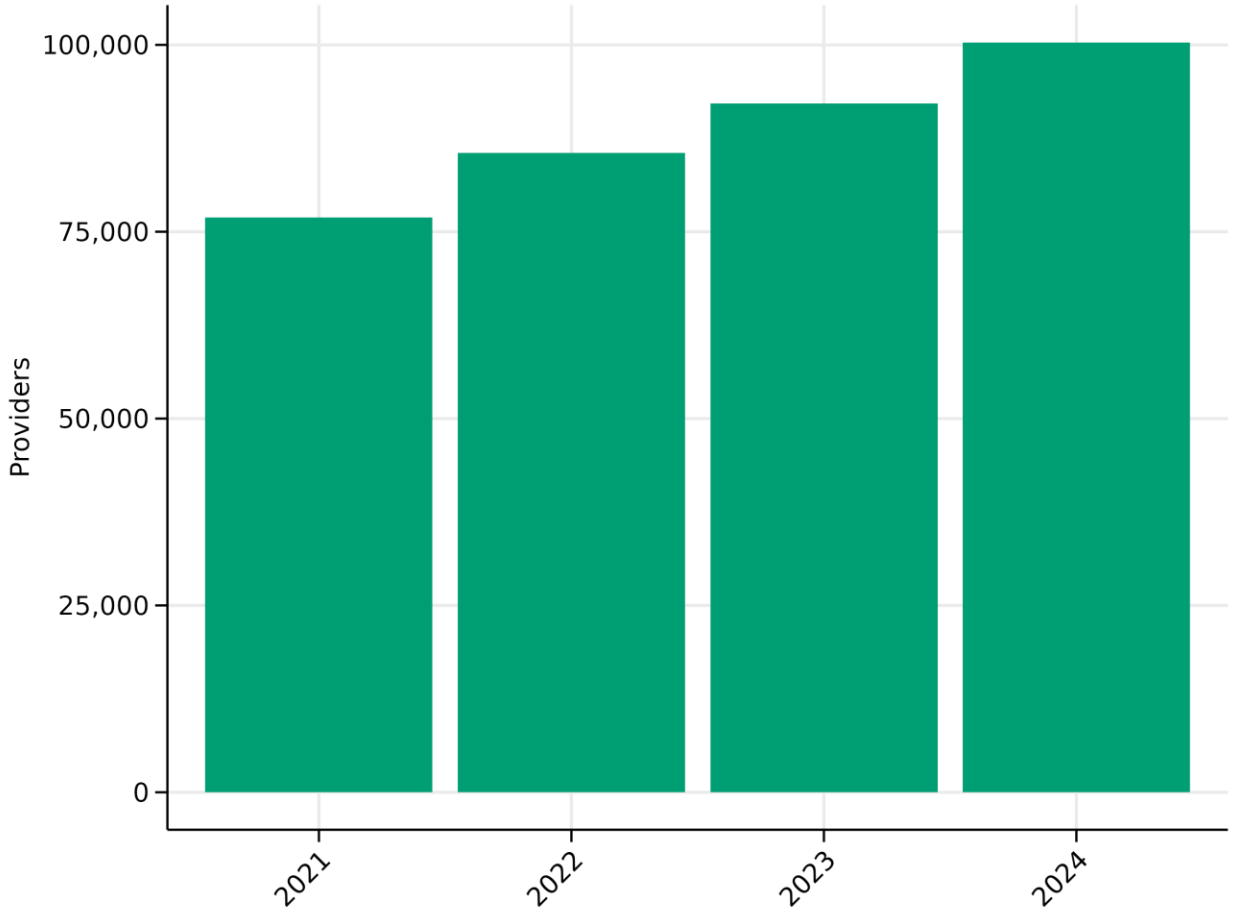
Quantitative Findings

A core driver of the transformation was that a focus on quality and access would increase the access of beneficiaries to high quality providers; one component of that was an increase in provider participation. This hypothesis is primarily evaluated through the qualitative methods, including the provider interviews. One quantitative assessment is the number of providers, as defined by unique NPI, participating in the Medicaid program.

SP Providers

The following figure shows the number of distinct providers ever billing to a SP in each year. The number has increased steadily from 2022 to 2024, from just over 75,000 in 2022 to 100,000 in 2024, showing that provider participation grew growing after the launch of Standard Plans.

Figure 101: Counts of Provider Participation in Medicaid with SP Contracts

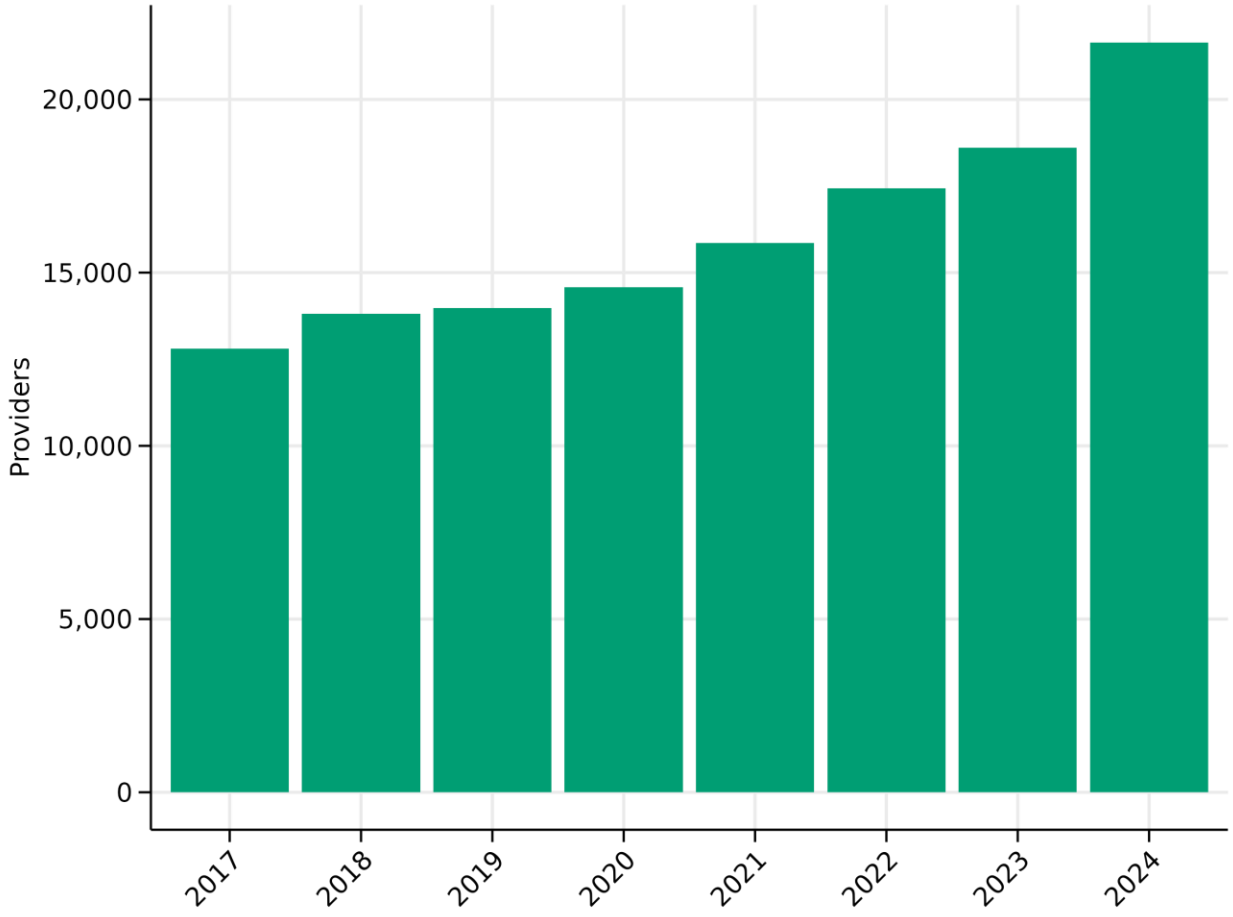


One NPI represents a unique provider.

Total Mental Health Provider Participation in Medicaid

It is critical to have enough mental health providers to provide care. Mental health providers were identified as those with contracts with NC Medicaid who had a taxonomy code for mental health care. While there was a slight increase in mental health providers from 2017 with around 12,500 providers to just under 15,000 providers in 2020. There was a larger and steady increase in mental health providers from 2021 to 2024 with just over 15,000 providers to 22,500 providers.

Figure 103: Counts of Total Mental Health Provider Participation in Medicaid



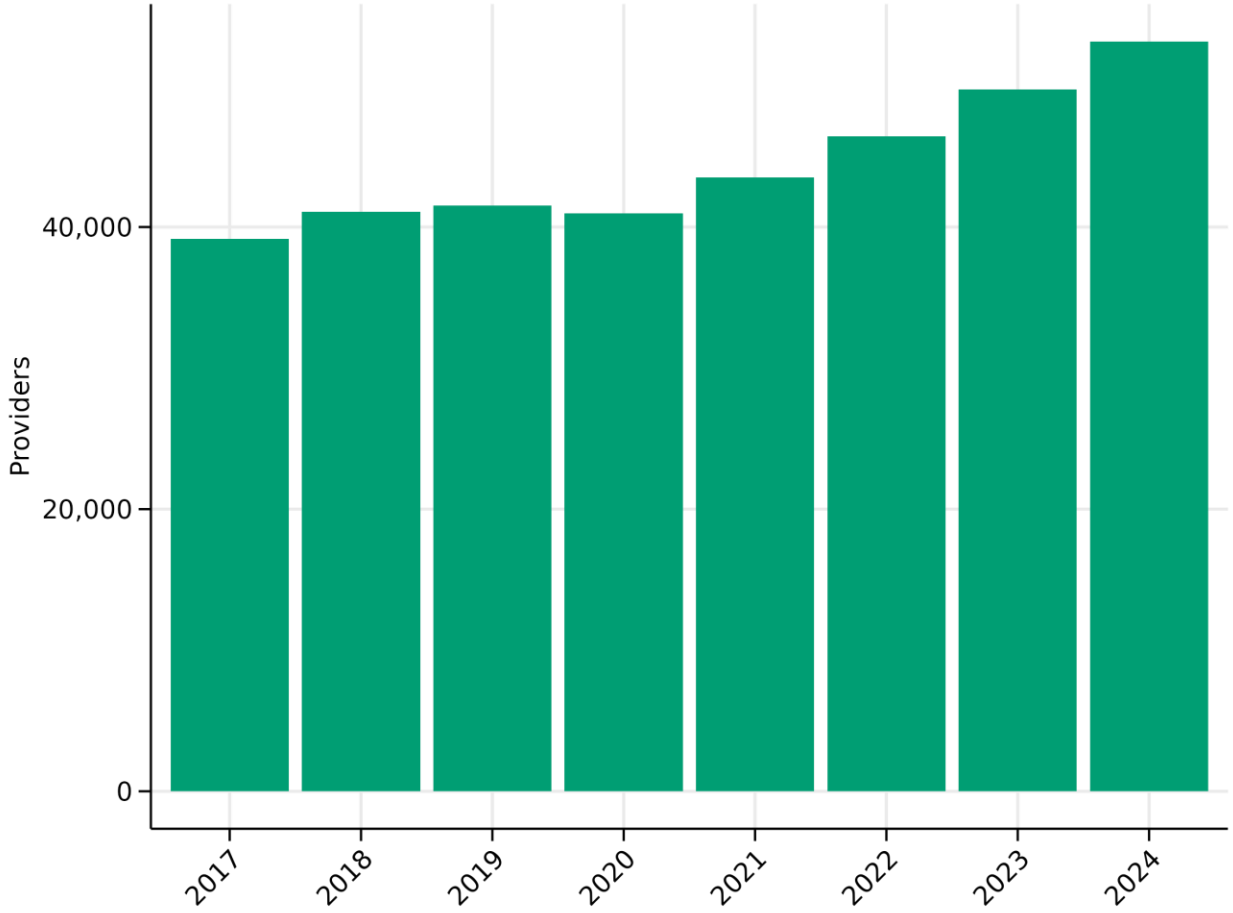
One NPI represents a unique provider.

Total Child and Adolescent Well-Care Visit Provider Participation in Medicaid

Medicaid provides a lot of care for children, so the number of providers that can provide Child and Adolescent Well-Care Visits (AWCV) is important. AWCV providers were identified as those with contracts with NC Medicaid who had a taxonomy code for PCPs and OBGYNs who

could provider well-care visits. From 2017 to 2020, AWCV providers remained fairly stable at around 40,000 providers. From 2021 to 2024 providers increased from around 42,000 providers to just under 60,000 providers.

Figure 104: Counts of Total Child and Adolescent Well-Care Visit Provider Participation in Medicaid



One NPI represents a unique provider.

Qualitative Findings

Findings show that provider participation patterns evolved over the first five years of implementation. Most organizations initially contracted with all five Standard Plans (SPs), largely to protect patient access and minimize care disruption during the transition. Over time, however, shifting operational demands, administrative burden, payment integrity concerns, and trust in specific plans influenced more strategic contracting choices. Practices increasingly weighed the mission-driven importance of serving Medicaid patients against the operational complexity of managing multiple plans. Data from 2023 and 2025 further underscore a shift toward selective participation, with many organizations choosing to limit

the number of contracted SPs while occasionally re-entering partnerships when plans demonstrate operational improvements, leadership changes, or new financial incentives. Taken together, these findings highlight the dynamic interplay between the administrative realities of Medicaid managed care and providers' longstanding commitment to serving vulnerable populations, reflecting a continuous negotiation between mission, operational capacity, and evolving payer relationships.

Provider Perceptions (2023)

Findings from 2023 interviews with healthcare organizations revealed mixed satisfaction among providers with Medicaid managed care. Nearly half (17 out of 35) participants were satisfied with the transition to managed care. Common reasons for satisfaction included Medicaid being an easier payer than other insurance plans and improvements in the operations of some plans. Participants who were neutral or dissatisfied reported unresolved issues with plans, such as high rates of denials, attribution errors, or problems with prior authorization, and at times reported these problems were worse with Medicaid plans than other insurance plans.

Table 51: Overall satisfaction of participants from healthcare organizations with Medicaid managed care in 2023.

	# of participants	Representative quote
Satisfied	17	I would say I'm pretty satisfied with it. I think out of all of our payers, we've had the least problems with Medicaid. I think Medicaid, we've been really, really satisfied. (Administrator, Independent Behavioral Health Practice) From what I put together and what I allowed, I'm satisfied because they worked out a lot of the issues. (Practice Administrator, Independent Adult Primary Care Practice)
Neither satisfied nor dissatisfied	11	It is improving, let's put it that way and has it got a long way to go. Yes. But it is improving, and there is the desire for it to improve, but they need to be listening to the realties of the situation in order for it to improve. (Administrator, Independent Family Practice)
Dissatisfied	7	If you'd asked me a month ago, I probably would've been a six but now, I'm a four because I think there's been even more changes in the process. Like, I had a patient yesterday that I've been trying to get their supplies for their ventilator for, like, forever. And it's, like their insurance company has just made it super challenging.

		(Administrator and Provider, Health-system Affiliated Practice)

In our sample, over three years, fifty participating organizations contracted with all five SPs, 18 with four, and 24 with three or fewer SPs. Table 52 summarizes the number of SP contracts and future contracting plans by year of data collection. Since four SPs operated statewide and one was regional, some organizations could only contract with only four available in their area.

Table 52: Number of SP Contracts and Future Contracting Decisions (2021 to 2023)

Number of PHP contracts	2021 (n=41)	2022 (n=26)	2023 (n=36)	2025 (n=18)
5	10 (24.4%)	14 (53.8%)	26 (63.9%)	12 (66.7%)
4	6 (14.6%)	7 (26.9%)	5 (13.8%)	2 (11.1%)
3	6 (14.6%)	3 (11.5%)	4 (11.1%)	1 (5.5%)
2	5 (12.2%)	1 (3.8%)	1 (2.7%)	1 (5.5%)
1	3 (7.3%)	1 (3.8%)	0	1 (5.5%)
Unsure	11 (26.8%)	0	0	1 (5.5%)
Plan to add or terminate SP contracts in the future*				
No	-	10 (38.5%)	24 (66.7%)	10 (55.5%)
Yes- eliminate	-	6 (23.1%)	6 (16.7%)	3 (16.7%)
Yes - add	-	1 (3.8%)	1 (2.7%)	2 (11.1%)
Unsure	-	9 (34.6%)	5 (13.9%)	3 (16.7%)

**Does not apply to data collected before the transition to Medicaid manage care*

Note: Four PHPs operated statewide, and one was region-specific. Hence, some providers could only contract with only four plans.

Qualitative findings from 2021 to 2025 highlight factors influencing provider decisions regarding contracting with SPs, which include the contracting process, patient access to care, and increased administrative burden.

Motivators/Facilitators for contracting with Medicaid plans

Patient access to care

Across 2021–2023, providers repeatedly described contracting with all available SPs as an access-preserving strategy during a transition they believed many patients did not fully understand. This was particularly true for organizations serving a high share of Medicaid beneficiaries, most of whom expressed concern for access to care for their patients. They believed offering all SPs was a strategy to ensure continued patient access. Participants perceived that exiting a SP contract would *"create an enormous burden of changing PHPs on patients"* and, as a result, mostly decided to continue contracting with all five SPs or all available in their region. This access rationale was closely linked to safety-net missions. Leaders from FQHCs, local health departments (LDHs), and health systems referenced a commitment to serving all patients as a core reason to contract widely, captured in the mission statement of *"serving all patients regardless of their insurance status"* (Senior Administrator, FQHC). Participants emphasized that limiting participation could result in turning patients away based on plan enrollment, disrupting continuity for existing patients who change plans, and creating confusion for communities already facing access barriers, which would conflict with their mission to serve all patients.

In 2025, providers articulated this mission in more explicitly values-based and affective terms, describing Medicaid care as central to identity and purpose. One practice manager stated, *"I have a heart for these Medicaid patients, they're vulnerable,"* and others described Medicaid patients as "*the people who need our services the most*."

Contracting support structures

In 2021–2023, smaller independent organizations often relied on clinically integrated networks (CINs), accountable care organizations (ACOs), or intermediaries to negotiate contracts, support that made it feasible for small practices to contract with multiple plans despite limited internal administrative capacity. By 2025, this infrastructure advantage is echoed in providers' praise for care management capacity and CIN support, including enthusiasm for local/nonprofit CIN models that offer "more local control" and *"transparent"* financial flows, framed as promising vehicles for alignment with community needs.

Improving plan collaboration

Although early implementation was described as difficult, some 2021–2023 accounts recognized that contracting was *"easier with some PHPs than others,"* particularly where

plans provided assigned representatives. In 2025, improvement and *"learning"* by certain plans becomes more explicit and consequential: providers described faster newborn eligibility verification, more consistent provider relations contacts, and clearer guidance. One leader observed *"it's quicker now,"* attributing improvements to "*more structure inside their teams,"* while another described a plan as consistently *"quicker"* and collaborative—*"We can tell they're trying… 'This isn't right, let's figure it out."*
Providers also identified Joint Operating Committees (JOCs) as concrete venues for problem-solving and shared visibility; one leader described monthly JOCs as *"standard and helpful."*

Care management infrastructure and perceived upside of well-designed value-based care

Across the later interviews, providers increasingly referenced care management capacity as an asset. In 2025, some specifically praised Medicaid care management infrastructure as operationally and clinically valuable *"In-house care management is a brilliant decision, paying dividends in real time."* At the same time, while skepticism about data quality constrained risk-bearing, some providers acknowledged that thoughtfully aligned VBC could help practices *"navigate the pressure in healthcare"* if Medicaid aligns with Medicare/commercial ACO structures.

Barriers to contracting with Medicaid plans

Contracting

Most participants considered the ease of contracting with SPs an essential factor. Participants from small independent healthcare organizations relied on clinically integrated networks, accountable care organizations, or other intermediary agencies to negotiate contracts with SPs. This support enabled smaller healthcare organizations to contract with all SPs. Participants from health systems and larger independent healthcare organizations described negotiating directly with SPs. For them, the ease of contracting and negotiating reimbursement rates was often a sticking point when contracting with SPs. Participants shared that contracting was "easier with some PHPs than others." For example, one SP, which had assigned representatives for healthcare organizations, was easier to contract with. On the contrary, variations in contract terms made negotiations time-consuming and influenced contracting decisions. A senior leader at a health-system-affiliated practice described:

It's an organizational-level decision. What we hear from the conversations about why we haven't contracted and why we're still in discussion is that there's no transparency about the reimbursement and payment structure.

Participants suggested that these unsuccessful negotiations led to fewer contracts with PHPs. In 2025, contracting challenges were not a major barrier.

Administrative burden

The transition from working under a single contract under the prior fee-for-service program to managing up to five separate contracts with SPs resulted in additional work and higher administrative costs to implement the program. Managing up to five different SPs added administrative complexity to the practices. Several participating healthcare organizations identified the misalignment between the increased administrative cost of operationalizing managed care contracts and the reimbursement rates as an initial contracting decision factor. An administrator of an independent family practice described their decision as follows:

It's not like it was a bad transformation. It was just that it created a more demanding workflow. You have to go from one provider to six agencies in six different levels of work, and one needs this, and one needs that, which you just had one. It would create more work.

Subsequent interviews revealed that the increased administrative burden, without corresponding reimbursement, is a persistent concern for other practices. The administrative burden was primarily due to operational challenges, inadequate responsiveness and resolution of issues by SPs related to billing and prior authorization requirements, and a lack of standardization across PHPs. Several participants described improvement in operational challenges, yet there was variation among their experiences with PHPs.

In 2025, this barrier is described as daily "*operational friction"* multiple portals, forms, vendors, and timelines per plan, creating preventable inefficiencies. A health system leader summarized the lack of standardization: *"Not everybody follows the same contracting and credentialing process."* Prior authorization is highlighted as a major cost driver, including the need for dedicated staff and reliance on legacy processes (e.g., fax-based systems), which providers linked to delays and financial losses when documentation was not recorded.

PCP assignment and attribution challenges

The most commonly described operational challenges were assignment issues and attribution errors (also discussed in hypothesis 1.1 in more depth as well as briefly in hypotheses 1.4 and 2.1) and higher rates of claim denials. Participants reported difficulty reconciling attribution errors because *"some PHPs did not provide accurate attribution lists until October 2022,"* more than a year after the transition. High rates of claim denials for some PHPs were another major challenge across all types of participating healthcare organizations, increasing the administrative burden. Some participating healthcare organizations faced staffing issues in reconciling denials. A health system leader described it as:

I mean, it—and we've even talked about, due to the amount of demands on our administrative and our physician teams to correct denials, we can't stay in all these networks. Or at least, all of our hospitals can't. So we may be looking out in the region where the Medicaid population

may not be as big or whatever, and reduce from four down to two, to at least—you don't want to go down to one.

In 2025, assignment and attribution issues were described as among the most consequential barriers, including misassigned panels (e.g., adults on pediatric panels, members not in the providers' geographic area [sometimes living up to two hours away from the practice], members who had aged out, members who moved out of the state) and new patients assigned despite practices being closed to new patients. In addition, providers reported having members on their attribution lists (shared by PHPs) who had switched to other PCPs. Provider reported that overall this created unfairness in quality scoring and other accountability-based approaches, such as incentive payments. Finally, providers also reported that reliance on inconsistent plan ingestion processes amplified distortions.

Plan responsiveness

Participants shared mixed experiences with SP responsiveness, with some reporting better responsiveness than others. Our results show variation in the type of responsiveness across healthcare organization types. Participants from some health systems and large independent practices described having assigned representatives to some SPs. Participants from small independent practices, federally qualified health centers, and local health departments usually lacked consistent provider relations representatives. They described the challenges of communicating with some SPs when dealing with issues such as denials. An office manager described their experience of *"getting questions answered and resolving issues without assigned reps as a nightmare"* with one SP. The level of responsiveness by SPs and their ability to resolve issues directly impacted administrative burden and were identified as critical considerations for maintaining contracts with SPs.

In 2025, trust and relationship quality emerged as powerful determinants of provider satisfaction. Participants sharply distinguish between collaborative plans that are seen as communicative, responsive, and solutions-oriented, and punitive plans, which feel adversarial and unhelpful. By contrast, some plans are characterized as *"prosecutorial,"* rigid, and difficult to work with. Participants describe long delays in communication, refusal to acknowledge errors, and an overall tone that feels punitive rather than supportive. Transactional interactions, such as rarely speaking to plan representatives for extended periods, contribute to a sense of weak partnership. Some participants report that after signing AMH contracts, they may not hear from their payer counterparts for an entire year unless a rate change forces negotiation. These relationship qualities directly shape contract decisions, with several Participants stating that they refused to contract or move to advanced tiers with plans they did not trust.

Payment integrity

In 2025, another major concern described by participants is payment integrity, which encompasses late payments, incorrect reimbursements, unexplained variances, denials, retroactive recoveries, and the need for constant follow-up. Participants state that Medicaid managed care has made revenue far less predictable than under traditional Medicaid, where payments were described as timely and consistent. Several Participants reported that plans often fail to comply with the state Medicaid fee schedule, resulting in underpayments that require labor-intensive disputes. In the early phase of transformation, some plans were *"harmful"* to provider sustainability because they led to inconsistent reimbursement patterns that persisted for many providers. Retroactive recoupments were another recurring fear. One system declined to contract with a plan initially because the plan admitted it would perform aggressive retro reviews. Participants described this as an unacceptable financial risk and refused to sign until leadership changes and improvements in behavior occurred. In addition, when claims or authorizations were lost (e.g., faxed documentation not logged in the plan's system), the financial consequences fell entirely on providers, reinforcing perceptions that financial risk is disproportionately shifted to practices. These experiences shape participation decisions and intensify distrust toward specific plans.

Other barriers

In 2025, respondents noted ethical discomfort with certain plan-driven initiatives, such as gift-card or backpack incentive programs intended to boost specific metrics. These programs force practices into quasi-marketing roles, create new administrative tracking burdens, and feel misaligned with professional identity. One participant described it as "*becoming a salesperson instead of a healthcare provider*," reflecting deep moral tension.

Lastly, participants from independent practices express a determination to remain independent of health systems and resist external entities dictating practice management. They note that insurance companies already impose constraints that feel intrusive, and some report they would *"close down"* rather than consolidate with a system that dictates clinical decision-making.

Overall, participants' experiences were factors that either facilitated or hindered initial contracting with SPs. The contracting process and administrative burden, driven by the imbalance between administrative costs and the reimbursement rate, mainly hampered contracting with SPs. In contrast, patient access and contracting support were major motivators for contracting with all SPs. Most, if not all, participants shared some challenges that led some healthcare organizations to consider dropping one or more PHPs.

Conclusion

The qualitative findings reveal that the implementation of Medicaid managed care produced a complex, iterative rebalancing of relationships between practices and PHPs. Providers consistently demonstrated a strong commitment to serving Medicaid beneficiaries, with many describing this mission as central to their identity and a primary motivator for continued participation. However, this commitment frequently coexisted with substantial administrative burden, operational friction across plans, payment instability, and profound concerns about attribution accuracy and data reliability. These challenges shaped both satisfaction and contracting decisions.

Over time, provider participation became increasingly strategic. While the early years saw broad contracting with all available SPs to preserve patient access, the later years saw more selective engagement, with some organizations limiting participation to two or three SPs and opting out of plans perceived as administratively burdensome or untrustworthy. Experiences in 2023 and 2025 indicate that providers' contracting decisions reflect ongoing assessments of operational feasibility, health plans' responsiveness, improvements in plan processes, and alignment with value-based care models.

Despite these challenges, several positive trends emerged. Providers described improved communication with certain plans, greater clarity in operations, and meaningful collaboration through Joint Operating Committees. Some organizations reported financial or workflow benefits, particularly through strong clinically integrated networks or innovations in local care management infrastructure.

Overall, the findings indicate that provider satisfaction and participation under Medicaid managed care remain highly variable and deeply contingent on plan behavior, operational demands, and the degree of partnership between providers and SPs. As Medicaid transformation continues to evolve, enhancing administrative alignment across plans, strengthening data accuracy, reducing workflow variability, and fostering collaborative payer-provider relationships will be critical for supporting both provider satisfaction and sustainable participation in the program.

Tailored Plan Evaluation Results

To understand the effects of the implementation of BH I/DD Tailored Plans (TPs), we tested the following hypotheses, interpreted the results, and included key findings. As there are only five months of data available following the implementation of TPs, the findings should be interpreted with caution. We began the baseline period for the TP analysis in November 2019, almost five years before the launch of Tailored Plans, because the TP proxy indicator started being calculated then. The limited number of data points could result in unstable trends and wider confidence intervals. Additional time and data will be needed to understand the long-term impact of TP implementation and to reach more comprehensive conclusions.

Summary Statistics

Table 53 presents the demographic, geographic, and clinical characteristics of the study population at the time of TP implementation in July 2021. Sample characteristics are presented separately for adult and child TP populations.

The study population was comprised of 218,731 Medicaid beneficiaries enrolled in TPs, the majority of which were adults (18 years or older) (N=135,691). Roughly half of adult TP beneficiaries were female (51.21%) with a median age of 34 years (IQR 25-45); most were working-age adults aged 18-64 (99.46%), with a small proportion over 65 years old (0.54%). Child TP beneficiaries were predominantly male (64.82%) with a median age of 11 years (IQR 7-15).

The majority of adult TP beneficiaries self-identified as White (62.96%) or Black (36.96%), with smaller proportions identifying as Asian/Pacific Islander (1.13%) and American Indian (2.50%). Racial composition of the TP child population closely reflects that of the adult population, though the child population has a slightly higher proportion of beneficiaries who are Black (40.88%). Race categories were not mutually exclusive. A larger proportion of children enrolled in TPs were Hispanic (16.76%) compared to adults (4.96%).

Over 40% of TP adults (28.45% of TP children) had a documented disability, and most resided in metropolitan counties (73.29% of adults and 76.15% of children). The comorbidity burden, measured as the mean number of CDPS categories per beneficiary, was 2.61 (SD 2.24) out of a possible 14 categories in the adult TP population, with a large proportion of beneficiaries falling into groups of higher comorbidities (3-4 categories: 24.43%; 5+ categories: 18.48%). Comorbidity burdens were lower for the TP child population. Among the 14 CDPS diagnostic categories, TP prevalence rates were highest for psychiatric, cardiovascular, substance use, pulmonary, and central nervous system diagnoses: 61.00% (72.87%), 32.64% (6.52%), 31.54% (1.33%), 15.79% (13.81%), and 18.64% (8.80%) for adults (children), respectively.

Table 53: Characteristics of the North Carolina Medicaid population enrolled in Tailored Plans at time of TP implementation (July 2024)

	Full TP Population		Child Population (< 18 years old)		Adult Population (18+ years old)	
Variable	**Frequency (N)**	**Percent (%)**	**Frequency (N)**	**Percent (%)**	**Frequency (N)**	**Percent (%)**
Sex						
Male	120,028	54.87%	53,824	64.82%	66,204	48.79%
Female	98,703	45.13%	29,216	35.18%	69,487	51.21%
Age (median, IQR)	23	(13-18)	11	(7-15)	34	(25-45)
Age Groups						
<18	83,040	37.96%	83,040	100.00%		
18-64	134,964	61.70%			134,964	99.46%
65+	727	0.33%			727	0.54%
Race†						
White	137,187	62.72%	51,756	62.33%	85,431	62.96%
Black	84,098	38.45%	33,947	40.88%	50,151	36.96%
Asian/Pacific Islander	3,169	1.45%	1,640	1.97%	1,529	1.13%
American Indian	4,939	2.26%	1,542	1.86%	3,397	2.50%
Unknown	948	0.43%	196	0.24%	752	0.55%
Hispanic						
Hispanic	20,647	9.44%	13,917	16.76%	6,730	4.96%

Not Hispanic	198,084	90.56%	69,123	83.24%	128,961	95.04%
Disabled						
Disabled	78,299	35.80%	23,624	28.45%	54,675	40.29%
Not Disabled	140,432	64.20%	59,416	71.55%	81,016	59.71%
Rurality						
Nonmetro	56,050	25.63%	19,808	23.85%	36,242	26.71%
Metro	162,681	74.37%	63,232	76.15%	99,449	73.29%
Number of CDPS Categories* (mean, SD)	2.21	(2.01)	1.55	(1.30)	2.61	(2.24)
Number of CDPS Categories*						
0	37,997	17.37%	14,109	16.99%	23,888	17.60%
1-2	106,831	48.84%	54,598	65.75%	52,233	38.49%
3-4	46,150	21.10%	11,649	14.03%	34,501	25.43%
5+	27,753	12.69%	2,684	3.23%	25,069	18.48%
Top 5 CDPS Diagnostic Categories						
Psychiatric	143,285	65.51%	60,513	72.87%	82,772	61.00%
Cardiovascular	49,702	22.72%	5,412	6.52%	44,290	32.64%
Substance Use	43,902	20.07%	1,103	1.33%	42,799	31.54%

Pulmonary	32,894	15.04%	11,471	13.81%	21,423	15.79%
Central Nervous System	32,595	14.90%	7,306	8.80%	25,289	18.64%
Total sample size (Beneficiaries enrolled in TPs in July 2024)	218,731		83,040		135,691	

†Race categories are not mutually exclusive. Beneficiaries are counted in each race category they identify with. Category sums will exceed the sample total and proportions will exceed 100%.

**Total Number of CDPS categories (out of 14). CDPS = Chronic Illness and Disability Payment System.*

Hypothesis 1.1: The implementation of BH I/DD Tailored Plans will increase access to health care and improve the quality of care and health outcomes for those in the target population.

Quantitative Findings

To test this hypothesis, we examined three metrics as detailed below. All the metrics trended in directions opposite to the intended goals, suggesting improving engagement of TP enrollees in preventative care could be a constructive area for continued policy attention and efforts.

Access to Preventive/Ambulatory Health Services (AAP)

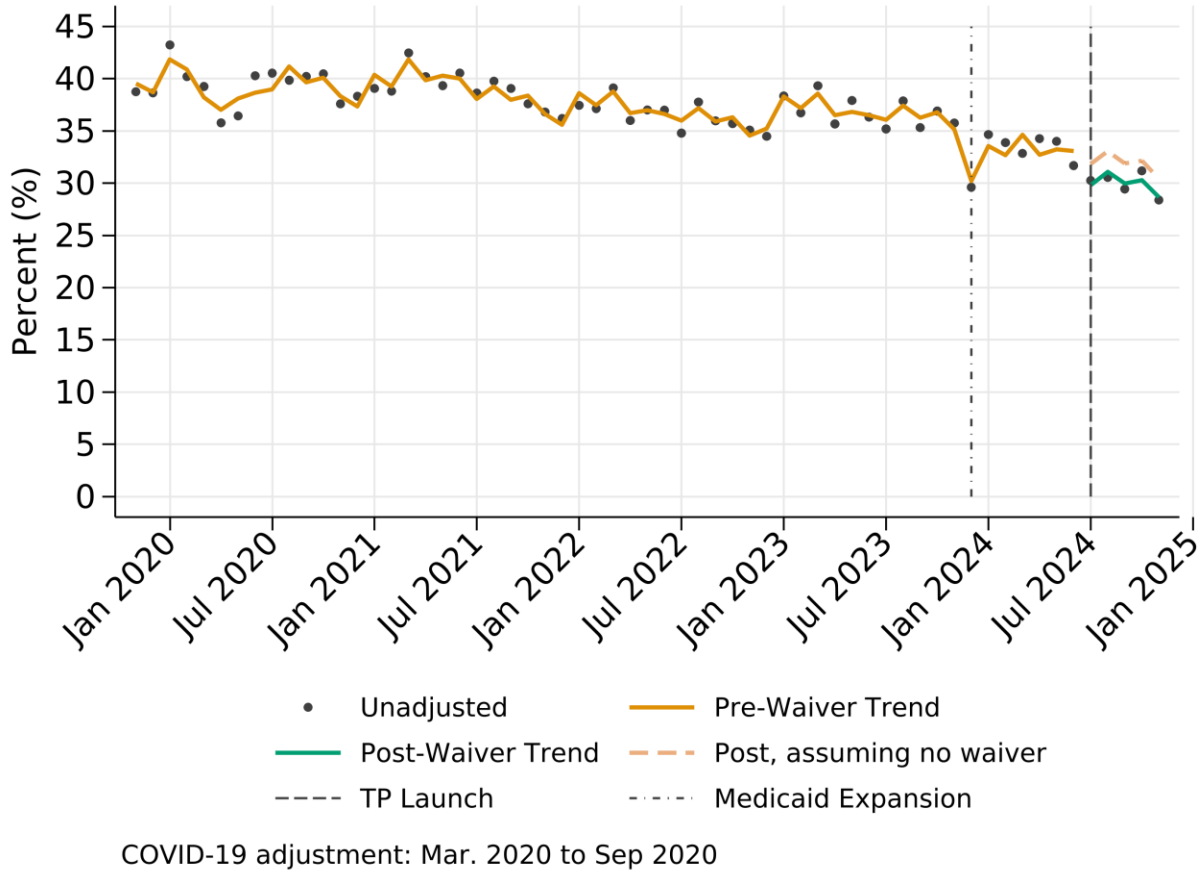
Access to preventive/ambulatory health services is important for early disease detection and improving health outcomes[51]. We analyze this metric on a monthly basis in order to better detect trends in utilization, although we do not expect most beneficiaries to need monthly utilization of care. Prior to the implementation of TPs, the percentage of beneficiaries with access to preventive/ambulatory health services per month was just under 40% and exhibited a slight downward trend prior to TP launch. The rate remained stable overall, except for a noticeable drop at Medicaid Expansion (Figure 105). The percentage of TP eligible beneficiaries with access to preventative or ambulatory care was 36.11% in July 2024 with an immediate decrease of 2.76 percentage points at TP implementation (Table 54). By November 2024, the predicted percentage with access was 33.27%, which was a statistically significant

[51] *Mukherjee, R. (2024). The importance and efficacy of health screenings: A comprehensive review. Journal of Health Care and Prevention, 7(1).*

decrease of 2.70 percentage points compared to the counterfactual projection of 35.97% (Table 54). We note that these rates are higher than the AAP rates for the SP population, which ranged from 25-30% in the pre-launch time period and 20-25% after the launch of SPs, reflecting the more complex needs of beneficiaries in the TP population. The estimated decrease in AAP at study end point due to TPs was more than twice the decrease noted for the SP population (2.7% pts for TP vs 1.1% pts for SP).

In the subgroup analysis, the negative effect of TPs on disabled individuals was dampened compared to their counterparts in terms of access to preventive/ambulatory health services (Figure 106).

Figure 105: Trends in Access to Preventive/Ambulatory Health Services (AAP)



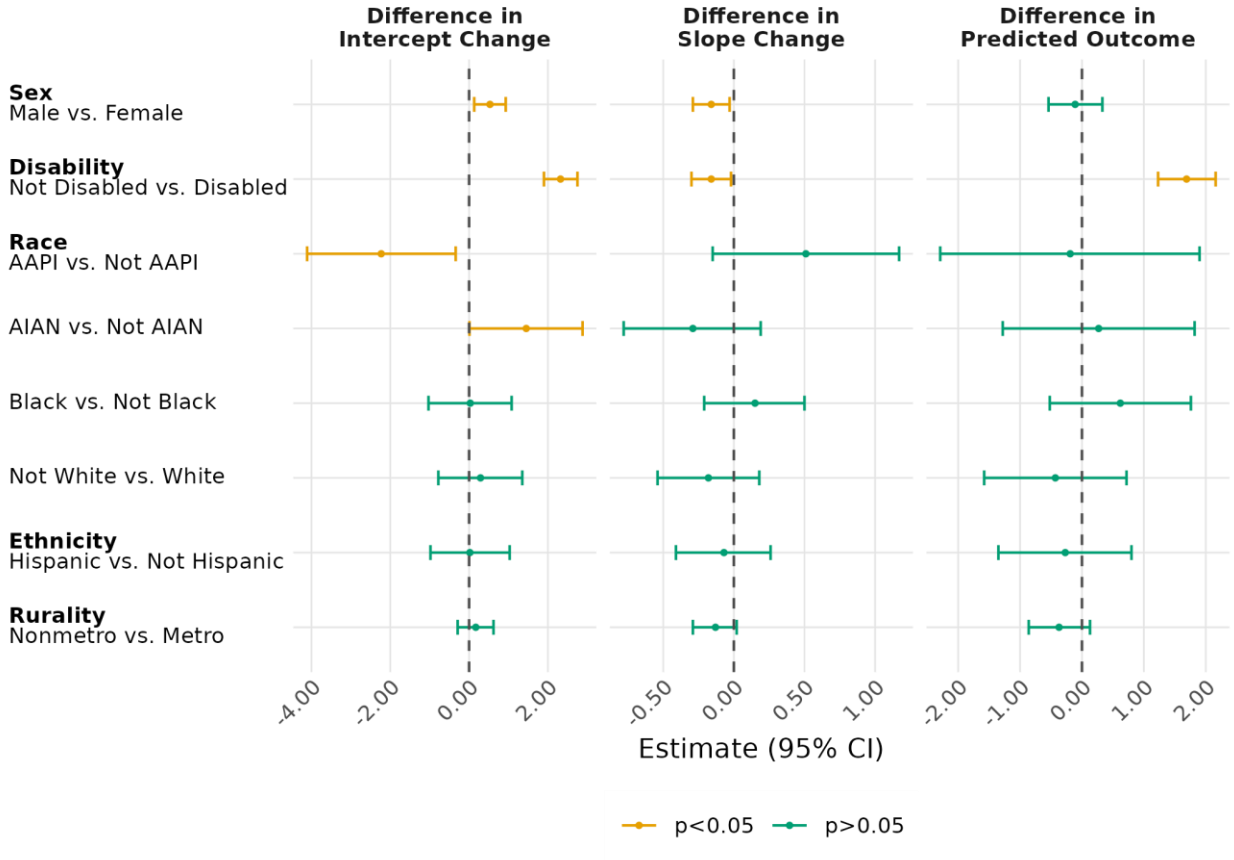
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 20+) in the NC Medicaid population as determined in the metric specifications.

Table 54: Interrupted time series estimates of Access to Preventive/Ambulatory Health Services (AAP)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	36.11* (35.63, 36.58)	33.34* (32.77, 33.91)	-2.76* (-3.18, -2.35)
Monthly Change	-0.0002 (-0.033, 0.033)	0.015 (-0.087, 0.12)	0.016 (-0.081, 0.11)
Predicted Average Outcome Nov 2024	35.97* (35.43, 36.51)	33.27* (32.63, 33.91)	-2.70* (-3.07, -2.33)
N			5,690,162

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 20+) in the NC Medicaid population as determined in the metric specifications.*

Figure 106: Comparison groups in Access to Preventive/Ambulatory Health Services (AAP)



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC)

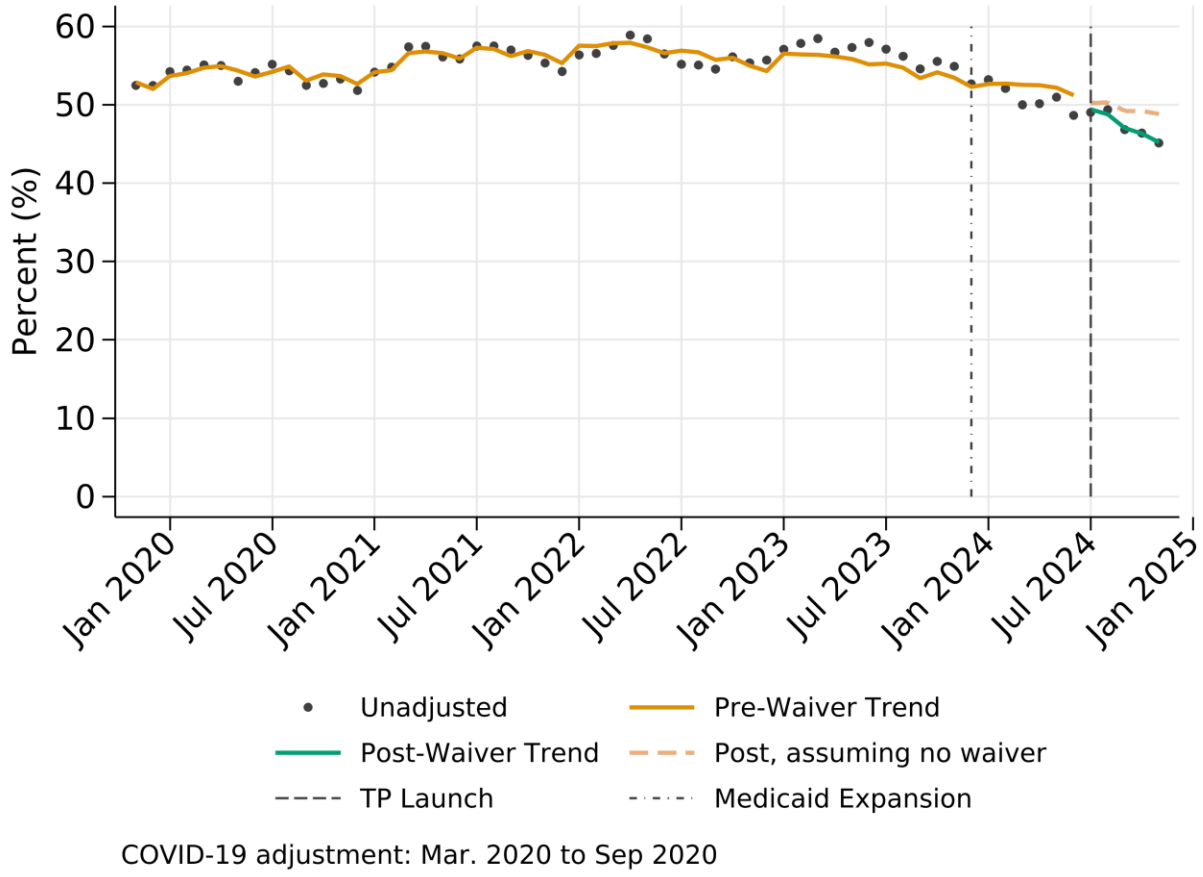
Statin therapy is an effective treatment to reduce clinical atherosclerotic cardiovascular events[52]. Prior to TP implementation, the percentage of TP eligible beneficiaries with cardiovascular disease who were on a statin therapy was relatively stable in 2020 before it started to slowly increase in January 2021 and fluctuated under 60%. The trend became slightly negative beginning in July 2023 (Figure 107). By November 2024, the predicted percentage of statin use for patient with cardiovascular disease under TPs was 49.59%

[52] *National Committee for Quality Assurance. (n.d.). Statin therapy for patients with cardiovascular disease (SPC). https://www.ncqa.org/report-cards/health-plans/state-of-health-care-quality-report/statin-therapy-for-patients-with-cardiovascular-disease-spc/*

compared to a counterfactual projection of 54.28%, a statistically significant difference of -4.69 percentage points (Table 55).

The subgroup analysis does not show a statistically significant difference in predicted outcomes (Figure 108).

Figure 107: Trends in Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged M 21-75; F 40-75) in the NC Medicaid population as determined in the metric specifications.

The Medicaid Expansion population has been excluded.

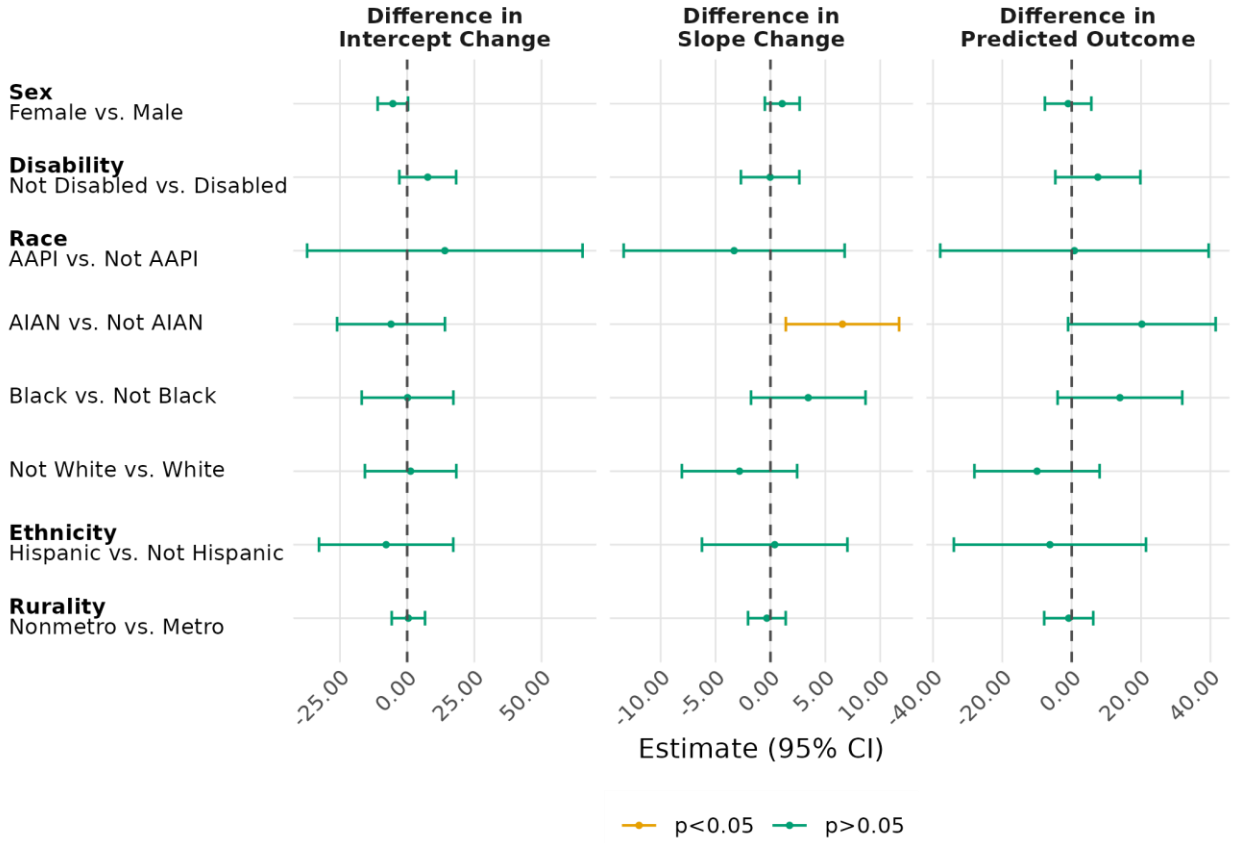
Table 55: Interrupted time series estimates of Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	54.58* (51.03, 58.13)	52.84* (48.26, 57.42)	-1.74 (-4.69, 1.21)
Monthly Change	0.15 (-0.100, 0.40)	-0.59 (-1.53, 0.35)	-0.74 (-1.57, 0.092)
Predicted Average Outcome Nov 2024	54.28* (50.25, 58.31)	49.59* (43.67, 55.51)	-4.69* (-8.01, -1.37)
N			58,584

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged M 21-75; F 40-75) in the NC Medicaid population as determined in the metric specifications.*

The Medicaid Expansion population has been excluded.

Figure 108: Comparison groups in Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC)



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

Statin Therapy: Statin Therapy for Patients with Diabetes (SPD)

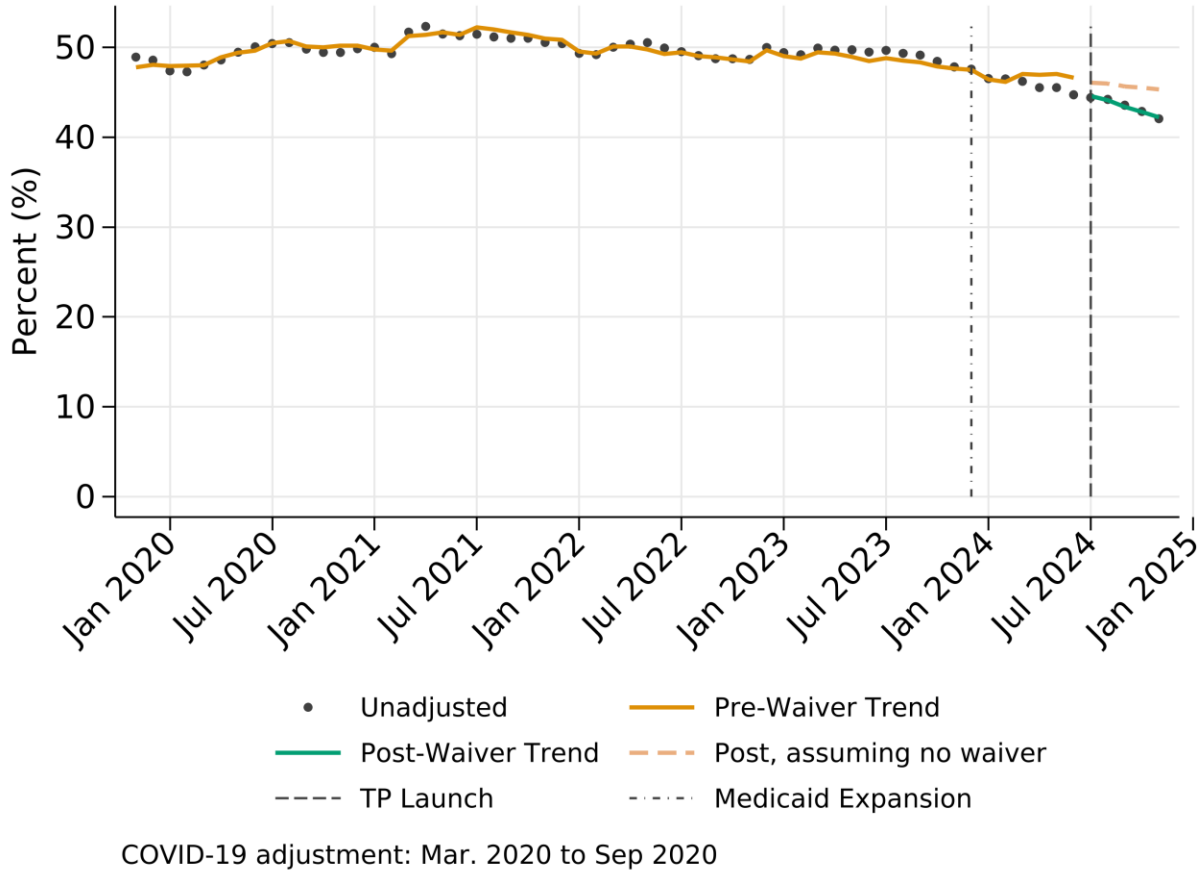
As a critical aspect in managing the high cardiovascular risk among diabetes patients, statin therapy is known for its effectiveness in preventing cardiovascular events and is recommended as the primary prevention of cardiovascular disease in patients with diabetes[53]. As shown Figure 109, the percentage of beneficiaries with diabetes receiving statin

[53] *National Committee for Quality Assurance. (n.d.). Statin therapy for patients with diabetes (SPD). https://www.ncqa.org/report-cards/health-plans/state-of-health-care-quality-report/statin-therapy-for-patients-with-diabetes-spd/*

therapy mostly fluctuated within 5 percentage points with a dip at the beginning of each year prior to the Medicaid expansion. The percentage then decreased after Expansion and reached a rate of 48.64% at TP implementation with an immediate negative implementation effect of -2.14 percentage points (Table 56). At the study endpoint, there was a statistically significant -3.94 percentage points difference between the predicted percentage of 46.86% and the counterfactual percentage of 50.80% (Table 56), indicating that TP implementation is associated with a greater reduction in Statin use than we would have anticipated without the waiver.

Subgroup analysis indicated that the TPs had a more negative impact on the percentage of statin therapy among non-Black beneficiaries with diabetes compared to their Black counterparts. In the meantime, non-White beneficiaries had a disproportionally more negative impact than their White counterparts (Figure 110). While these two statements may seem incongruous, it is statistically possible and not an uncommon result throughout this report – see discussion on Subgroup Analyses in Methods under Evaluation Design.

Figure 109: Trends in Statin Therapy: Statin Therapy for Patients with Diabetes (SPD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged M 21-75; F 40-75) in the NC Medicaid population as determined in the metric specifications.

The Medicaid Expansion population has been excluded.

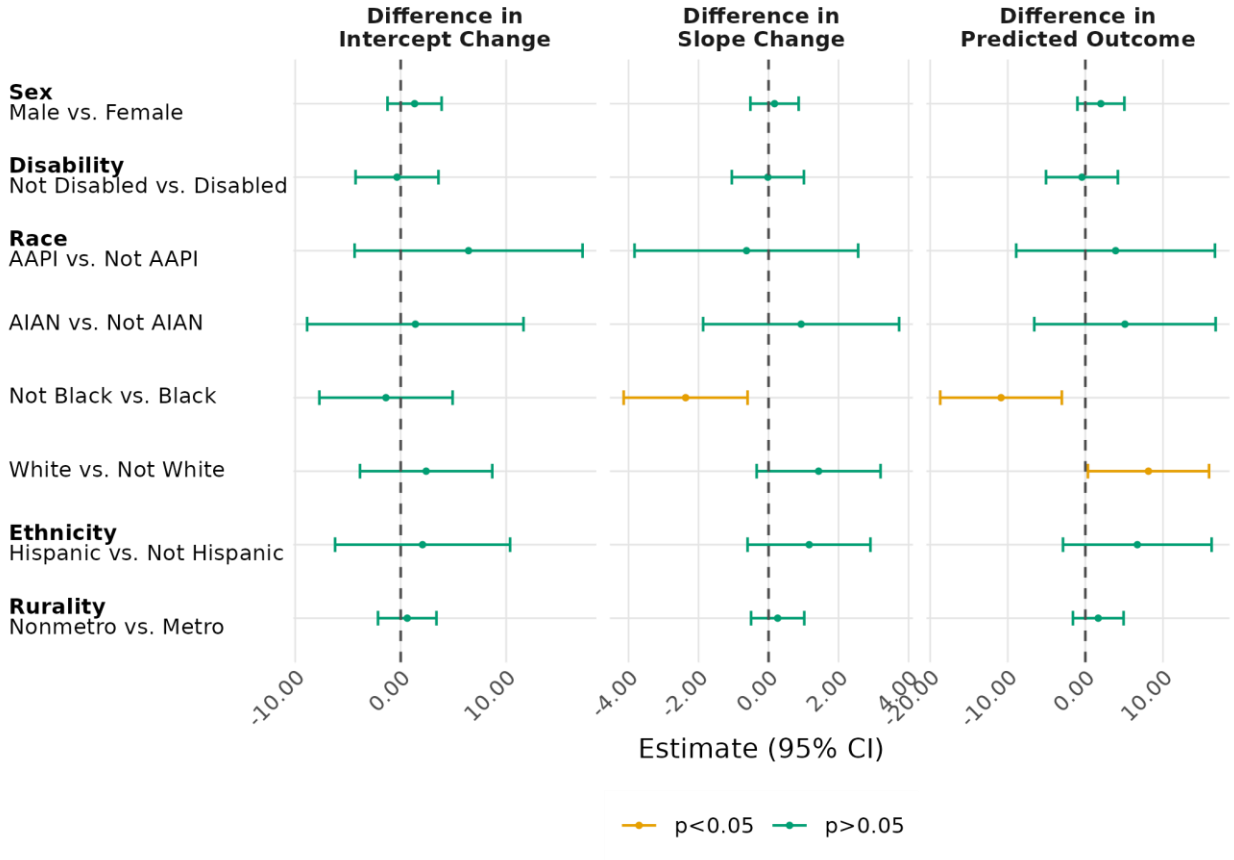
Table 56: Interrupted time series estimates of Statin Therapy: Statin Therapy for Patients with Diabetes (SPD)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	50.79* (49.29, 52.28)	48.64* (46.61, 50.67)	-2.14* (-3.52, -0.77)
Monthly Change	0.24* (0.14, 0.33)	-0.21 (-0.62, 0.19)	-0.45* (-0.85, -0.050)
Predicted Average Outcome Nov 2024	50.80* (49.07, 52.54)	46.86* (44.43, 49.28)	-3.94* (-6.12, -1.77)
N			252,121

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged M 21-75; F 40-75) in the NC Medicaid population as determined in the metric specifications.*

The Medicaid Expansion population has been excluded.

Figure 110: Comparison groups in Statin Therapy: Statin Therapy for Patients with Diabetes (SPD)



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

Hypothesis 1.2: The implementation of BH I/DD Tailored Plans will increase the rate of use of behavioral health services at the appropriate level of care and improve the quality of behavioral health care received.

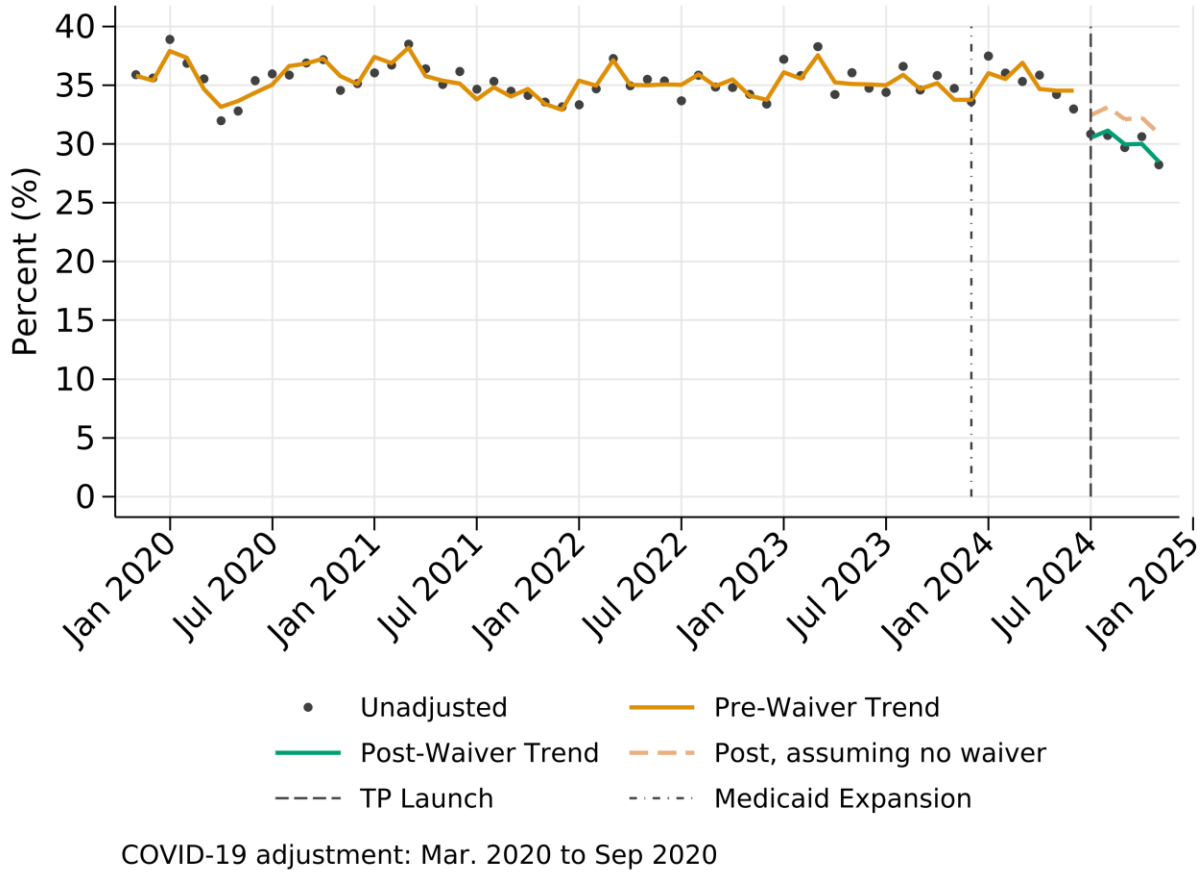
Quantitative Findings

Mental Health

Use of Behavioral Health Care for People with SMI/SUD/SED

Among North Carolina Medicaid beneficiaries with serious mental illness, substance use disorder, or serious emotional disturbance (SMI/SUD/SED), the use of behavioral health care declined at implementation of TPs and continued to fall more steeply thereafter. Consistent with the divergence visible in the trend plot (Figure 111), the predicted average rate at the time of implementation (July 2024) was 28.31% versus 31.34% for the counterfactual pre-implementation trajectory, yielding a −3.03 percentage-point difference (Table 57). The monthly rate of change also became more negative following implementation, shifting from −0.25 percentage points per month pre-implementation to −0.49 percentage points per month post-implementation. By November 2024, the model predicted that 26.87% of the TP population would receive a BH service in the month under the post-implementation trajectory compared with 30.87% for the counterfactual, a −4.00 percentage-point gap. This is a proportionately large effect that the State should keep an eye on, given the high level of behavioral health needs in the TP population.

Figure 111: Trends in Use of Behavioral Health Care for People with SMI/SUD/SED



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

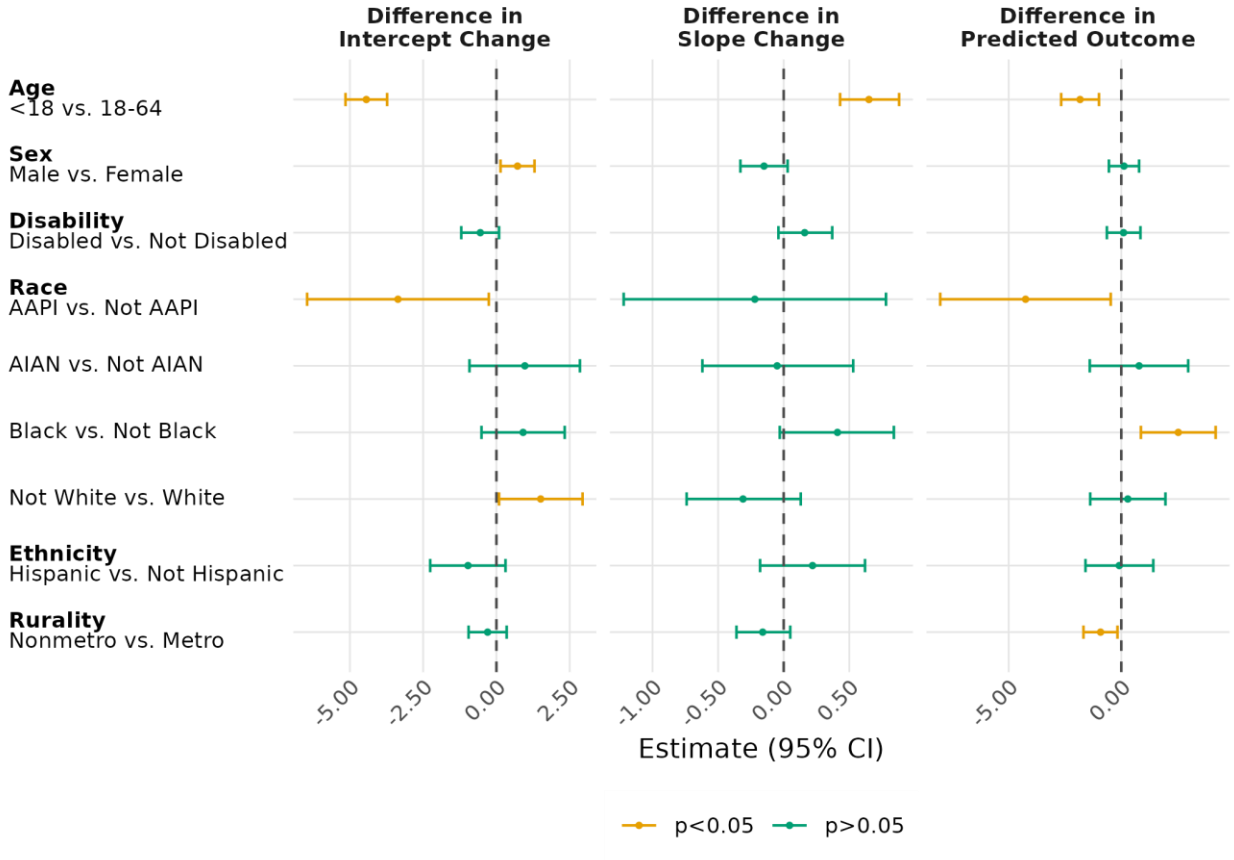
Table 57: Interrupted time series estimates of Use of Behavioral Health Care for People with SMI/SUD/SED

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	31.34* (30.63, 32.05)	28.31* (27.58, 29.05)	-3.03* (-3.53, -2.53)
Monthly Change	-0.25* (-0.29, -0.21)	-0.49* (-0.63, -0.36)	-0.24* (-0.38, -0.11)
Predicted Average Outcome Nov 2024	30.87* (30.06, 31.68)	26.87* (26.14, 27.60)	-4.00* (-4.54, -3.46)
N			3,430,787

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

A few groups showed dampened declines (smaller reductions in behavioral health care use than their reference groups) (Figure 111): this included non-White individuals and Males at implementation, and Black individuals by the end of the evaluation period. In contrast, more pronounced declines (larger reductions in behavioral health care use than their reference groups) were observed for AAPI at both implementation and the end of the evaluation period, and non-metro at the and the end of the evaluation period. Youth (<18) experienced a less steep post-implementation decline than adults indicating a dampened monthly trend. Their initial decline at implementation was more pronounced, and the later improvement was not sufficient within the evaluation period to offset that early drop. As a result, youth still exhibited more pronounced reductions in the predicted outcome relative to the counterfactual.

Figure 112: Comparison groups in Use of Behavioral Health Care for People with SMI/SUD/SED



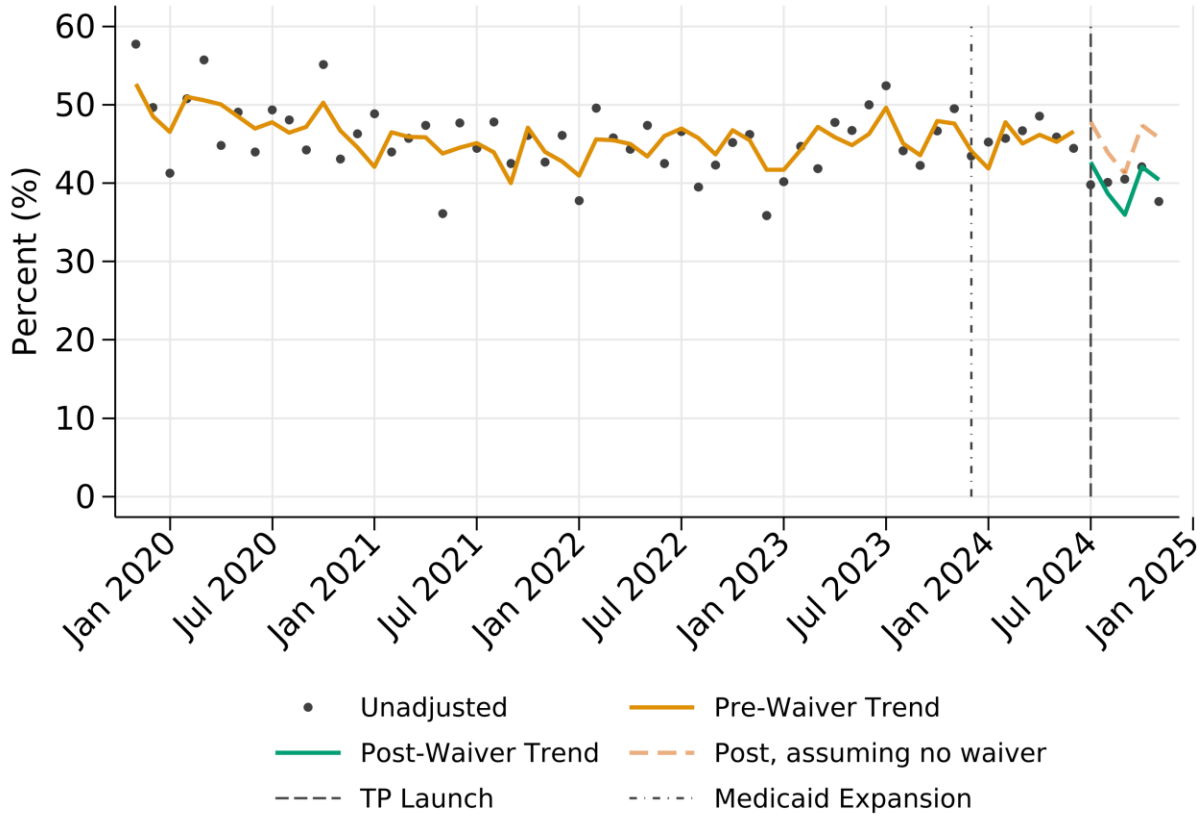
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)

Approximately 40-50% of children and adolescents in TPs with newly prescribed antipsychotic medication received first-line psychosocial care (Figure 113). We did not find evidence of a TP effect at implementation or the Demonstration endpoint. However, the metric had considerable variability on a month-to-month basis and thus had wide confidence intervals indicating substantial imprecision – a result of the sample size and limited post-TP data (Table 58). Again, these results should be interpreted cautiously due to the very limited post-implementation period.

Across comparison groups, there were no notable differences in the impact of TP implementation as seen in Figure 114.

Figure 113: Trends in Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)



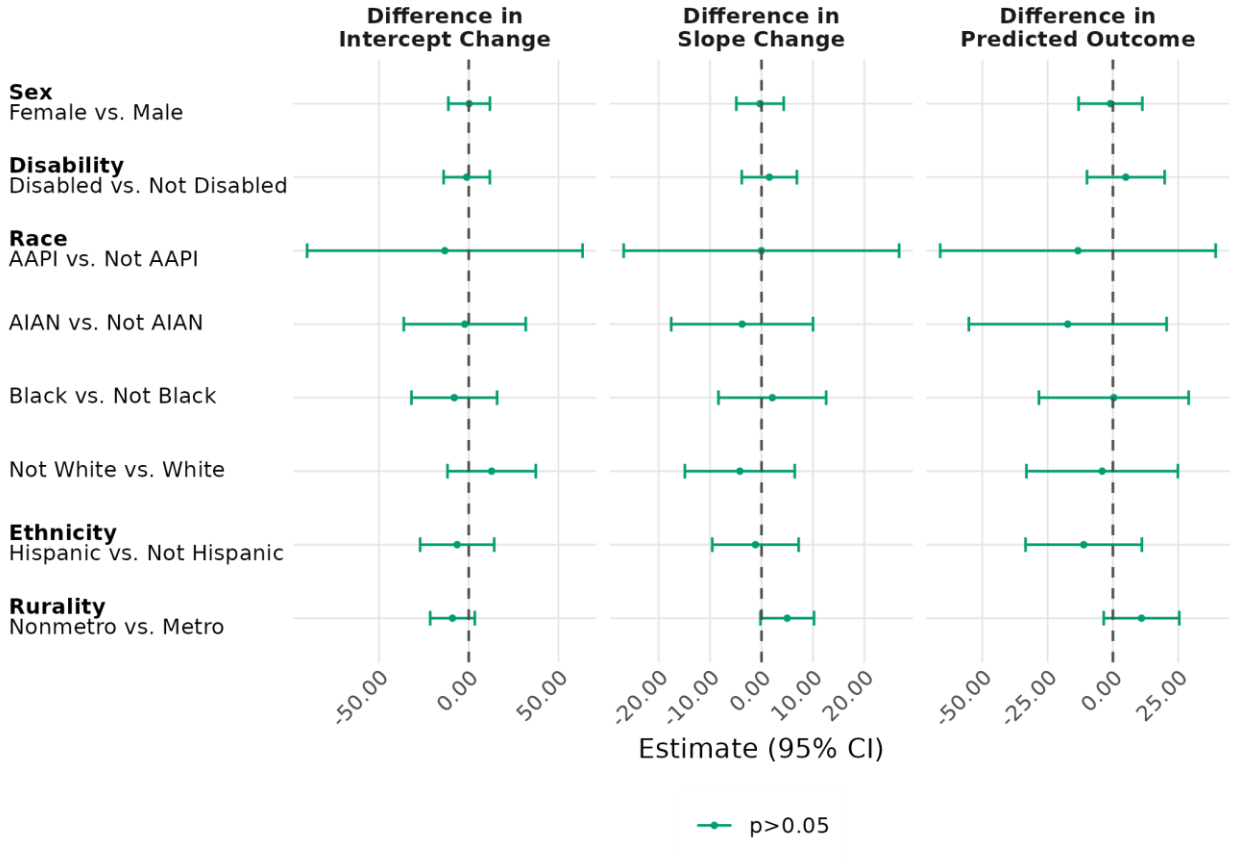
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 1-17) in the NC Medicaid population as determined in the metric specifications.

Table 58: Interrupted time series estimates of Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	40.51* (36.04, 44.99)	35.35* (28.11, 42.59)	-5.16 (-11.65, 1.32)
Monthly Change	-0.43* (-0.73, -0.12)	-0.48 (-2.99, 2.03)	-0.048 (-2.55, 2.46)
Predicted Average Outcome Nov 2024	40.16* (35.23, 45.09)	34.80* (27.35, 42.26)	-5.36 (-12.14, 1.42)
N			13,093

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 1-17) in the NC Medicaid population as determined in the metric specifications.*

Figure 114: Comparison groups in Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Substance Use Disorders

Initiation and Engagement of Alcohol Abuse or Dependence Treatment (IET-AD)

The Initiation and Engagement of Treatment measures capture two steps in the treatment pathway: initiation (the receipt of treatment services within 14 days of a new diagnosis or identification event) and engagement (the receipt of two or more additional treatment services within 34 days of initiation). This measure captures all types of SUD treatment services, including medication management, services provided in residential settings, and peer support services. Initiation and engagement rates for alcohol use disorders are

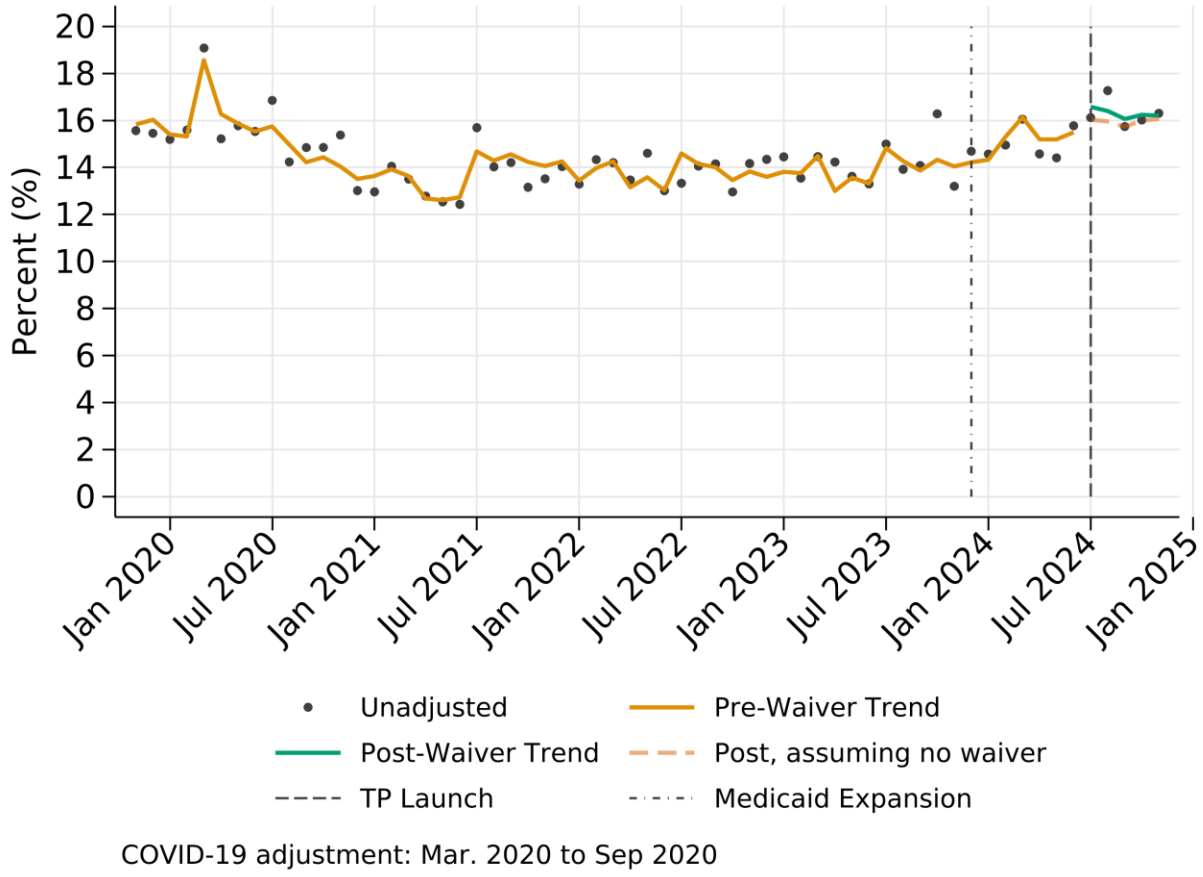
presented below. Analyses of treatment rates for other drugs and all substances can be found in the TP Appendix of this report.

Treatment Initiation

Among the TP population, baseline rates of treatment initiation for alcohol use disorders (AUD) declined throughout the COVID-19 PHE before stabilizing around 14% (Figure 115). A small uptick in AUD treatment initiation is observed after Medicaid Expansion, indicating a potentially higher rate of SUD treatment among those diagnosed in the newly eligible TP population. Treatment initiation rates continued to increase incrementally after TP implementation in July 2024. However, the ITS analysis found no statistically significant effect of the TP components of the managed care waiver on AUD treatment initiation rates overall (Table 59).

We see some variation in the effect of TP implementation on AUD treatment initiation by race and disability (Figure 116), with relative larger positive TP effects among non-White and non-Disabled beneficiaries. We see relative larger negative effects on AUD treatment initiation for females compared to males.

Figure 115: Trends in Initiation of Alcohol Abuse or Dependence Treatment (IET-AD)



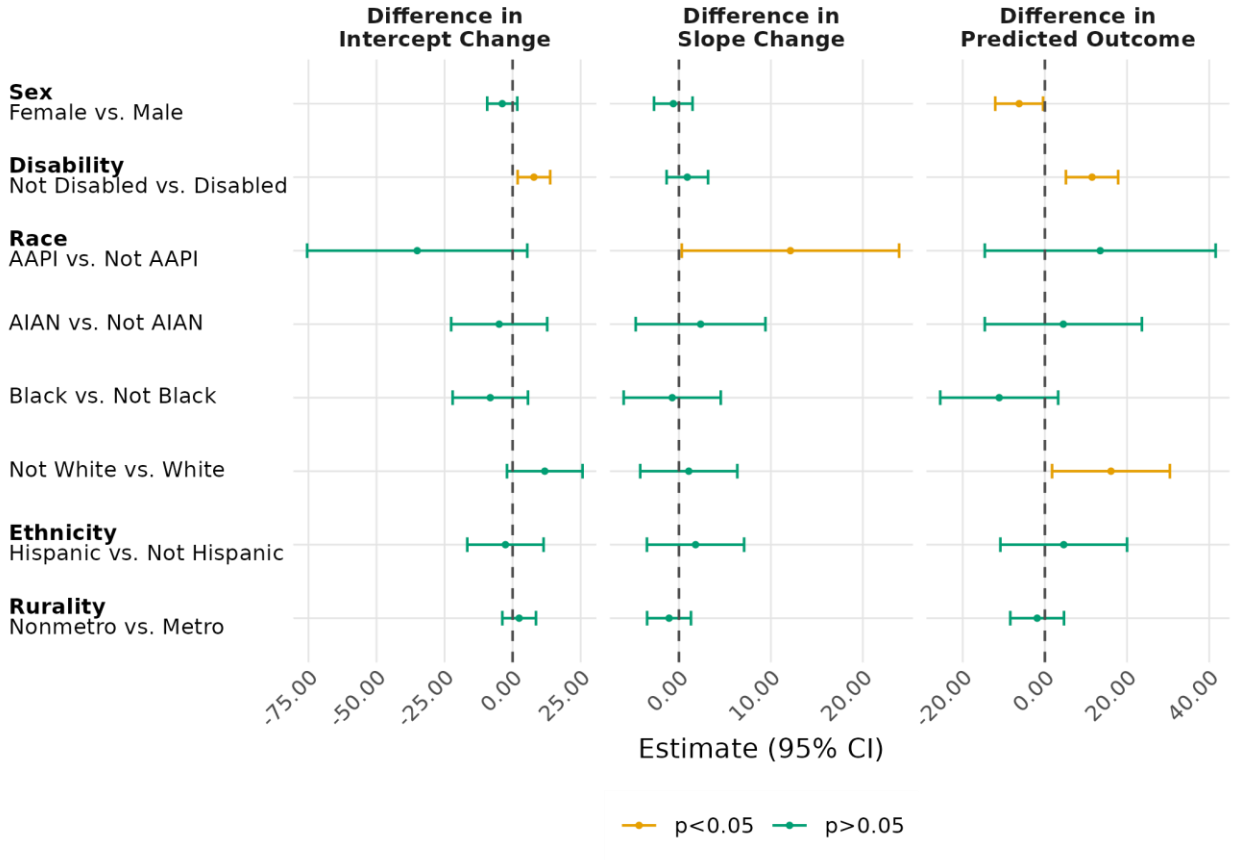
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Table 59: Interrupted time series estimates of Initiation of Alcohol Abuse or Dependence Treatment (IET-AD)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	44.27* (41.56, 46.98)	45.52* (41.59, 49.45)	1.25 (-2.21, 4.72)
Monthly Change	-0.20 (-0.41, 0.0090)	0.14 (-1.10, 1.37)	0.33 (-0.90, 1.57)
Predicted Average Outcome Nov 2024	44.13* (41.14, 47.12)	46.72* (42.81, 50.63)	2.59 (-0.92, 6.09)
N			36,383

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

Figure 116: Comparison groups in Initiation of Alcohol Abuse or Dependence Treatment (IET-AD)



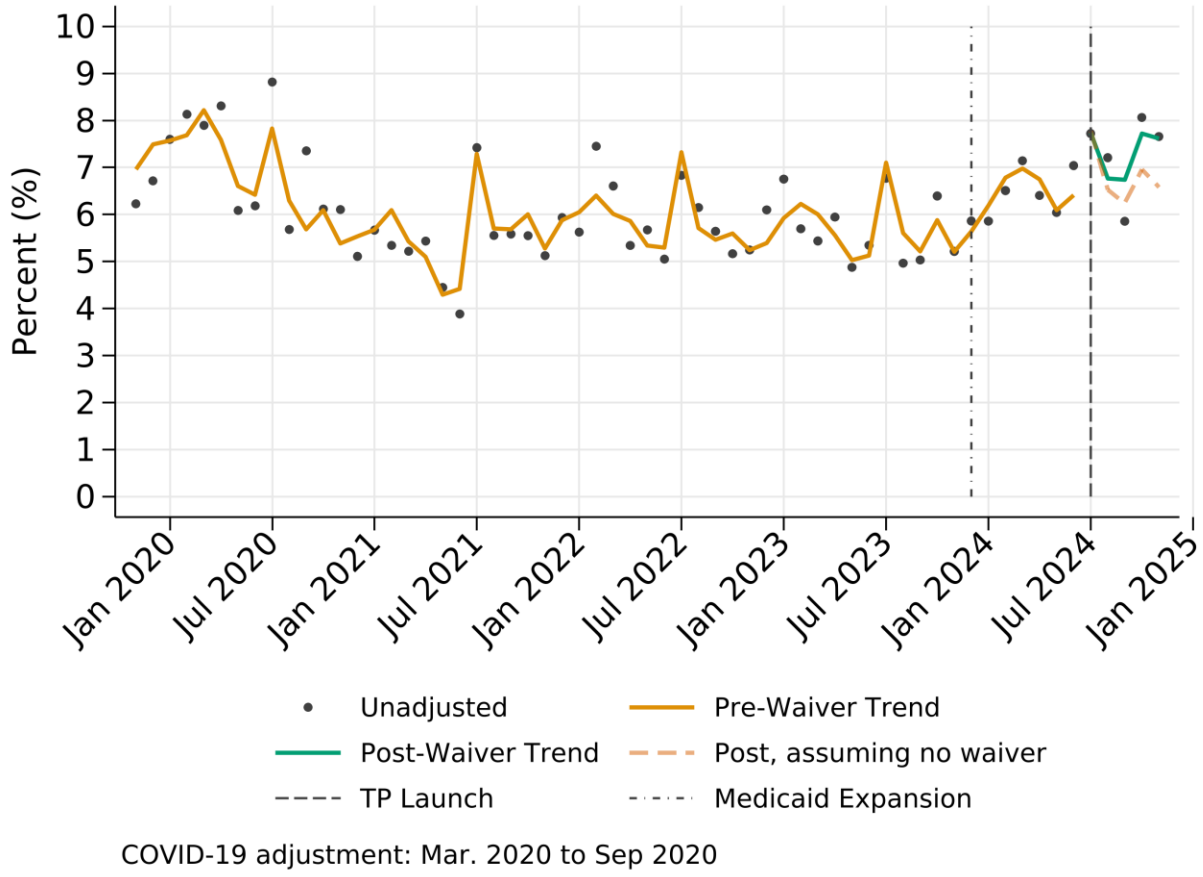
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Treatment Engagement

Trends for engagement in AUD treatment among those who initiated care largely followed those observed for treatment initiation, though rates were lower overall and had periodic peaks suggesting seasonal patterns. For the TP population, baseline engagement rates declined throughout the pandemic, stabilized after July 2021, and increased after Medicaid expansion (Figure 117). ITS models found a statistically significant increase in the treatment engagement rate at the end of the study period over what would have been expected in the absence of TP implementation (Table 60). However, additional follow-up points are needed to determine if such increases are true intervention effects or natural, short-term fluctuations in treatment engagement.

Differential effects of TPs on treatment engagement across demographic subgroups were observed (Figure 118). Model comparisons found no persistent differential effects in post-implementation slopes, but lower effects of TP implementation were observed for female beneficiaries relative to male beneficiaries. At the end of the study period, the effect of TPs on treatment engagement rates were lower among disabled beneficiaries and AAPI beneficiaries relative to their respective reference groups.

Figure 117: Trends in Engagement of Alcohol Abuse or Dependence Treatment (IET-AD)



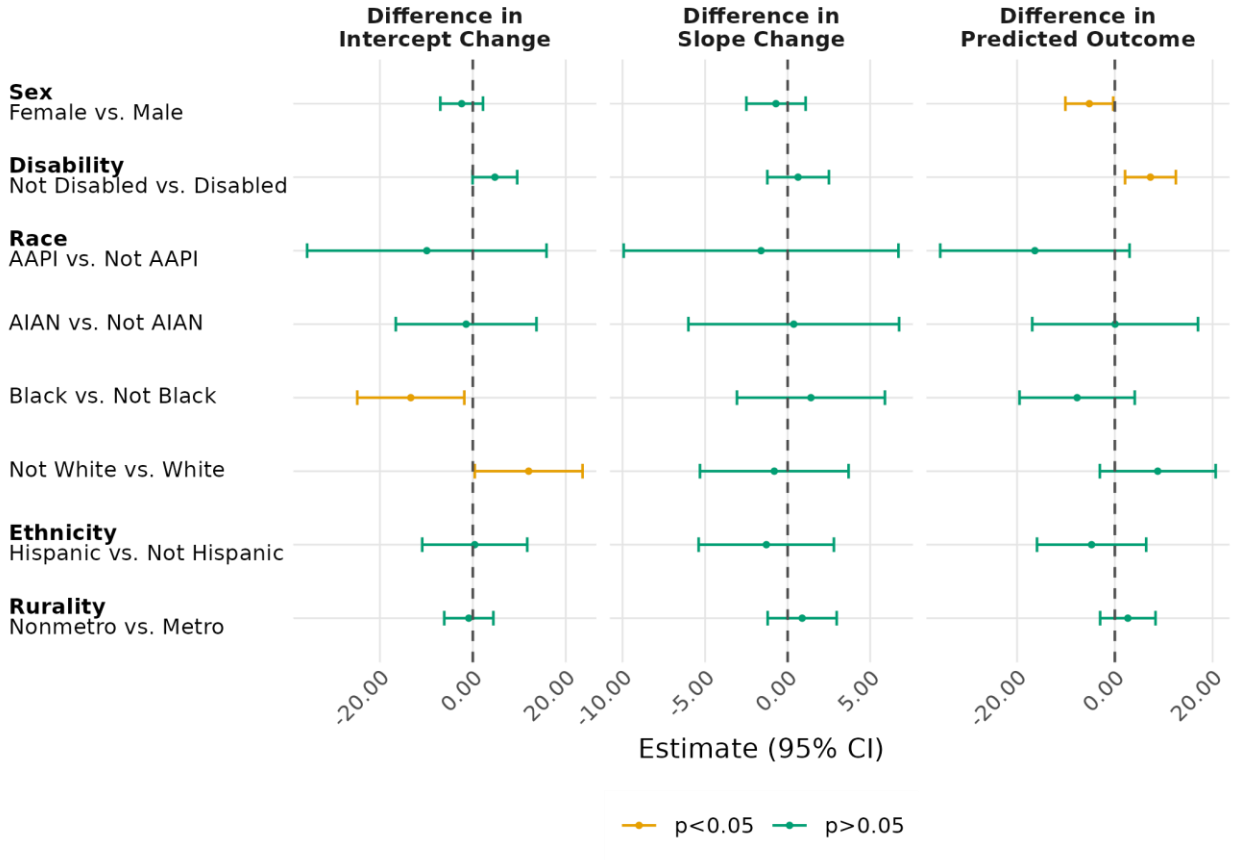
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Table 60: Interrupted time series estimates of Engagement of Alcohol Abuse or Dependence Treatment (IET-AD)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	15.04* (12.97, 17.12)	15.28* (12.17, 18.38)	0.23 (-2.56, 3.03)
Monthly Change	-0.36* (-0.53, -0.20)	0.45 (-0.57, 1.48)	0.82 (-0.20, 1.84)
Predicted Average Outcome Nov 2024	14.62* (12.33, 16.91)	18.13* (15.04, 21.23)	3.51* (0.69, 6.33)
N			36,383

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

Figure 118: Comparison groups in Engagement of Alcohol Abuse or Dependence Treatment (IET-AD)



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

Initiation and engagement rates for all substance use disorders (referred to as AOD) are presented below.

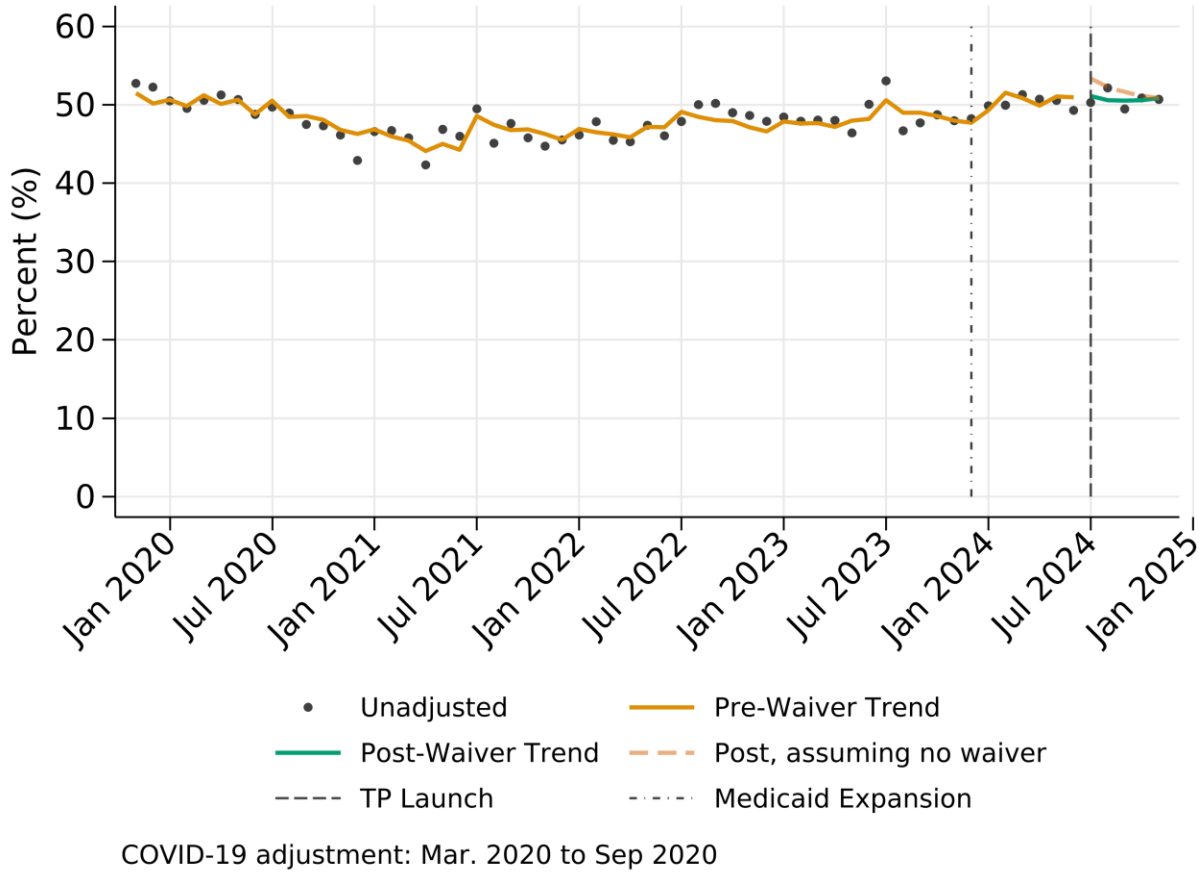
Treatment Initiation

Among the TP population, baseline rates of treatment initiation for AOD declined throughout the COVID-19 PHE before stabilizing just below 50% (Figure 119). Treatment initiation rates continued to increase incrementally after TP implementation in July 2024. However, the ITS

analysis found no statistically significant effect of the TP components of the managed care waiver on AOD treatment initiation rates overall (Table 61).

There was little variation in the effect of TP implementation on AOD treatment initiation across subpopulations. The only difference at the end of the study period was that Disabled beneficiaries had relative larger negative effects of TP implementation compared to non-Disabled beneficiaries.

Figure 119: Trends in Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)



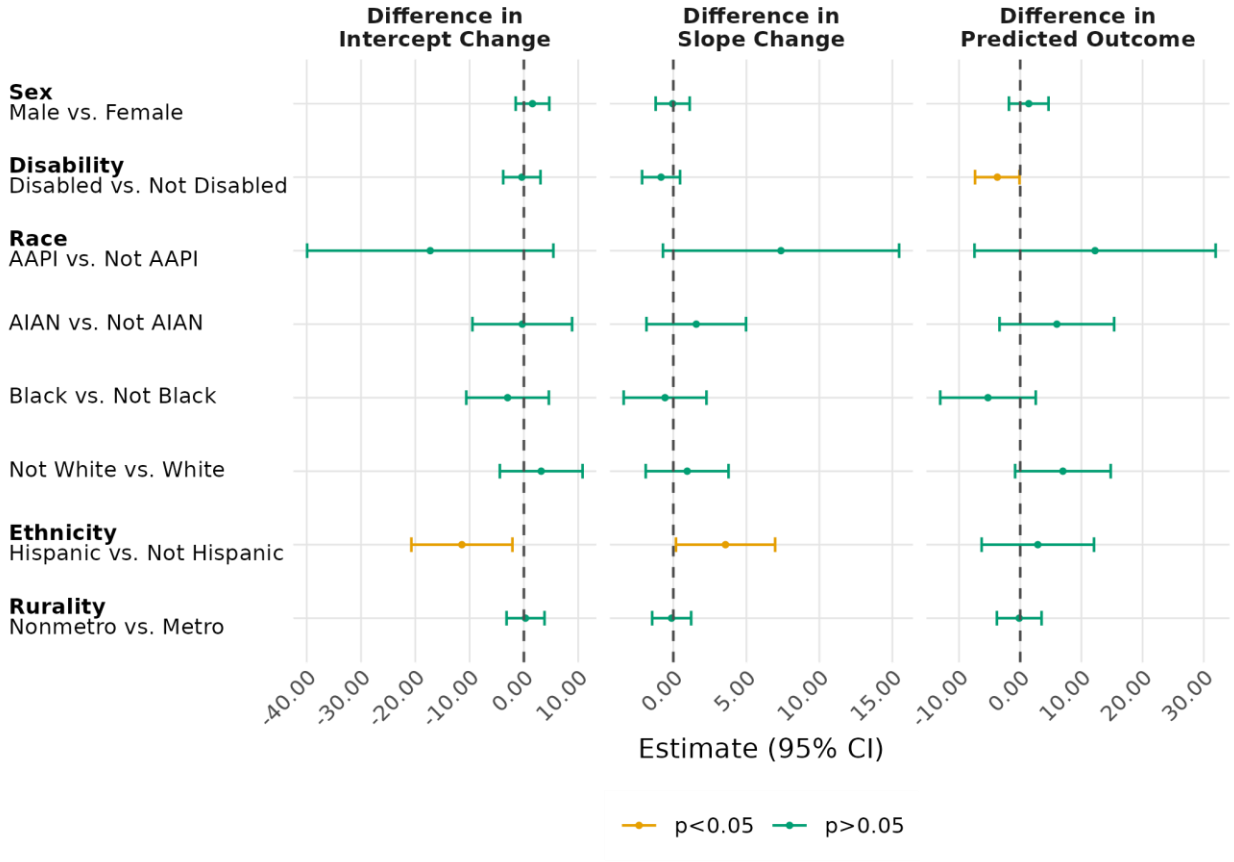
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Table 61: Interrupted time series estimates of Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	45.25* (43.76, 46.73)	43.02* (40.85, 45.19)	-2.23* (-4.16, -0.29)
Monthly Change	-0.36* (-0.48, -0.24)	0.19 (-0.50, 0.89)	0.55 (-0.14, 1.24)
Predicted Average Outcome Nov 2024	45.11* (43.47, 46.75)	45.10* (42.93, 47.26)	-0.018 (-1.97, 1.94)
N			116,840

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

Figure 120: Comparison groups in Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

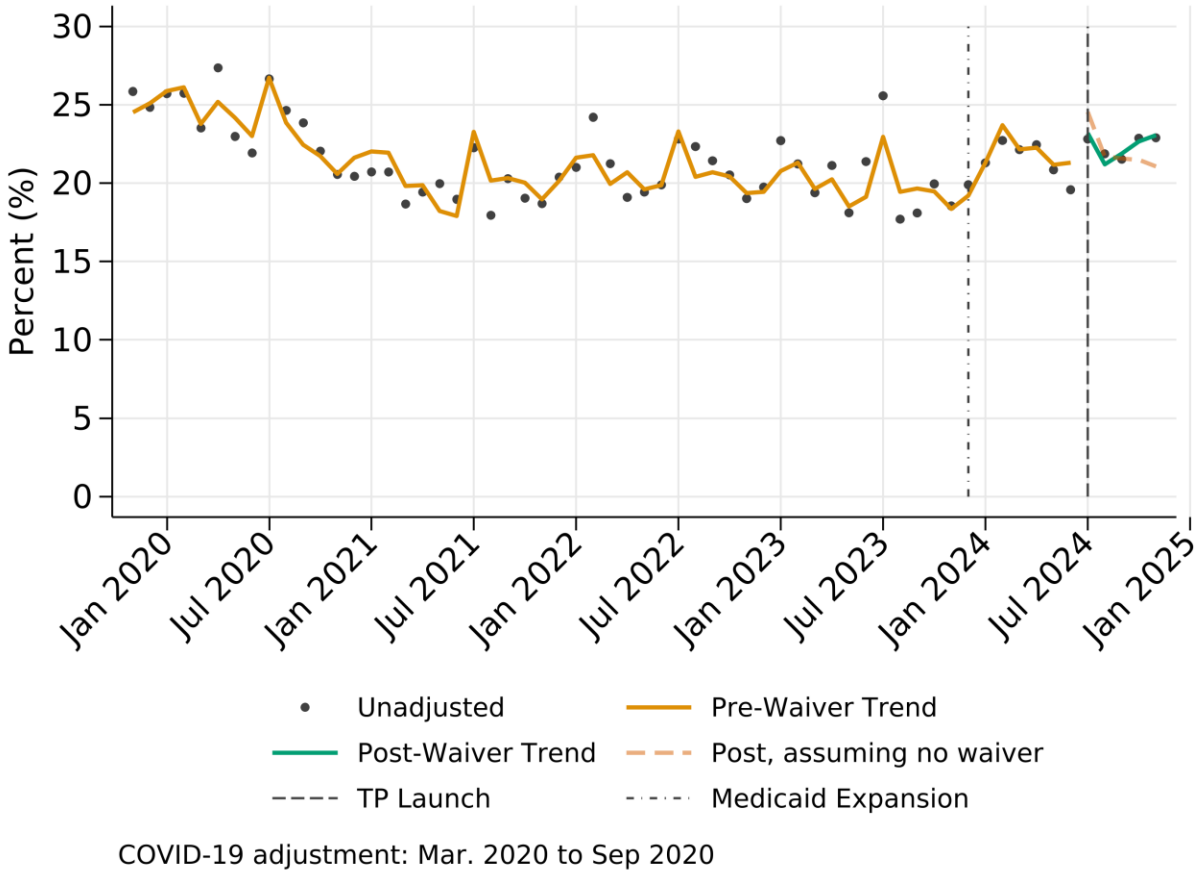
Treatment Engagement

Baseline AOD engagement rates in the TP population declined throughout the pandemic and stabilized after July 2021 (Figure 121). ITS models found a statistically significant increase in the treatment engagement rate at the end of the study period over what would have been expected in the absence of TP implementation (Table 62). However, additional follow-up points are needed to determine if such increases are true intervention effects or natural, short-term fluctuations in treatment engagement.

Differential effects of TPs on treatment engagement across demographic subgroups were observed (Figure 122). Model comparisons found no persistent differential effects in post-

implementation slopes. At the end of the study period, the effect of TPs on treatment engagement rates were lower among Black beneficiaries and higher among all beneficiaries of color relative to their respective reference groups. While these two statements may seem incongruous, it is statistically possible and not an uncommon result throughout this report – see discussion on Subgroup Analyses in Methods under Evaluation Design.

Figure 121: Trends in Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)



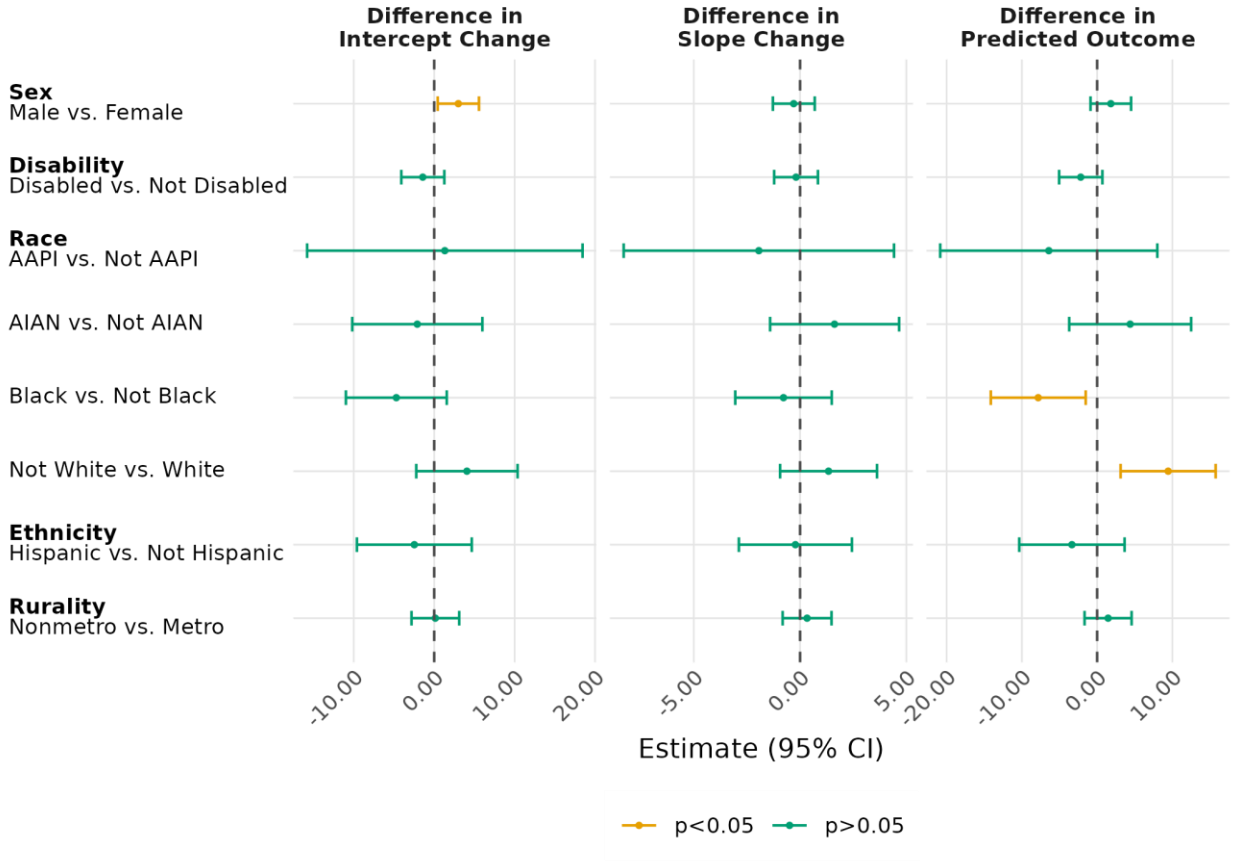
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Table 62: Interrupted time series estimates of Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	16.57* (15.37, 17.77)	15.22* (13.46, 16.98)	-1.35 (-2.93, 0.23)
Monthly Change	-0.40* (-0.50, -0.30)	0.44 (-0.14, 1.01)	0.84* (0.26, 1.41)
Predicted Average Outcome Nov 2024	16.15* (14.82, 17.47)	18.14* (16.36, 19.91)	1.99* (0.40, 3.58)
N			116,840

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

Figure 122: Comparison groups in Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Hypothesis 1.3: The implementation of Medicaid managed care will increase the use of medications for opioid use disorder (MOUD) and other opioid treatment services and decrease the long-term use of opioids.

Overall, we found no statistically significant effects of TP implementation on the receipt of MOUD or the utilization of other treatment services for beneficiaries with opioid use disorder (OUD).

Because many opioid-related metrics are calculated only annually, and because TPs launched near the end of the Demonstration period, the limited number of time points in the

baseline and post-implementation periods means that the evaluation was unable to evaluate the effects of TP implementation on annual measures of the long-term use of prescription opioids.

Use of Medication-Assisted Treatment for OUD

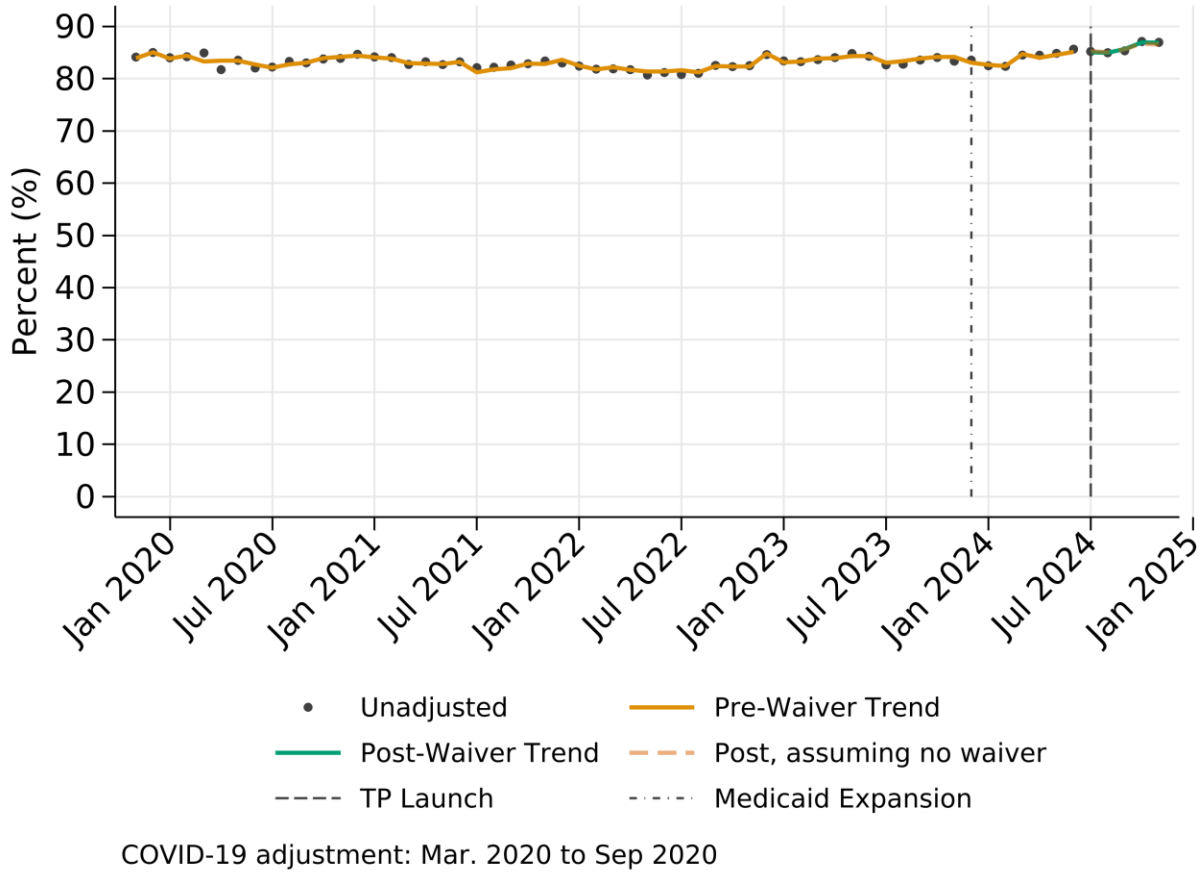
We examined two different measures of MOUD for this evaluation. One is a monthly measure of MOUD receipt among TP beneficiaries with an OUD diagnosis and lines up with the SUD metrics reported quarterly to CMS. The second measure is an annual measure of use of MOUD for beneficiaries age 18-64, which splits the use out by the specific type of MOUD.

Among the TP population, rates of use of medications for OUD remained high and stable across the study period, never dropping below 80% (Figure 123). A small increase in MOUD use was observed between December 2022 and June 2023. Rates of MOUD use dipped slightly after Medicaid Expansion before beginning a gradual upward trend in March 2024. By the end of the study period, over 88% of the TP population diagnosed with OUD was utilizing MOUD.

However, our analysis found that observed increases in MOUD use were not associated with the launch of TPs. Table 63 shows that TP implementation was not associated with immediate changes in the use of MOUD among the TP population, nor was it associated with changes in monthly trends nor differences in average predicted outcomes at the end of the study period.

The implementation of TPs had differential effects on rates of MOUD use across comparison groups as seen in Figure 124. We observe a more pronounced positive effect of TP implementation on MOUD use at the end of the study period for Hispanic beneficiaries and for beneficiaries living in nonmetropolitan counties compared to their respective reference groups. We also observe more pronounced positive effects of TP launch on monthly trends of MOUD use for beneficiaries who are disabled compared to beneficiaries who are not disabled, and dampened effects of TP launch on monthly trends of MOUD use for beneficiaries who are less than 18 years-old compared to beneficiaries who are 18-64 years-old (Figure 124).

Figure 123: Trends in Medication Assisted Treatment: OUD population



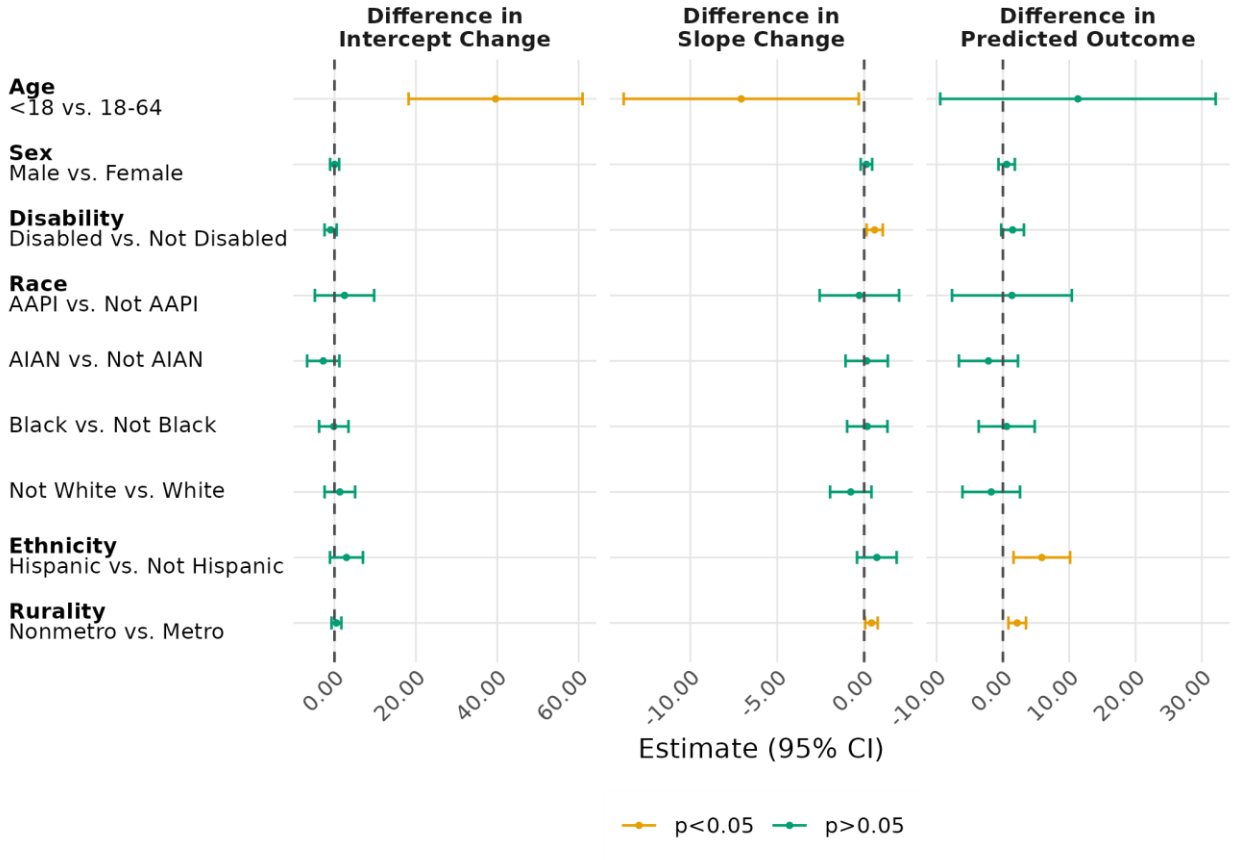
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Table 63: Interrupted time series estimates of Medication Assisted Treatment: OUD population

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	83.46* (82.59, 84.33)	83.24* (82.05, 84.43)	-0.23 (-1.20, 0.75)
Monthly Change	-0.025 (-0.084, 0.035)	0.15 (-0.086, 0.39)	0.17 (-0.084, 0.43)
Predicted Average Outcome Nov 2024	83.49* (82.50, 84.47)	83.96* (83.10, 84.81)	0.47 (-0.51, 1.46)
N			602,820

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Figure 124: Comparison groups in Medication Assisted Treatment: OUD population



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

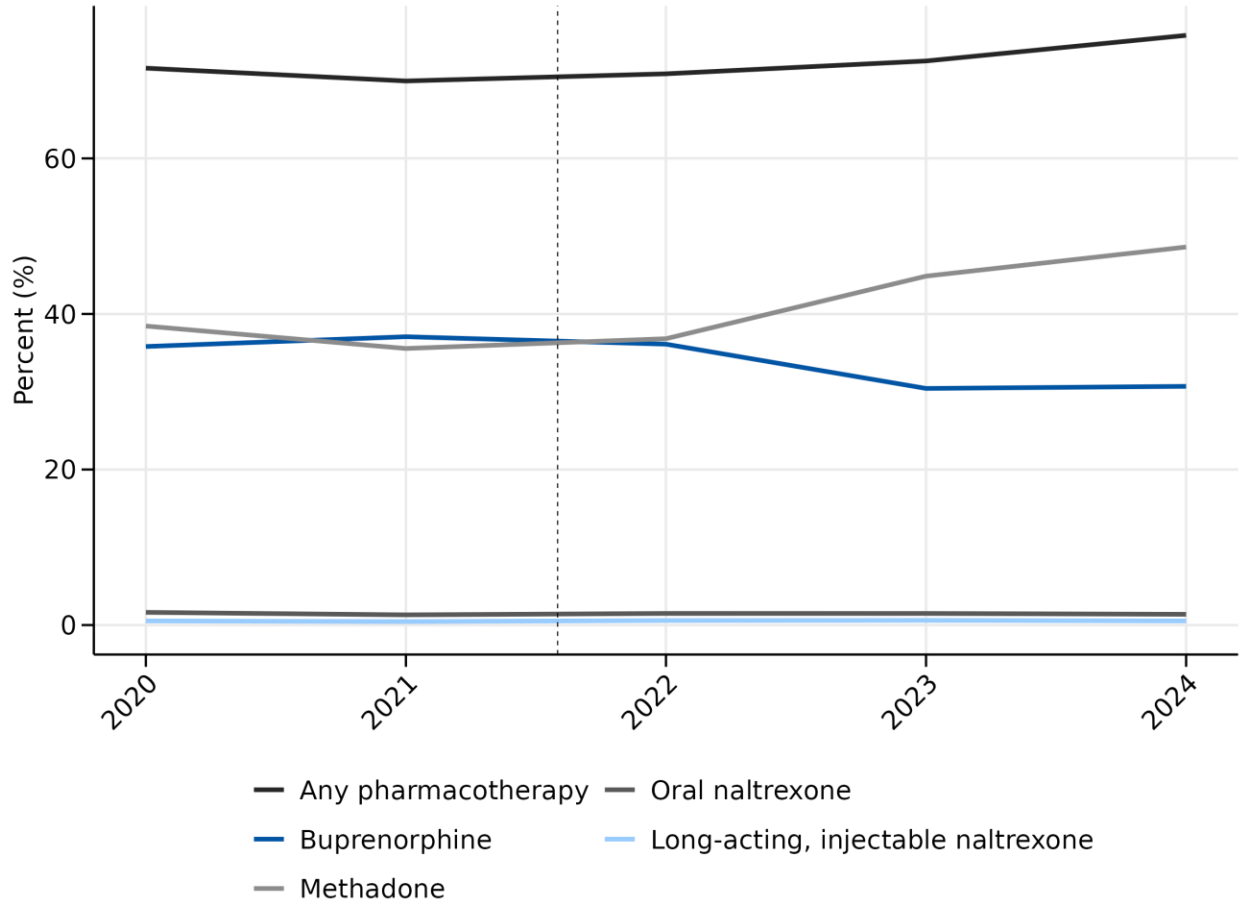
Figure 125 plots the unadjusted annual rates of use of pharmacotherapy for OUD among TP beneficiaries aged 18-64 with an OUD diagnosis. Rates of TP beneficiaries with an OUD diagnosis receiving MOUD ranged from a low of 70% in 2021 to 76% in 2024. Use of MOUD decreased slightly between 2020 and 2021, before increasing steadily throughout the rest of the study period.

Between 2020 and 2022, use of methadone and buprenorphine were roughly equivalent among non-elderly adult TP eligibles, with both medications treating around 35-38% each of TP beneficiaries with an OUD diagnosis. After 2022, the use of buprenorphine to treat OUD declined from 36% in 2022 to 30% in 2024 among the TP population. In contrast, the use of methadone to treat OUD increased from 37% in 2022 to 49% in 2024. We note that NC began

to bundle payments to opioid treatment programs (OTPs) in October 2023, which reduced our ability to detect the prevalence of specific medication treatments in OTPs, since specific medication receipt is no longer coded separately.

The appreciable growth in the use of buprenorphine and methadone to treat OUD may be attributed to a quickly changing landscape of state and federal regulations for MOUD. This includes changes to North Carolina's opioid treatment program (OTP) bundled payment approach, North Carolina's Medicaid expansion, and an easing of federal regulations on take-home doses and telehealth for MOUD implemented during the COVID-19 public health emergency and sustained after its end.

Figure 125: Trends in Use of Pharmacotherapy for Opioid Use Disorder (OUD): All



Notes: This figure plots unadjusted rates from the metric population. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

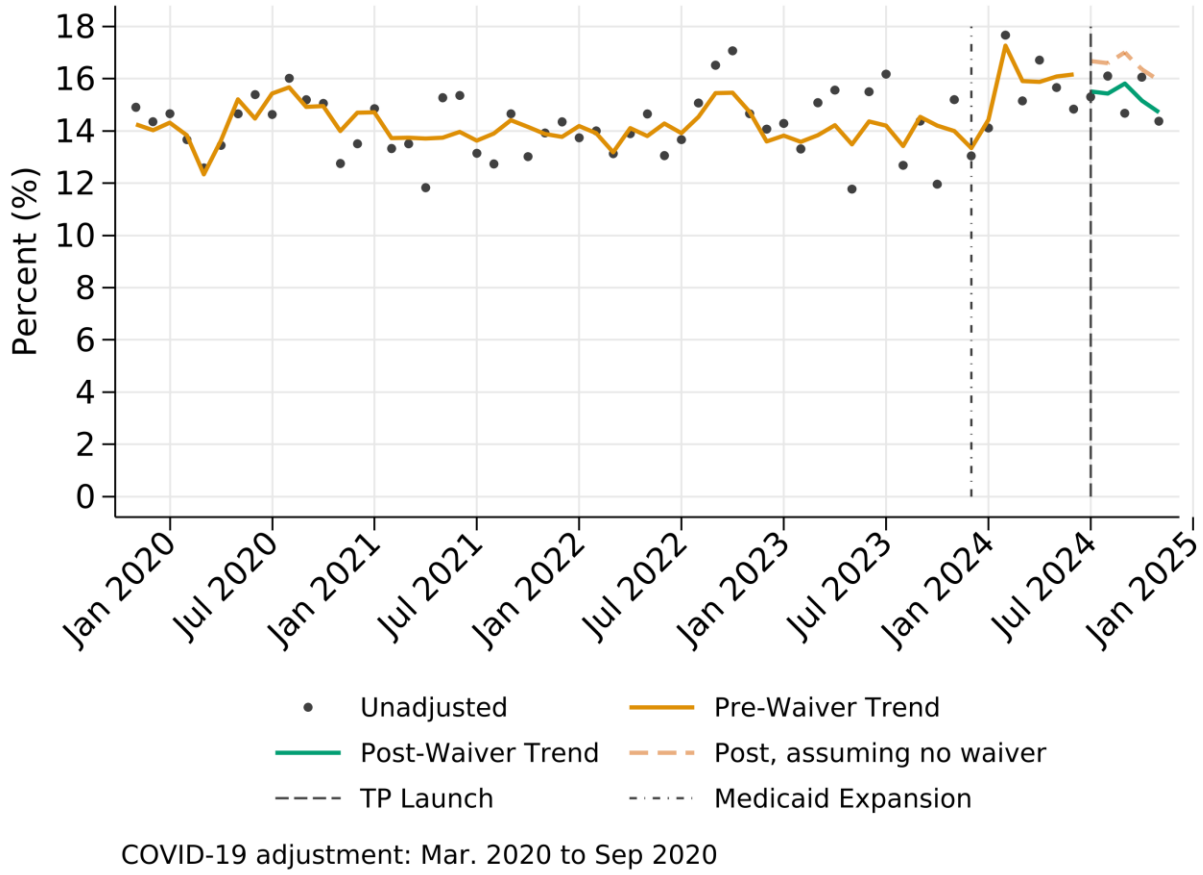
Initiation and Engagement of Opioid Abuse or Dependence Treatment (IET-AD)

Treatment Initiation

Among the TP population, baseline rates of treatment initiation for opioid use disorders (OUD) fluctuated between 12-17% (Figure 126). A sudden increase in OUD treatment initiation is observed in February 2024, possibly due to the increased number of beneficiaries from Medicaid Expansion, which occurred three months prior. Treatment initiation rates varied between 14-16% after TP implementation in July 2024. Although the level of initiation is somewhat visibly lower than what was projected, the ITS analysis found no statistically significant effect of the launch of TPs on OUD treatment initiation rates overall (Table 64). The initiation rate of 12.7% in November 2024 is substantially below the US median rate of 59.9% in 2024 for this measure.

Subgroup analyses found that the launch of TPs had a more pronounced negative effect by the end of the study period on Hispanic beneficiaries and beneficiaries living in rural counties compared to beneficiaries who are not Hispanic and who live in metropolitan counties, respectively (Figure 127).

Figure 126: Trends in Initiation of Opioid Abuse or Dependence Treatment (IET-AD)



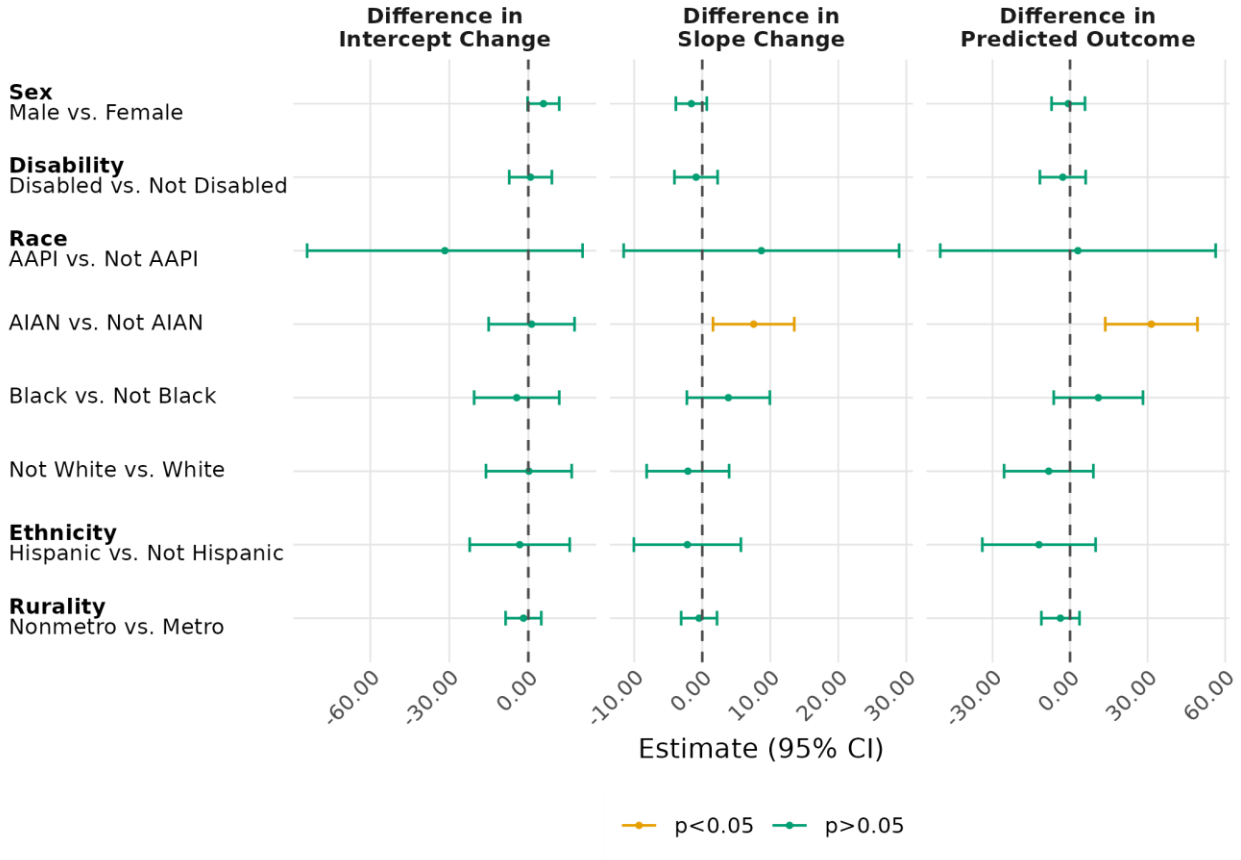
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Table 64: Interrupted time series estimates of Initiation of Opioid Abuse or Dependence Treatment (IET-AD)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	59.57* (56.63, 62.51)	52.72* (48.41, 57.03)	-6.85* (-10.70, -3.01)
Monthly Change	-0.35* (-0.58, -0.11)	1.39* (0.0066, 2.77)	1.73* (0.36, 3.11)
Predicted Average Outcome Nov 2024	59.90* (56.66, 63.15)	59.98* (55.62, 64.35)	0.079 (-3.83, 3.99)
N			28,100

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

Figure 127: Comparison groups in Initiation of Opioid Abuse or Dependence Treatment (IET-AD)



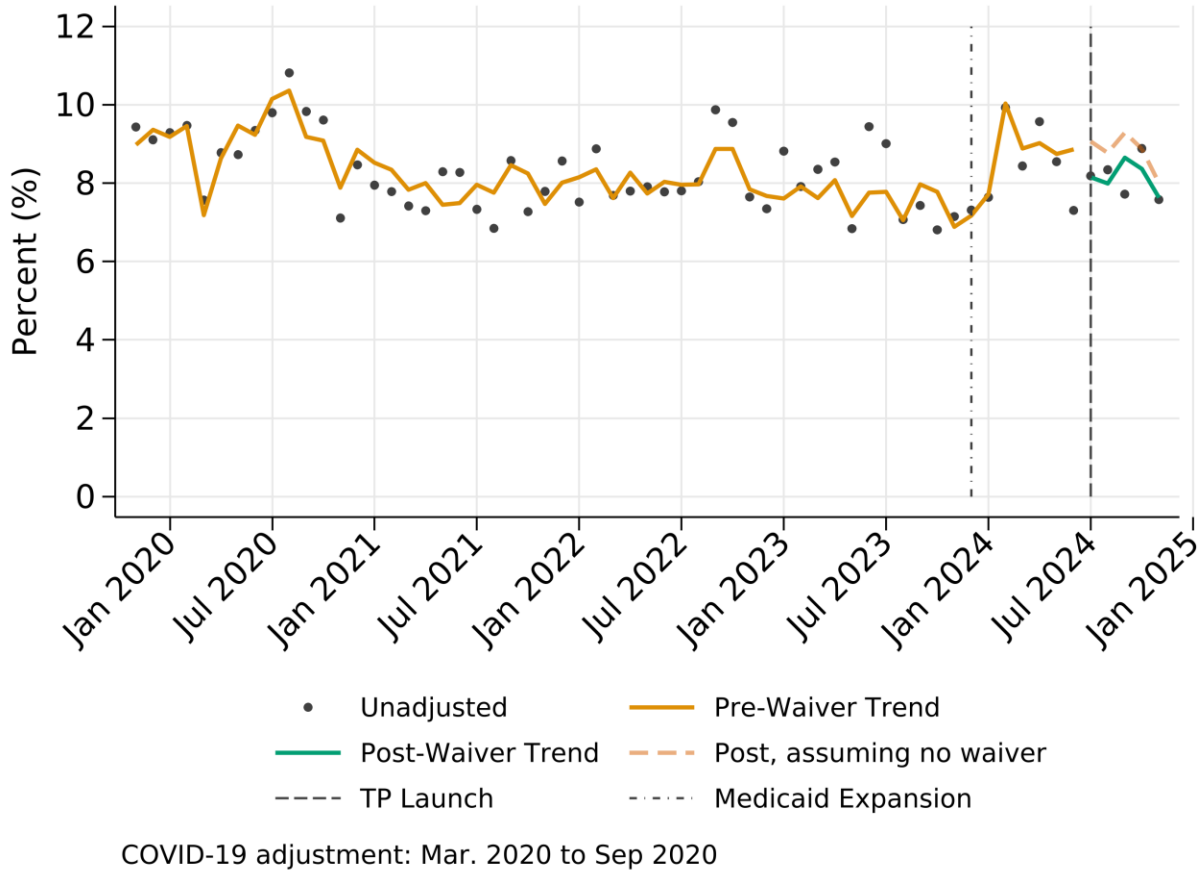
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Treatment Engagement

Rates for OUD treatment engagement among those who initiated treatment in the TP population range from roughly 6% to 11% throughout the study period. Treatment engagement rates spiked in August 2020 before decreasing below pre-PHE levels and increased sharply again after Medicaid expansion (Figure 128). Overall, we found no statistically significant effect of the launch of TPs on OUD treatment engagement rates (Table 65). Again, the engagement rate of 6.3% in the TP population is substantially below the national median rate of 31.1% in 2024. Similar to rates for OUD treatment initiation, the launch of TPs had a more pronounced negative effect on OUD treatment engagement rates for

Hispanic beneficiaries by the end of the study period compared to beneficiaries who are not Hispanic (Figure 129).

Figure 128: Trends in Engagement of Opioid Abuse or Dependence Treatment (IET-AD)



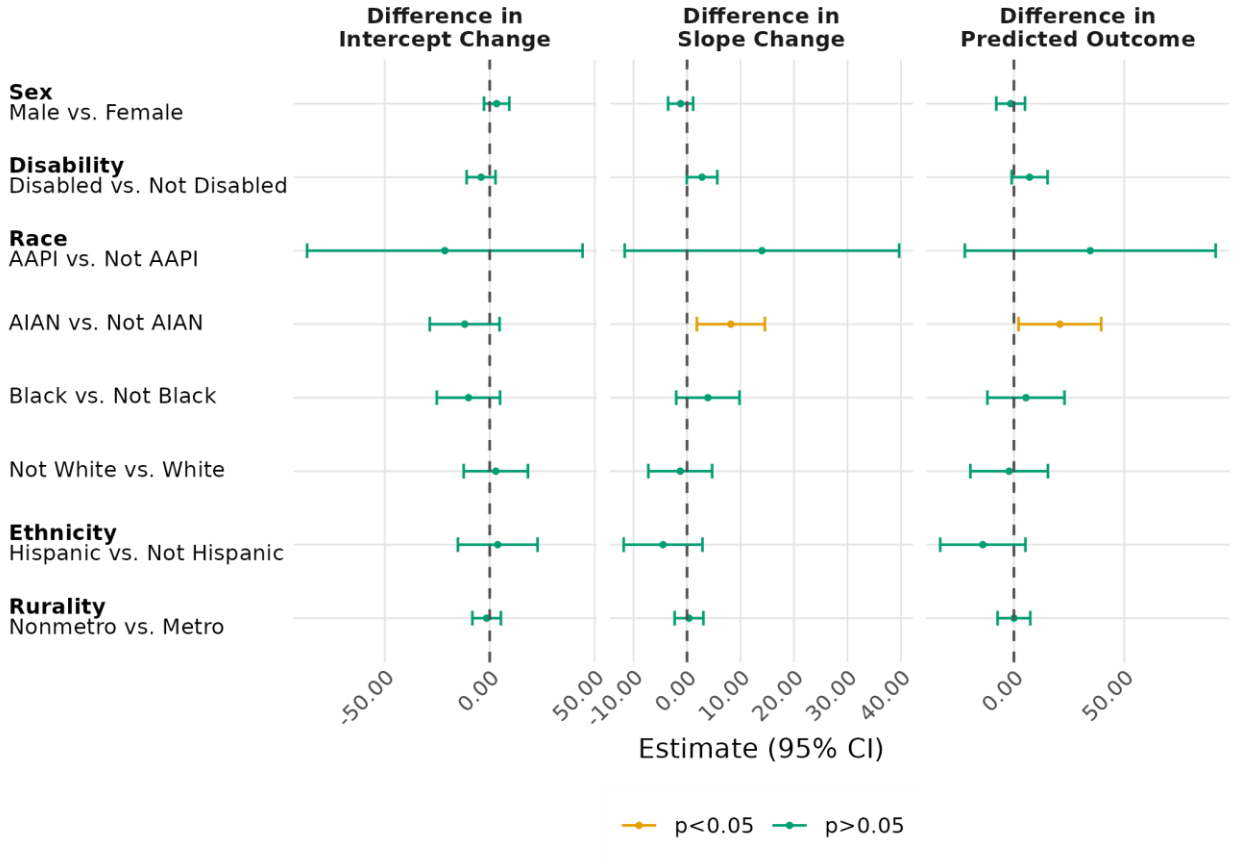
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Table 65: Interrupted time series estimates of Engagement of Opioid Abuse or Dependence Treatment (IET-AD)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	28.35* (25.47, 31.22)	23.64* (19.45, 27.84)	-4.70* (-8.45, -0.95)
Monthly Change	-0.58* (-0.81, -0.34)	0.97 (-0.41, 2.34)	1.55* (0.18, 2.91)
Predicted Average Outcome Nov 2024	27.87* (24.69, 31.04)	29.35* (25.03, 33.67)	1.48 (-2.37, 5.34)
N			28,100

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

Figure 129: Comparison groups in Engagement of Opioid Abuse or Dependence Treatment (IET-AD)



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

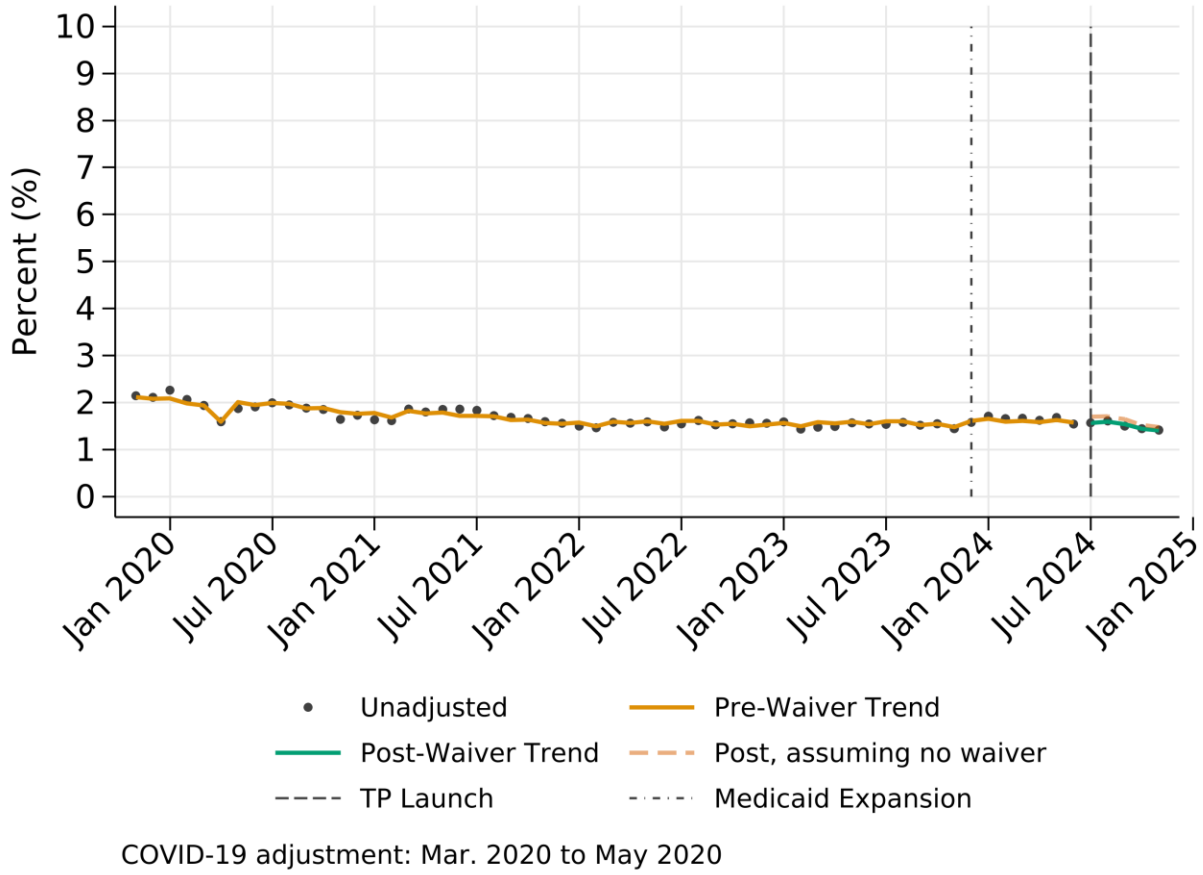
Hypothesis 2.1: The implementation of BH I/DD Tailored Plans will decrease the use of emergency departments for non-urgent use and hospital admissions for ambulatory sensitive conditions.

This hypothesis examines whether TPs initiation was associated with reduced reliance on reactive, high-acuity institutional services. We reviewed six metrics: the proportion of members with a hospital admission, average length of stay among those admitted, the proportion of members with an emergency department visit, the proportion of members with ED visits who had ED visits classified as potentially avoidable or preventable, thirty-day all-cause readmission rates, and the Transitions of Care composite measure.

Hospital Admissions

The proportion of members with a hospital admission slightly but steadily declined throughout the pre-implementation period. At TP launch in July 2024, the predicted proportion of members with a hospital admission was 1.36 percent compared to a projected 1.53 percent had TPs not been implemented, a statistically significant immediate reduction of 0.17 percentage points. By November 2024, the difference remained statistically significant at 0.11 percentage points, suggesting the immediate effect had not fully attenuated in the months following launch.

Figure 130: Trends in Hospital Admissions: Proportion of members with a hospital admission



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

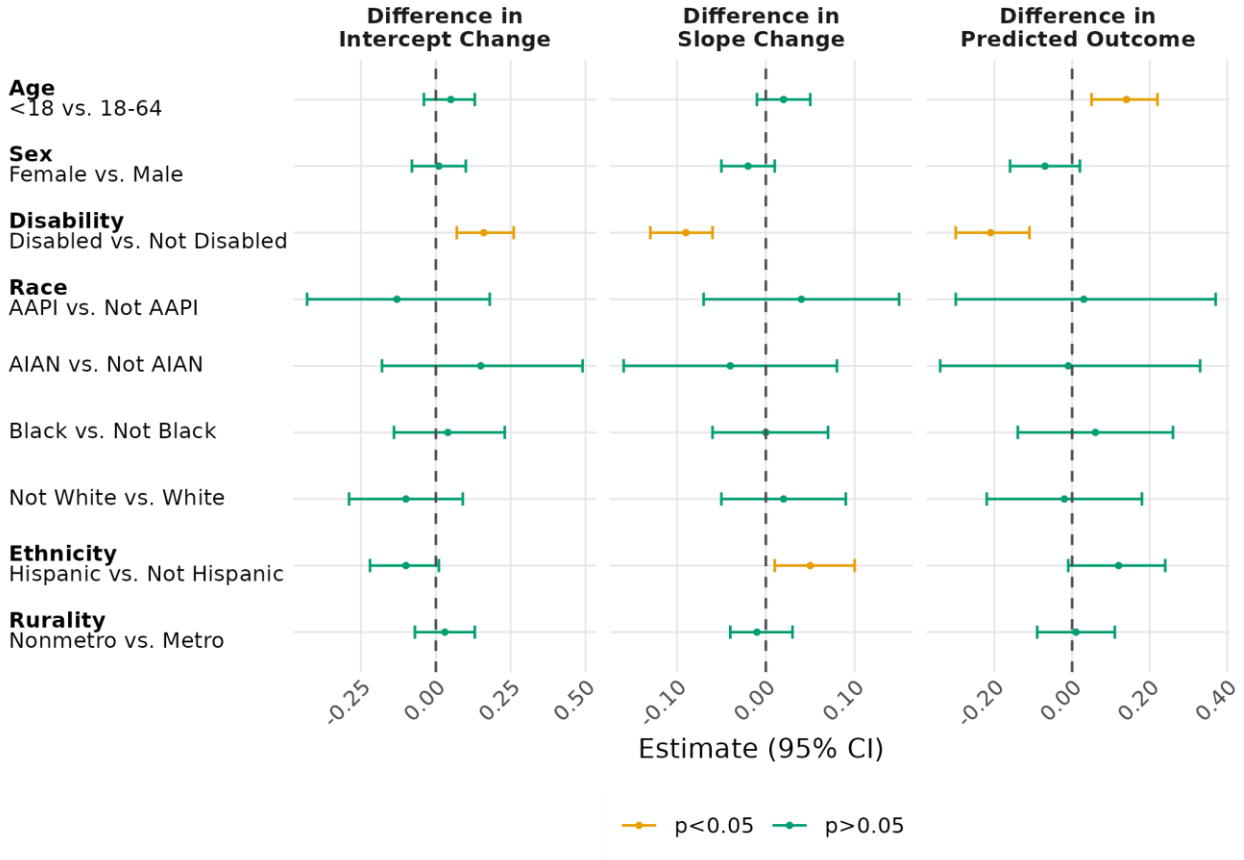
Table 66: Interrupted time series estimates of Hospital Admissions: Proportion of members with a hospital admission

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	1.53* (1.45, 1.60)	1.36* (1.27, 1.46)	-0.17* (-0.24, -0.095)
Monthly Change	-0.013* (-0.018, -0.0093)	0.0005 (-0.017, 0.018)	0.014 (-0.0050, 0.033)
Predicted Average Outcome Nov 2024	1.52* (1.43, 1.60)	1.41* (1.33, 1.48)	-0.11* (-0.18, -0.046)
N			10,784,063

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Subgroup analyses identified one statistically significant difference in the immediate effect at TP launch. Members with a disability showed a larger immediate change in the effect of TP implementation on the proportion of beneficiaries with a hospital admission relative to non-disabled members.

Figure 131: Comparison groups in Hospital Admissions: Proportion of members with a hospital admission

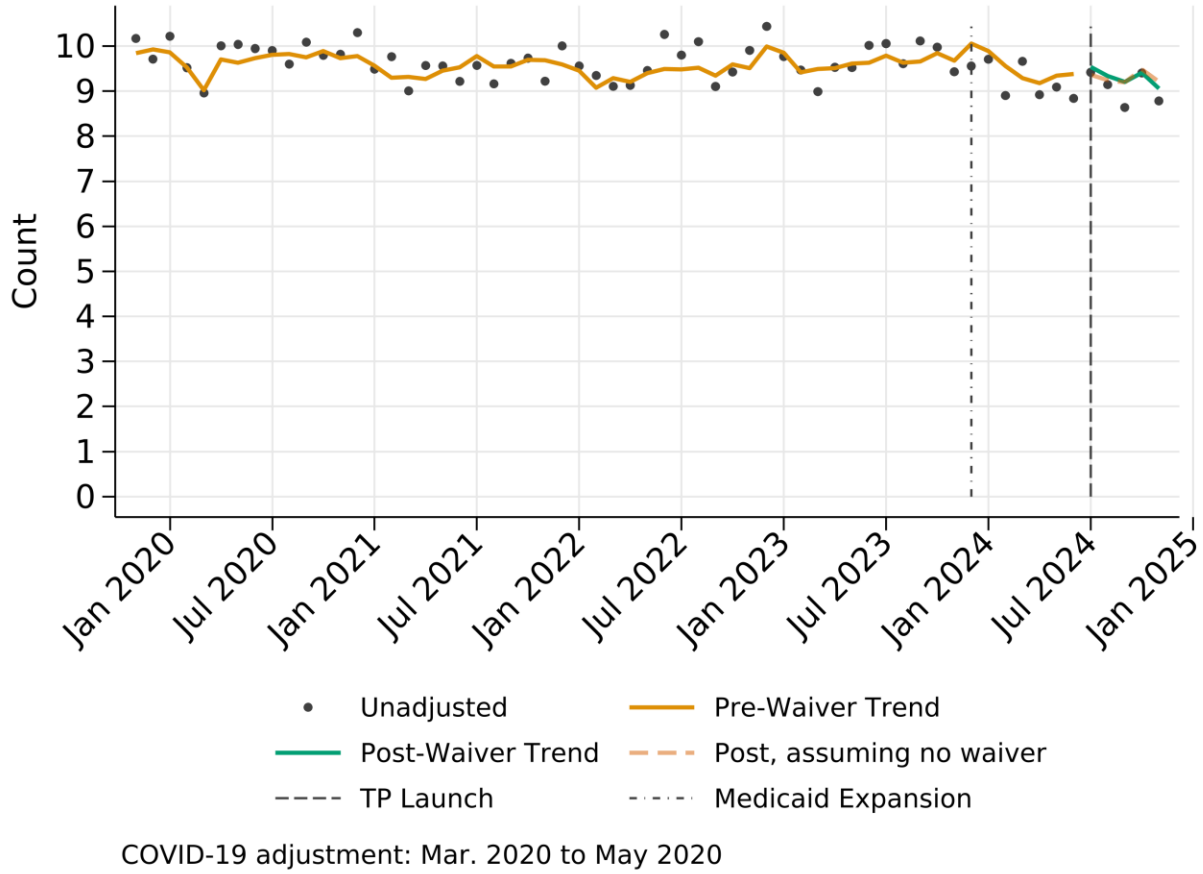


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Length of Stay for Hospital Admissions

Average length of stay among members with a hospital admission was relatively stable throughout the pre-implementation period, hovering around 10 days. We found no difference in predicted average length of stay between the TP launch and counterfactual either at TP launch nor the study endpoint. The limited post-implementation period means meaningful effects may not yet be detectable.

Figure 132: Trends in Hospital Admissions: Number of days per month for beneficiaries with a hospital admission



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE negative binomial regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Table 67: Interrupted time series estimates of Hospital Admissions: Number of days per month for beneficiaries with a hospital admission

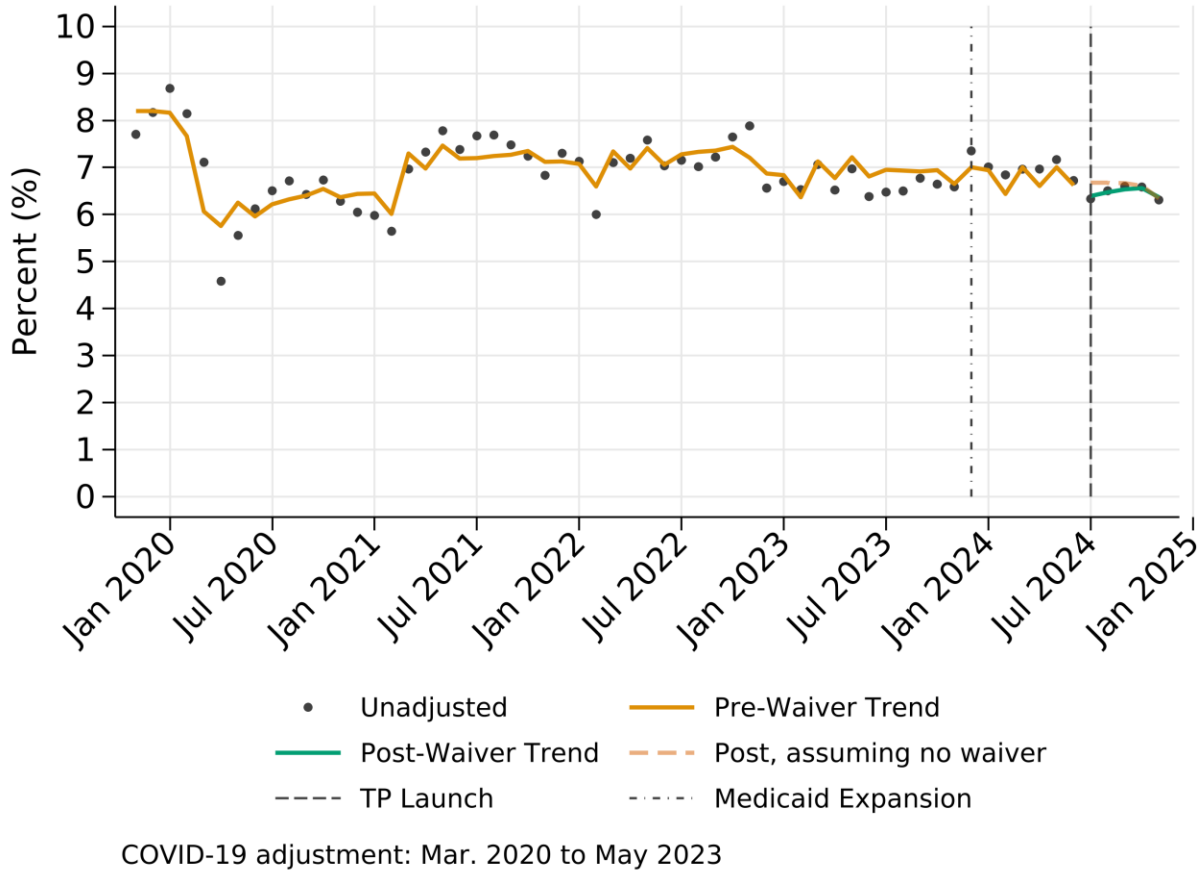
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	9.53* (9.28, 9.78)	9.74* (9.35, 10.12)	0.20 (-0.13, 0.54)
Monthly Change	0.0013 (-0.0004, 0.0031)	-0.0085 (-0.021, 0.0043)	-0.0098 (-0.022, 0.0029)
Predicted Average Outcome Nov 2024	9.51* (9.23, 9.79)	9.34* (8.97, 9.72)	-0.17 (-0.50, 0.16)
N			177,288

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE negative binomial regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Emergency Department Visits

Tailored Plans launched in July 2024, serving a population with historically high rates of emergency department utilization. At TP launch in July 2024, the predicted proportion of members with an ED visit was 6.54 percent compared to 6.86 percent in the counterfactual, a statistically significant immediate reduction of 0.32 percentage points. By November 2024, we no longer observe a statistically significant difference, suggesting the initial effect attenuated in the months following launch.

Figure 133: Trends in Emergency Department Visits: Rate of members with emergency department visits



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

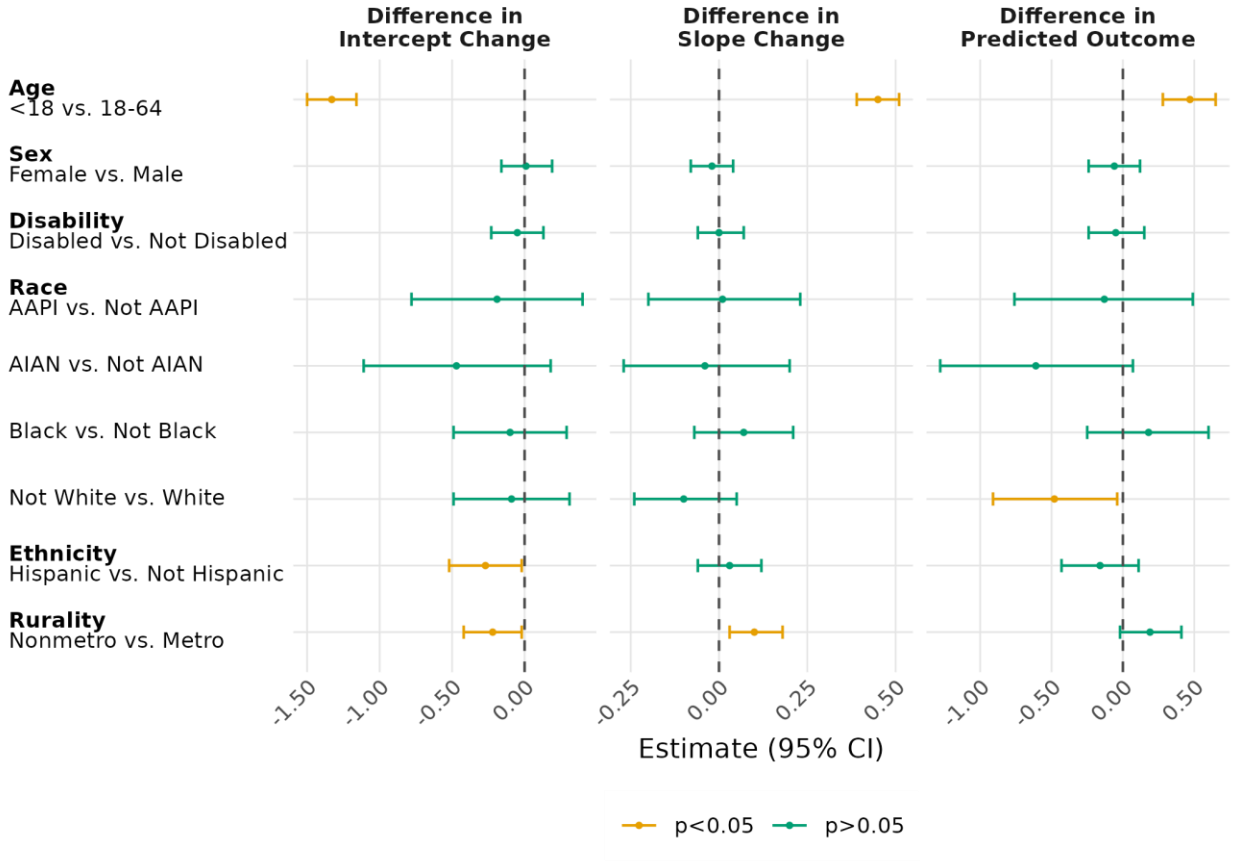
Table 68: Interrupted time series estimates of Emergency Department Visits: Rate of members with emergency department visits

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	6.86* (6.73, 6.99)	6.54* (6.30, 6.77)	-0.32* (-0.53, -0.11)
Monthly Change	-0.010* (-0.020, -0.0005)	0.065* (0.019, 0.11)	0.075* (0.028, 0.12)
Predicted Average Outcome Nov 2024	6.69* (6.54, 6.84)	6.67* (6.46, 6.87)	-0.022 (-0.22, 0.17)
N			10,784,063

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Subgroup analyses identified several statistically significant differences in the immediate effect at TP launch. Children under 18, Hispanic members, and rural members all showed greater TP effects on the proportion of members with an ED visit relative to their respective comparison groups: adults 18-64, non-Hispanic members, and members in urban areas.

Figure 134: Comparison groups in Emergency Department Visits: Rate of members with emergency department visits

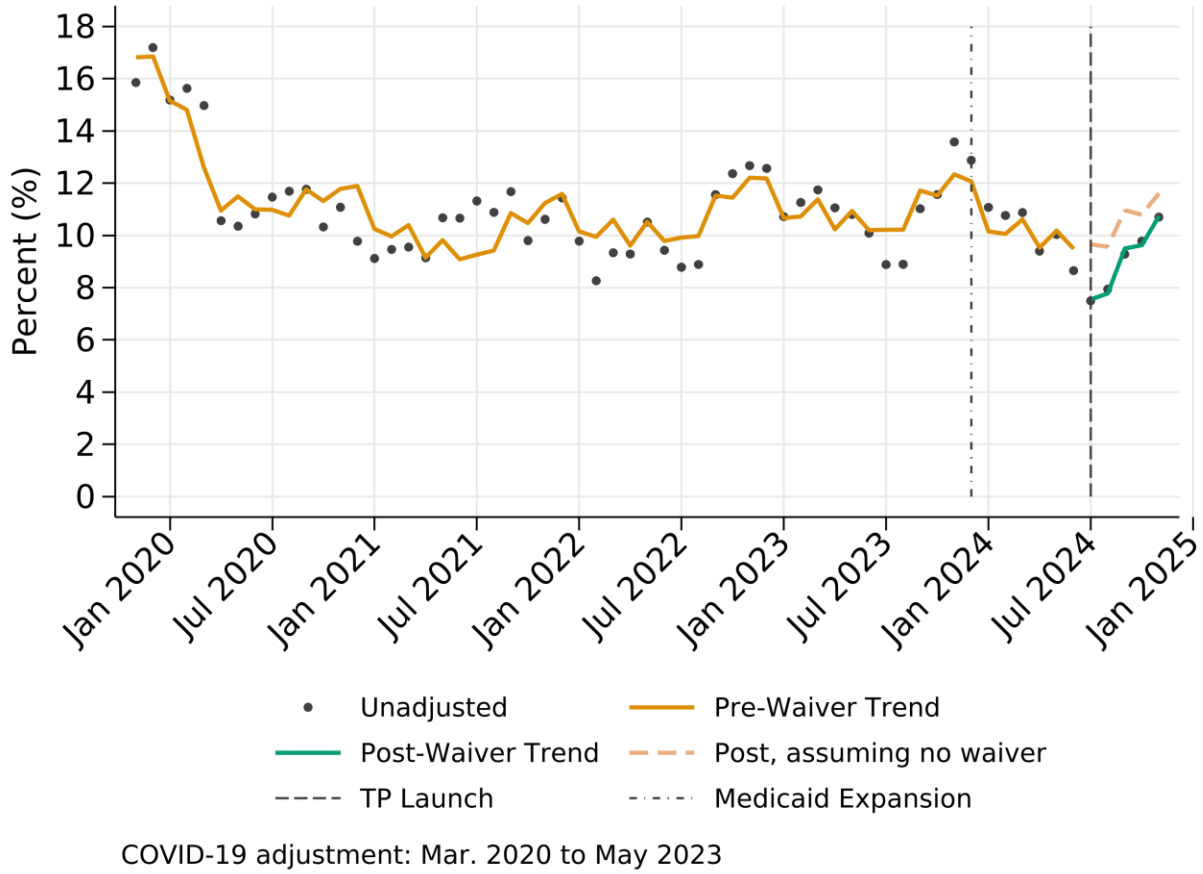


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Avoidable or Preventable Emergency Department Visits

The proportion of member months with ED visits classified as avoidable or preventable declined throughout the pre-implementation period. At TP launch in July 2024, there was a statistically significant immediate reduction of 2.11 percentage points in the predicted proportion of members with avoidable ED visits relative to the counterfactual (6.35% vs. 8.46%), suggesting a meaningful early effect of TP implementation on the appropriateness of ED utilization among this population. By November 2024, the difference remained statistically significant but had narrowed to 0.85 percentage points.

Figure 135: Trends in Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Table 69: Interrupted time series estimates of Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	8.46* (8.07, 8.85)	6.35* (5.79, 6.92)	-2.11* (-2.57, -1.64)
Monthly Change	-0.25* (-0.28, -0.22)	0.061 (-0.11, 0.24)	0.32* (0.14, 0.49)
Predicted Average Outcome Nov 2024	8.18* (7.77, 8.59)	7.33* (6.73, 7.93)	-0.85* (-1.35, -0.34)
N			730,596

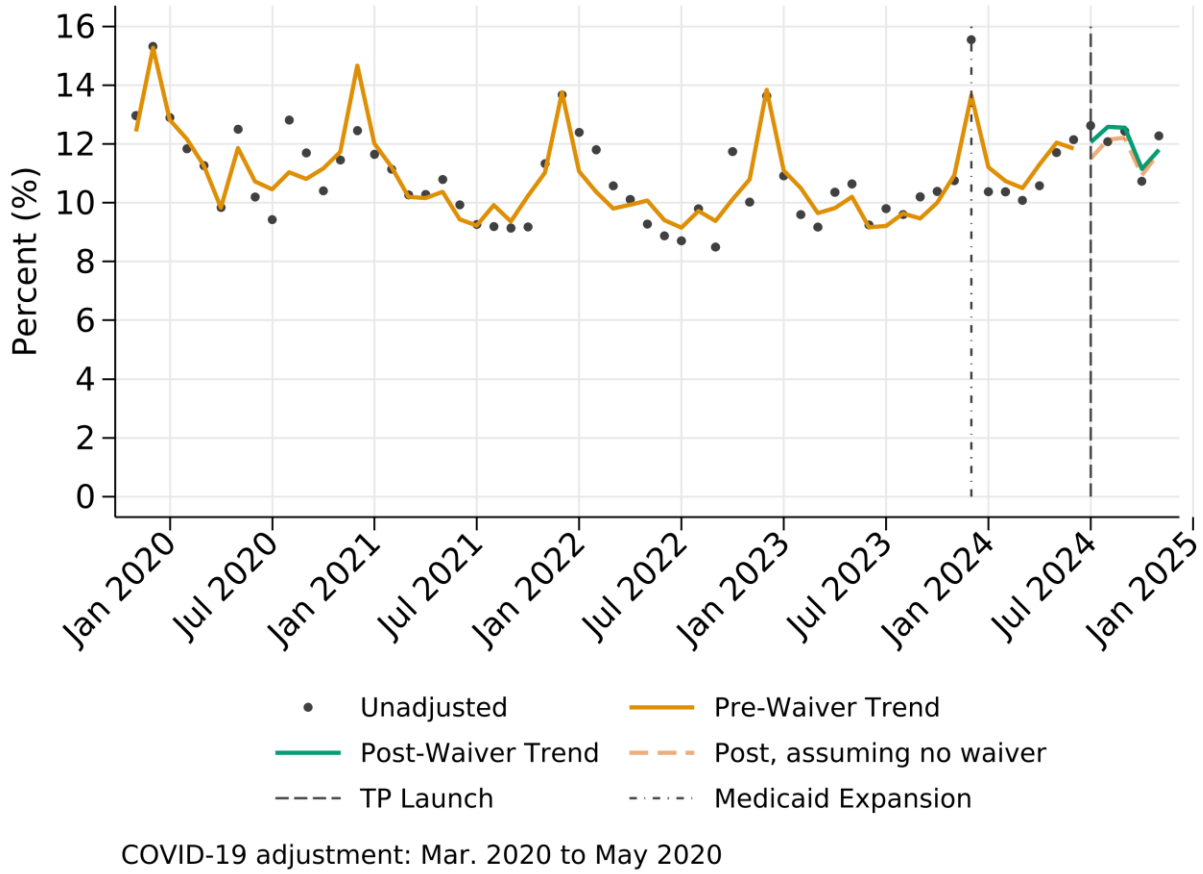
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Subgroup analyses identified two statistically significant differences in the immediate effect at TP launch. The immediate change in the proportion of members with avoidable ED visits was smaller for children under 18 relative to adults 18-64, and smaller for males relative to females.

Plan All-Cause Readmissions

The Plan All-Cause Readmissions (PCR) measure captures the percentage of inpatient hospital stays among TP members aged 18 and older that were followed by a readmission within 30 days of discharge. Lower values are better, as they reflect fewer unplanned returns to inpatient care following a hospitalization. The 30-day all-cause readmission rate showed seasonal variation throughout the pre-implementation period, with peaks in winter months and troughs in summer, consistent with the seasonal patterns observed in other hospital-based metrics. There is no statistical evidence at this early stage that TP implementation altered 30-day readmission rates, though the limited post-implementation period means meaningful effects may not yet be detectable.

Figure 136: Trends in Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions



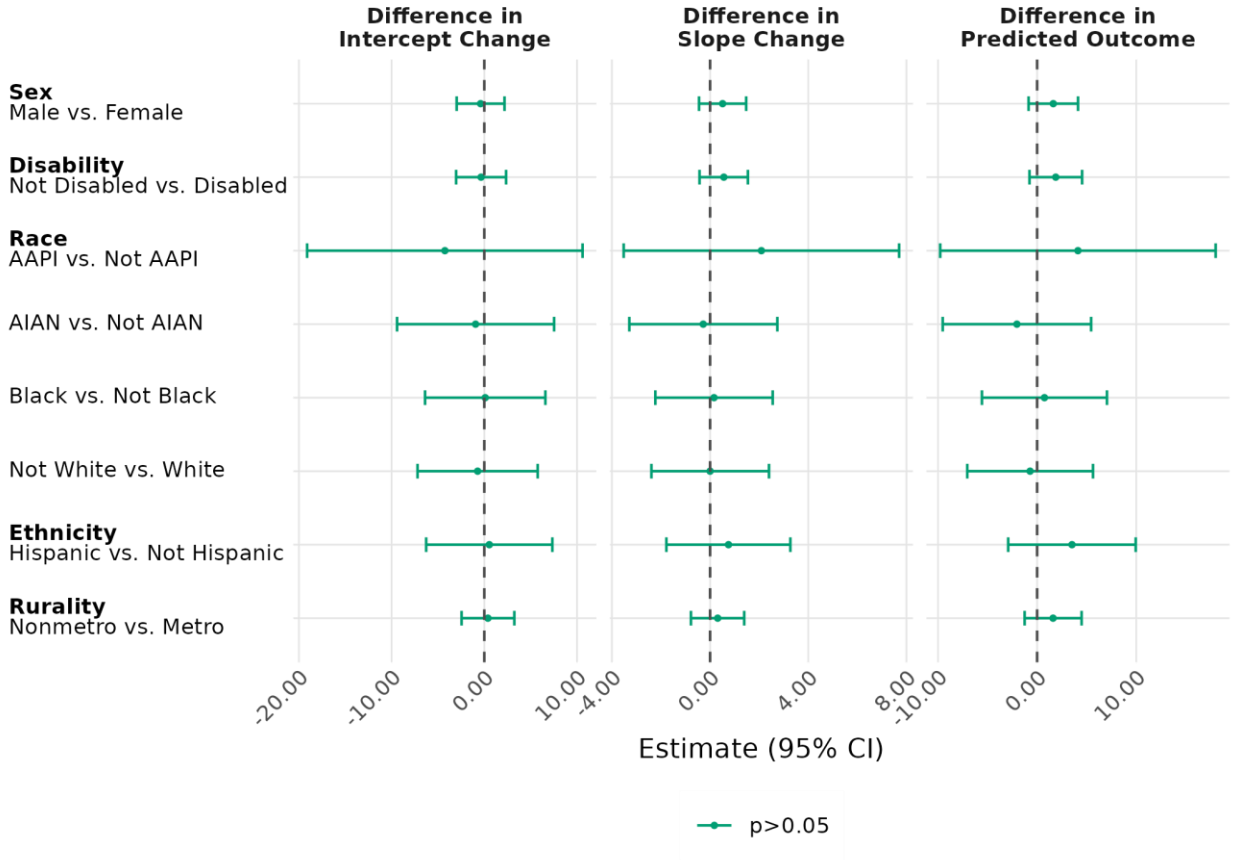
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18-64) in the NC Medicaid population as determined in the metric specifications.

Table 70: Interrupted time series estimates of Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	9.98* (8.95, 11.00)	10.53* (8.95, 12.12)	0.56 (-0.89, 2.01)
Monthly Change	-0.069 (-0.15, 0.0067)	-0.18 (-0.72, 0.36)	-0.11 (-0.65, 0.42)
Predicted Average Outcome Nov 2024	9.89* (8.76, 11.02)	10.00* (8.39, 11.60)	0.10 (-1.35, 1.56)
N			89,098

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18-64) in the NC Medicaid population as determined in the metric specifications.*

Figure 137: Comparison groups in Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Conclusions

Across metrics, the immediate effects of TP implementation were mostly in a favorable direction. Both the proportion of members with a hospital admission and the proportion with an ED visit showed statistically significant reductions at launch, and the proportion of members with ED visits classified as avoidable or preventable (out of members with an ED visit) showed an immediate reduction of 2.11 percentage points. Average length of stay and 30-day all-cause readmission rates showed no statistically significant change at launch. The early evidence suggests a modest initial movement away from high-acuity reactive care following TP implementation, but the limited follow-up period means it is too early to draw

reliable conclusions about whether these effects reflect a sustained trend or represent transitional dynamics at the time of launch.

Hypothesis 2.2: The implementation of BH I/DD Tailored Plans will increase the number of enrollees receiving care management, overall and during transitions in care, in the target population.

Care Management

Care management was hypothesized to support care delivery which is especially important for the TP members. Figure 138 shows a steady increase in the percent of beneficiaries receiving care management after the launch of Tailored Care Management (TCM) in December 2022, from around four percent in the pre-TCM and pre-TP period to around eighteen percent which remained steady after the launch of TPs in July 2024.

The figure below shows a dramatic increase in care management provided for TP members. As noted in the Data section, there are data quality challenges for the BCM051 care management data that results in a likely underestimate of true volume of care management activities. However, this means that the percentages reported are likely the lower bound of true care management provided for TP members.

Figure 138: Trends in Percent of Enrollees Receiving Care Management



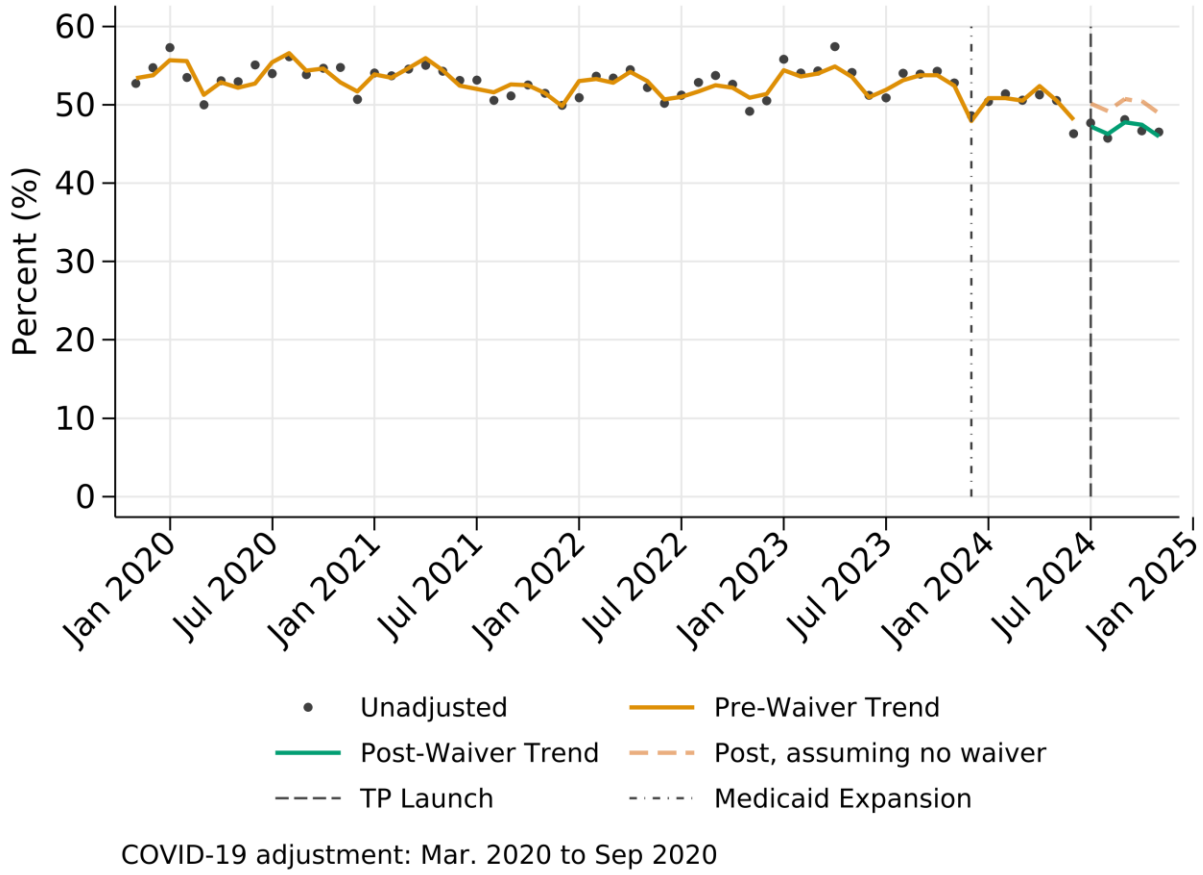
Transitions in Care

The Transitions of Care (TRC) measure captures the percentage of discharges from a long hospital, rehab, or residential care stay, for which key care transition activities were completed, including patient engagement after discharge or medication reconciliation post-discharge. Higher values are better, as they reflect more complete transition of care processes following a discharge.

The TRC composite was relatively stable throughout the pre-implementation period, hovering around 50 to 55 percent. At TP launch in July 2024, there was a statistically significant reduction of 2.93 percentage points relative to the counterfactual (48.99% vs. 51.92%), indicating that fewer discharges had completed transition of care activities following TP implementation than would have been expected in the absence of TPs. This difference persisted through November 2024 at 3 percentage points, remaining statistically significant. While the direction of this finding is unfavorable, it may reflect the administrative and operational challenges inherent in launching a new and complex plan serving a high-need

population. Given the short post-implementation period, it is too early to determine whether this represents a temporary disruption or a more persistent pattern.

Figure 139: Trends in Transitions of Care (TRC)



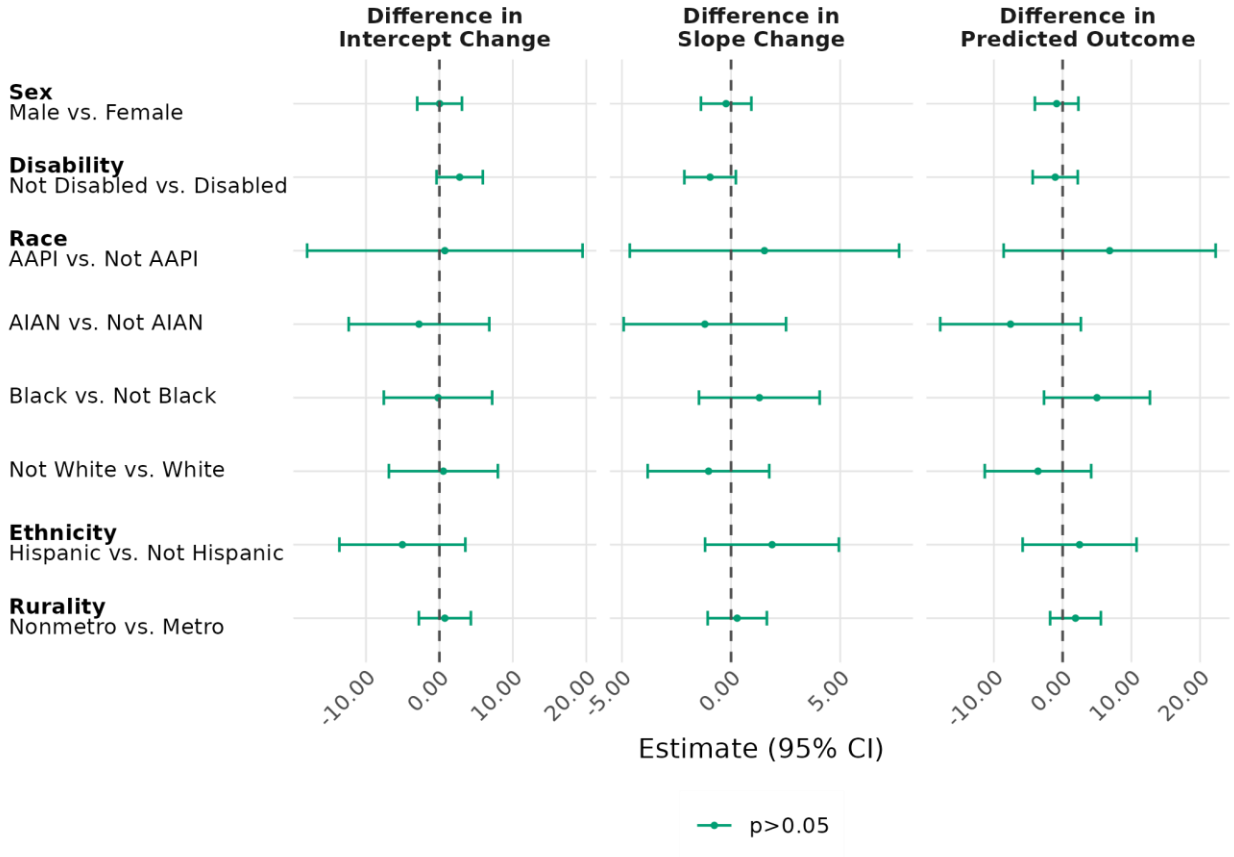
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Table 71: Interrupted time series estimates of Transitions of Care (TRC)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	51.92* (50.50, 53.34)	48.99* (46.90, 51.08)	-2.93* (-4.78, -1.09)
Monthly Change	-0.029 (-0.13, 0.073)	-0.046 (-0.71, 0.62)	-0.017 (-0.68, 0.65)
Predicted Average Outcome Nov 2024	51.90* (50.34, 53.46)	48.89* (46.82, 50.97)	-3.00* (-4.86, -1.14)
N			122,342

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

Figure 140: Comparison groups in Transitions of Care (TRC)



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Hypothesis 2.3: The implementation of BH I/DD Tailored Plans will reduce Medicaid program expenditures.

This section summarizes impacts on total Medicaid expenditures, the probability of having outpatient or behavioral health expenditures, and Prescription Drug expenditures.

At TP launch in July 2024, we did not observe a notable change in total PMPM Medicaid expenditures distinct from the trend prior to TP launch (Figure 141). Further, the percentage of beneficiaries with an outpatient evaluation and management expenditure declined from an estimated 53.66% to 51.92% (Figure 142). This reduction persisted through the end of the study period in November 2024. We also observed a small, non-significant decline in the proportion of beneficiaries with a behavioral health expenditure, from 45.04% to 44.76% (Table 73), and PMPM behavioral health spending remained relatively stable after TP launch (Figure 144). In contrast, PMPM prescription medication spending increased following TP launch (Figure 145), which may indicate greater medication continuity or shifts to newer, higher-cost therapies. Overall, early evidence does not show program savings or increased Medicaid expenditures associated with TP launch, but again it is quite early in the program's implementation.

Figure 141: Trends in Medicaid Expenditures: Per Member Per Month Total Medicaid Service Expenditures

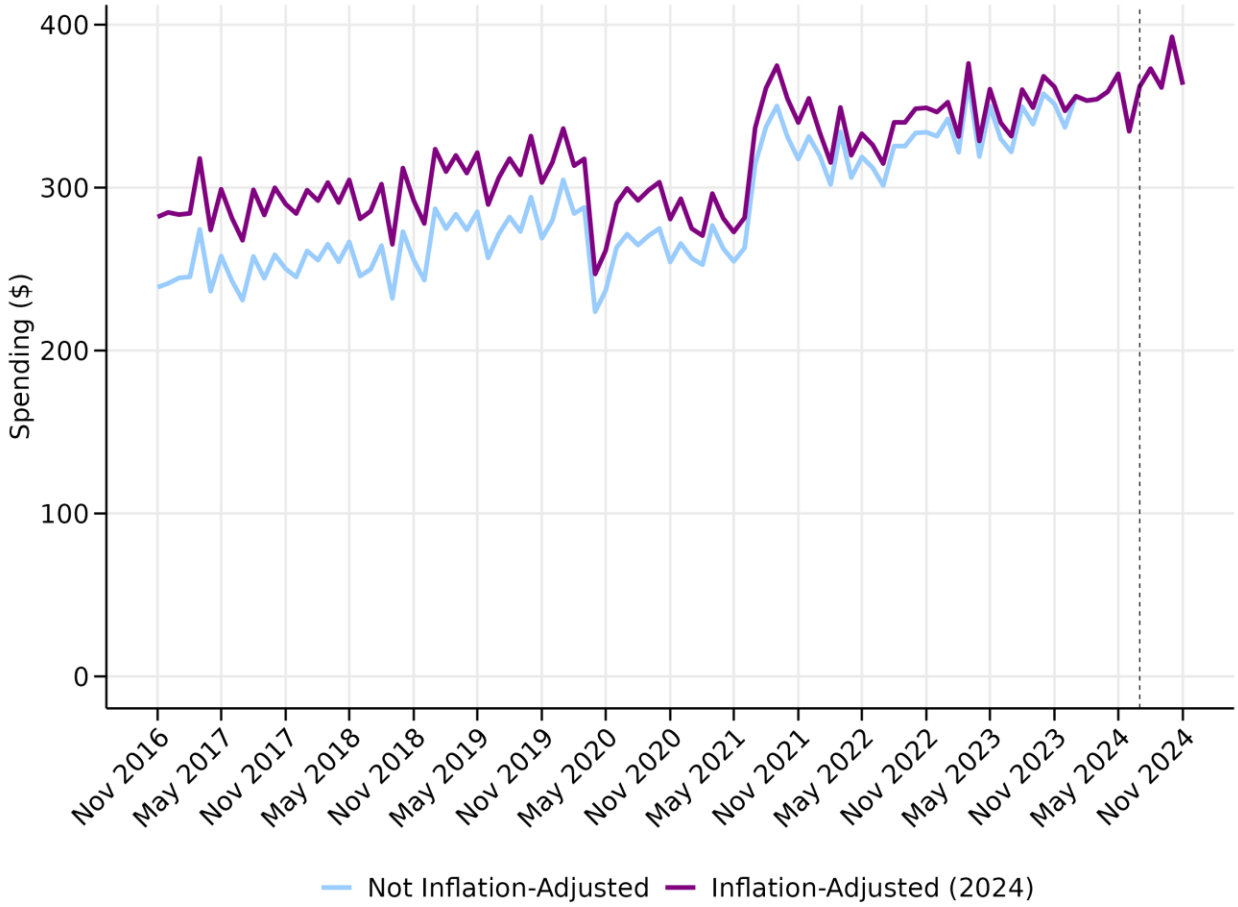
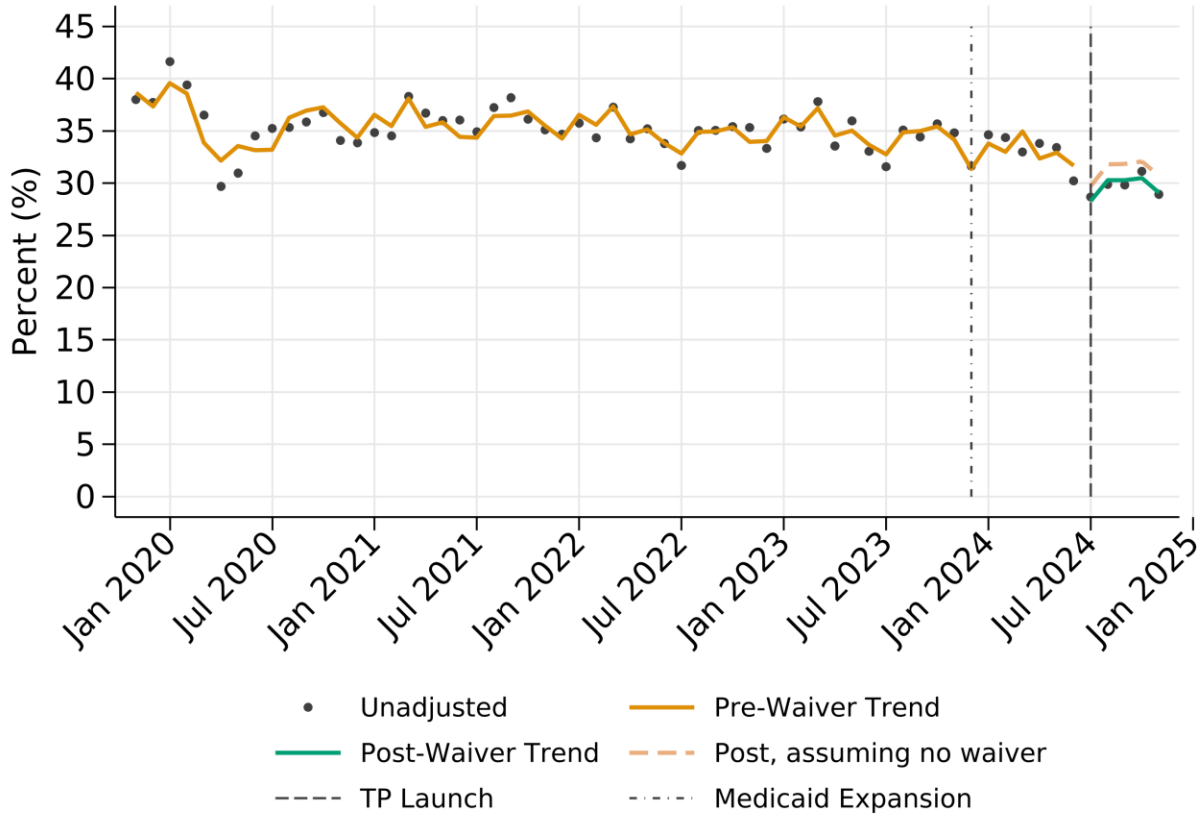


Figure 142: Trends in Medicaid Expenditures: Proportion of beneficiaries with an Outpatient E&M expenditure



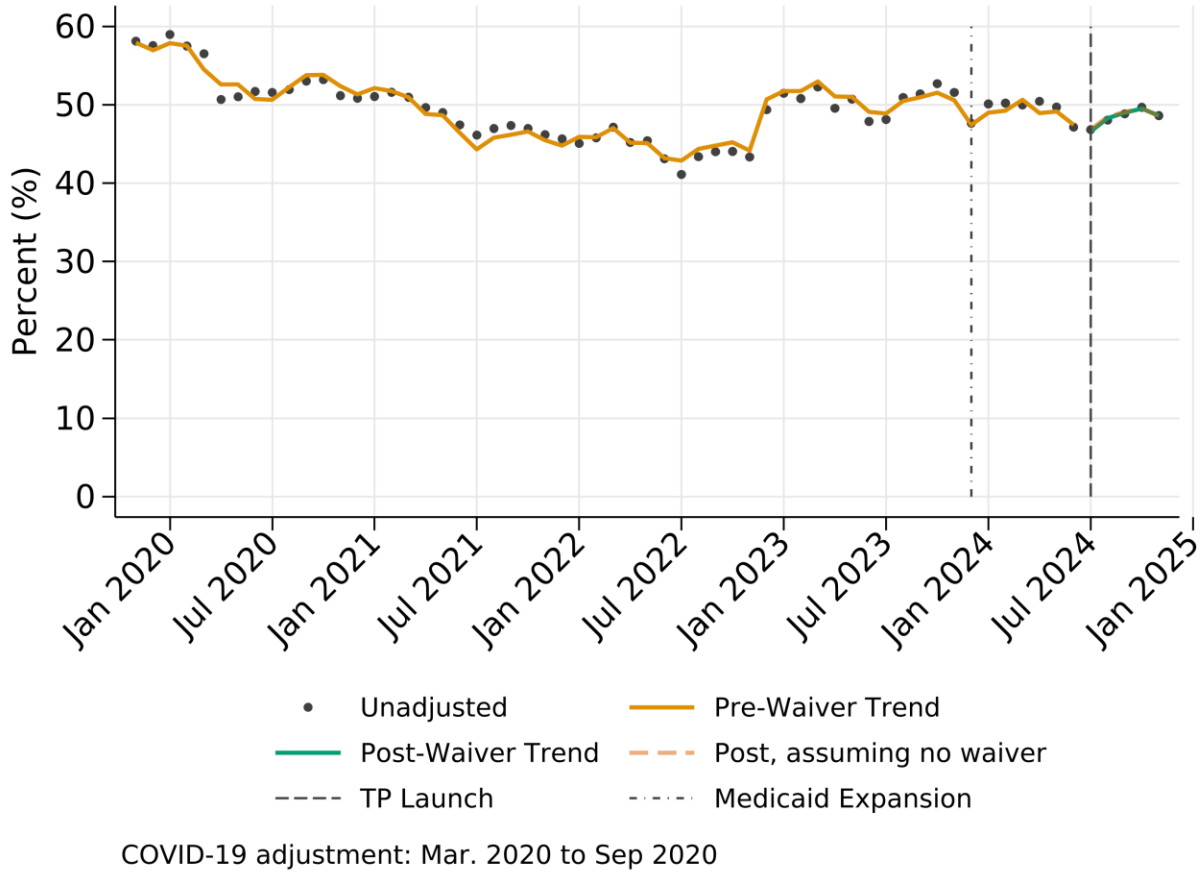
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Table 72: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with an Outpatient E&M expenditure

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	30.22* (29.78, 30.65)	28.28* (27.73, 28.82)	-1.94* (-2.46, -1.43)
Monthly Change	-0.26* (-0.28, -0.23)	-0.35* (-0.45, -0.25)	-0.093* (-0.18, -0.0015)
Predicted Average Outcome Nov 2024	29.52* (29.02, 30.02)	27.21* (26.59, 27.83)	-2.31* (-2.82, -1.81)
N			10,784,063

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Figure 143: Trends in Medicaid Expenditures: Proportion of beneficiaries with a behavioral health expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Table 73: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with a behavioral health expenditure

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	45.04* (44.65, 45.42)	44.76* (44.19, 45.33)	-0.28 (-0.77, 0.22)
Monthly Change	-0.28* (-0.31, -0.25)	-0.21* (-0.32, -0.094)	0.072 (-0.031, 0.18)
Predicted Average Outcome Nov 2024	44.54* (44.09, 44.98)	44.55* (43.80, 45.30)	0.011 (-0.61, 0.64)
N			10,784,063

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Figure 144: Trends in Medicaid Expenditures: Behavioral Health Expenditures Per Member Per Month

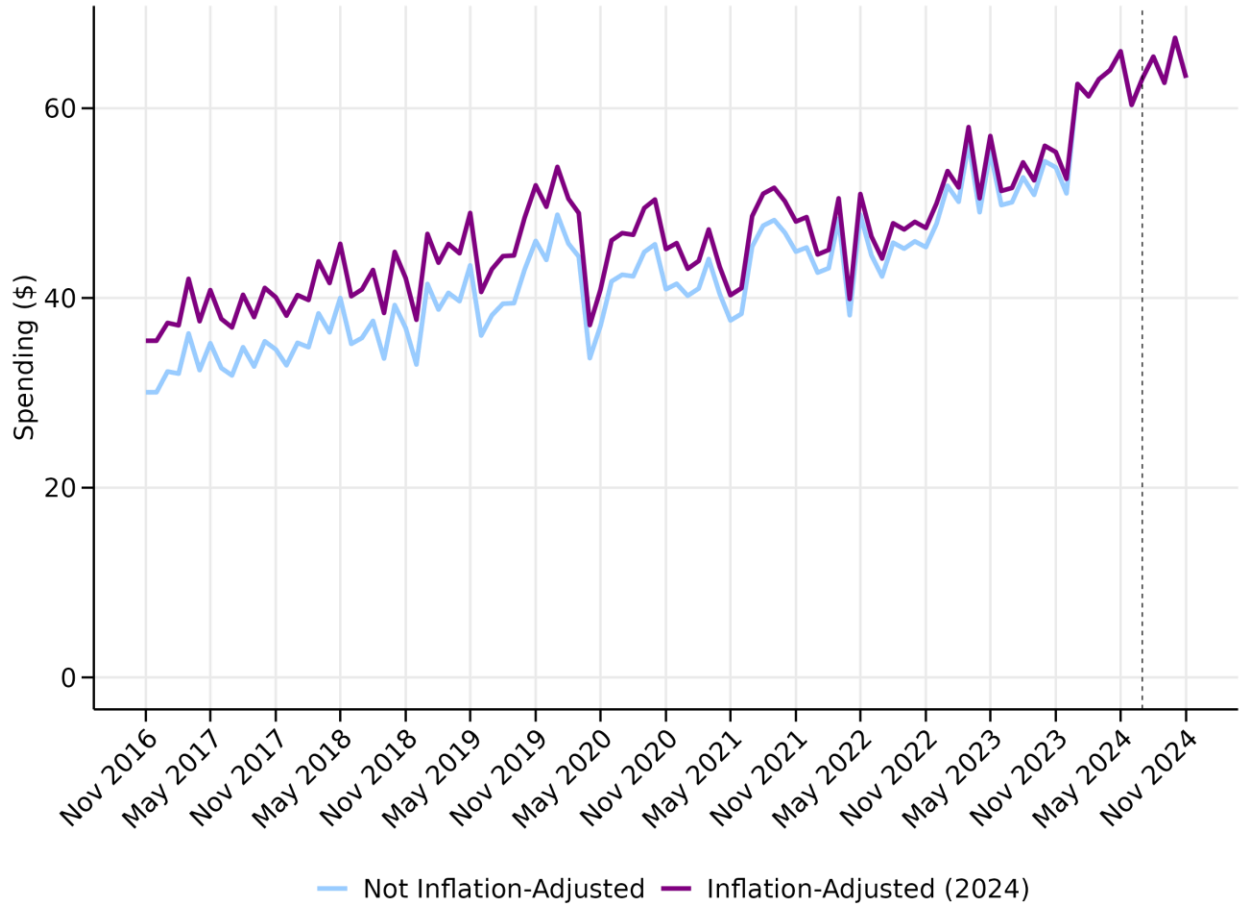
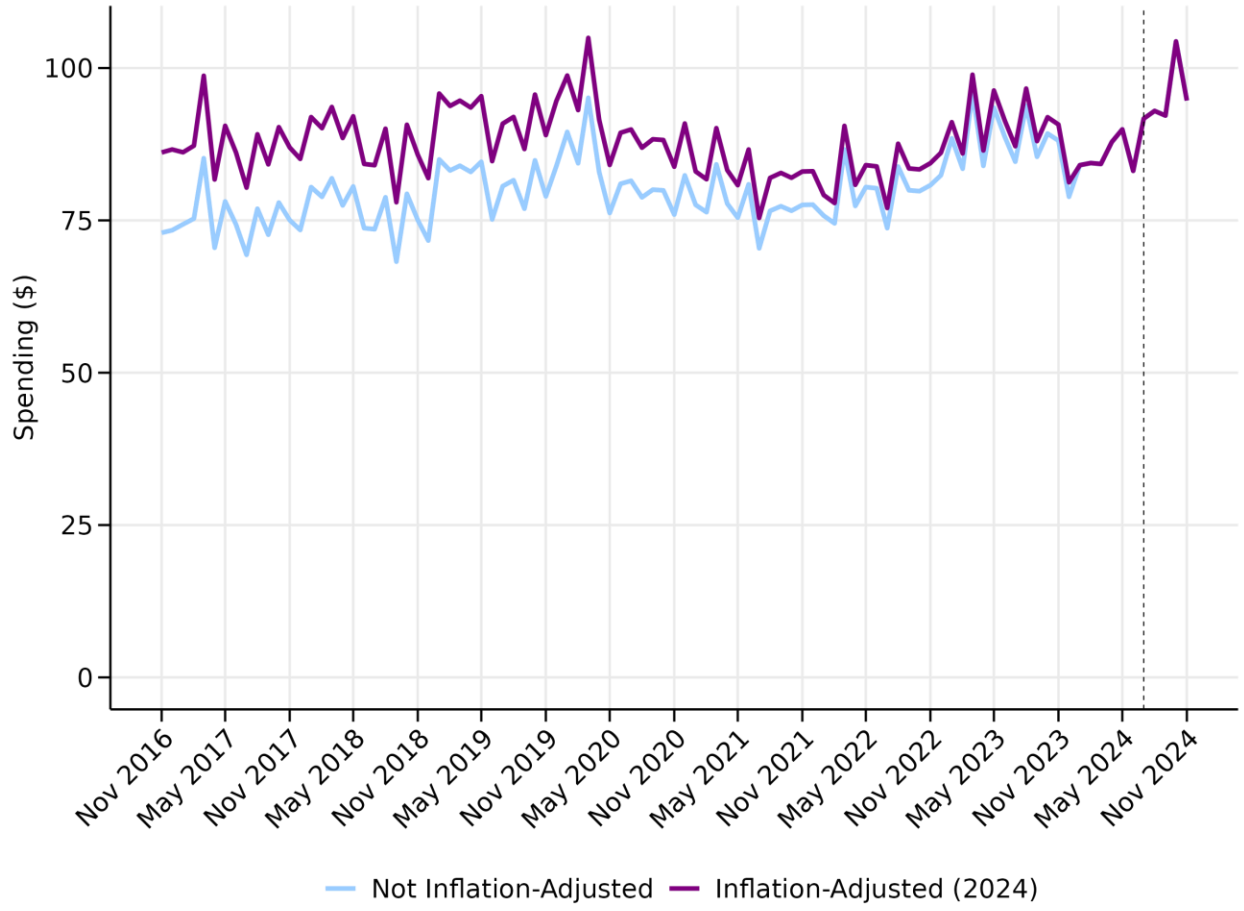


Figure 145: Trends in Medicaid Expenditures: Per Member Per Month Medicaid Service Prescription Expenditures



Conclusions and Lessons Learned

In this section, we step back and look at some overall patterns and themes visible in the analyses.

Standard Plans

1. Perhaps the most notable finding of the evaluation is the improvement in the use of services in high-cost settings. Interestingly, the probability of hospitalization is only slightly lower initially, but by the end of the period is lower and statistically different from no effect, consistent with SPs being effective at preventing hospitalizations. Length of stay among those admitted also decreased. Planned readmission (not shown here) follows a similar trend although it is not statistically significant. **Emergency room use** and **days of hospitalization** also decreased – further evidence that SPs were effective at diverting beneficiaries from high-cost settings – and not only are they less likely to be admitted, but their stays are shorter. **The percentage of emergency room visits that were avoidable** also fell – but was a relatively small effect. Overall, we see consistent evidence of a movement away from inpatient/ED service use – aligned with patterns we saw in the SUD Summative Evaluation Report. Qualitative findings help contextualize these patterns by emphasizing that changes in ED and inpatient use reflect improvements in care continuity and follow-up rather than simple shifts in patient behavior. Providers described ED and inpatient utilization as downstream consequences of access barriers, inaccurate attribution, and gaps in primary care engagement, and noted that proactive outreach, post-discharge follow-up, and care management were critical for preventing avoidable admissions. Beneficiaries similarly framed ED use as a response to perceived urgency, limited access to timely outpatient care, or disruptions in continuity, rather than preference for hospital settings.
2. In the Wellness and Prevention space, we saw a variety of outcomes. While there are other factors potentially affecting whether patterns improved or worsened (the pandemic change in care-seeking and a changing culture around immunizations), the overall pattern shows no change to lower performance for wellness and prevention. Some metrics, such as **Well Child Visits at 30 Months**, show a big decrease at launch but trend back to the counterfactual by the end of the study period in the SP population, suggesting no change at the end of the Demonstration Period. In the case of this metric, it took about three years to recover and **Immunizations for Adolescents** has a similar trend. Another group of metrics, including **Adult Access to Preventive Services** (**AAP)**, show an initial small decrease at launch, but remained low by the end of the study period. **Childhood Immunization Status (CIS)** is another example of this trend. Both of these trends indicate that beneficiaries in SPs saw a decrease in wellness activities at the time of SP implementation, although in some cases the metrics returned to expected levels. There are examples of a third pattern shown

in **Weight Assessment and Counseling for Children (Nutrition)**, with a clear decline in metric values post-implementation, but these are less common. In summary, wellness and prevention metrics show no change to lower performance after SP launch. Qualitative findings help explain these quantitative patterns by highlighting structural, administrative, and social barriers that disrupted preventive care following the implementation of SPs. Providers and beneficiaries consistently described primary care as generally accessible, but inaccurate PCP attribution inflated quality denominators by including patients they had never seen and adults attributed to pediatric clinics. Furthermore, PCPs and beneficiaries reported limited participation of specialists in managed care, which restricts the ability to coordinate adult preventive services. These challenges were most acute in the initial years of implementation, aligning with sharp early declines in several wellness measures, and eased somewhat over time as practices adapted, consistent with partial recovery in some metrics. However, persistent barriers continued to suppress preventive care use. For providers, these included delayed and non-actionable quality data, and for beneficiaries, these barriers include transportation and cost constraints, competing life priorities, and perceived stigma associated with Medicaid coverage. Importantly, when beneficiaries accessed preventive services, they generally reported high-quality, relational primary care, suggesting that the observed declines reflect system-level disruptions and social context.

3. Among the Maternal Health metrics, there are again mixed results, although most seem to show slight decline or no difference. There is some evidence suggesting fewer challenges with engaging beneficiaries during and immediately following hospitalization, which would be consistent with the lack of improvement among post-partum metrics, but this may also be a consequence of the postpartum extension allowing longer time post-discharge for engaging with LARC. The State has no position on the level of LARC use among beneficiaries. One of the most unequivocal findings is the secular increase in the rate of **postpartum visits (PPV)** – a clear change in direction at the time of SP launch with a steady increase following a long run decrease prior to SP launch. Qualitative findings offer a limited but relevant context for the contraception metrics. While interviews did not focus explicitly on contraception choice or LARC uptake, findings consistently describe improved continuity and engagement around postpartum care over time, which aligns with the secular increase observed in postpartum visit (PPV) rates. Beneficiaries frequently described postpartum care as a period of more consistent contact with OB providers, midwives, or primary care clinicians, particularly when relationships were already established.
4. In Chronic Care management, we found no evidence that care improved under SPs and several measures worsened. As an example, **Pharmacotherapy Management of COPD Exacerbation (PCE)** increased at SP launch but is similar to the expected level at the end of the study period – but the decrease is

pretty notable at the time of expansion. This is apparent for both the bronchodilator and corticosteroid trends. Throughout most of these metrics, we see an unequivocal lower rate after expansion that leads to a lower slope after SP launch. Although Medicaid expansion is not a focus of this report *per se*, the degree to which the values were unequivocally lower during this period is noteworthy in and of itself but also may be lowering the estimated effect of SP launch. This may be a consequence of who the expansion population entailed (there is evidence presented below and in the SUD report that they tended to be more likely to have a substance use disorder), or it could be a consequence of a large number of enrollees with limited claims history.

5. For behavioral health metrics we see generally positive evidence. **Follow-Up Care for Children Prescribed ADHD Medication (ADD)** improved over time. But **Use of First-Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)** dropped considerably, however. The **Initiation and Engagement in Treatment** (IET) metrics were consistently higher post SP launch. One thing to note on the IET metrics is that the pandemic saw a decrease in the rates that manifested prior to SP launch, and the post-launch values slowly returned back to the pre-pandemic values though a clear positive slope. In contrast with the patterns shown in chronic care, we see higher rates for IET for the expansion population – especially for alcohol. This is consistent with the expansion population having higher rates of SUD and a high degree of chronic comorbidity and getting appropriate SUD treatment but not having their physical healthcare needs met as well.
6. Qualitative findings help contextualize observed patterns in medication utilization by highlighting persistent, system-level barriers to medication access under the Medicaid waiver. Providers described frequent delays in medication initiation and refills driven by prior authorization requirements, plan-specific formulary variation, and administrative complexity, which disrupted continuity of pharmacotherapy and complicated adherence to guideline-based treatment. Beneficiaries similarly reported fragmented medication access, including delayed refills, uncertainty about coverage, repeated authorization requirements, and unexpected out-of-pocket costs, often resulting in missed doses or temporary discontinuation. Many beneficiaries reported assuming responsibility for tracking prescriptions, refills, and coverage changes across providers, pharmacies, and plans, increasing the risk of treatment interruptions. Additional life circumstances and competing responsibilities also affected beneficiaries' ability to manage their medications, contributing to nonadherence and highlighting the need for improved support.

7. The follow up after hospitalization (FUH) metrics tell a pretty consistent story across the board of a lack of progress by SPs. Again, this is consistent with patterns in other metrics suggesting that SPs (or providers caring for those beneficiaries) are not engaging as well with beneficiaries during and immediately following hospitalization.

Qualitative findings help interpret why improvements are uneven across behavioral health measures and why postlaunch levels remain depressed for some metrics. Providers and beneficiaries repeatedly described persistent access constraints in behavioral health, especially limited numbers of Medicaid accepting clinicians, long waits, and geographic/language capacity gaps, which can reduce timely initiation of care and sustained engagement after an index event. Providers also emphasized that administrative hurdles (credentialing complexity, prior authorization requirements, and inconsistent coverage policies across plans, particularly for psychiatric medications) can delay treatment initiation and disrupt continuity of care, even when beneficiaries are motivated to engage. Beneficiary interviews note that that fragmentation between physical and behavioral health systems commonly left patients coordinating their own care, repeating histories, or manually transferring information unless a unified EHR/portal reduced that burden. At the same time, qualitative data point to a key facilitator that may align with improvements in measures like ADD: many beneficiaries described PCPs as the first point of identification for behavioral health needs and a critical bridge to referrals, while providers viewed integrated behavioral health in primary care as a "force multiplier" that increases capacity to manage depression/anxiety and connect patients to appropriate services.

8. Turning to Expenditures, we need to start with the reminder of the adjustment to inpatient rates that was coincident with SP implementation: coinciding with the transition to Medicaid Managed Care there was a change in reimbursements to hospitals moving from supplemental payments to a base payment methodology, which created an apparent increase in inpatient free rates but only because the supplemental payments were excluded in the pre-launch. **Outpatient expenditures** decreased and **prescription drug expenditures** increased, but only slightly. When including the patterns in inpatient and ED use, this is not quite the hypothesized pattern for initiatives aimed at lowering cost – an increase in high value, preventive services like outpatient and prescription drugs leading to a decrease in use of care in high-cost settings. A lower probability of behavioral health service in the initial months reinforces the findings for behavioral health above – and may at least be partially driven by the SUD waiver. Qualitative findings from beneficiary interviews provide important context for the rise in prescription spending. Beneficiaries frequently emphasized the stabilizing role of ongoing pharmacotherapy in managing symptoms and preventing crises. At the same time, beneficiaries reported financial strain related to medications, including difficulty affording copays, transportation to pharmacies, and tradeoffs between medications and basic necessities, suggesting that even small increases in prescription spending may reflect more consistent medication adherence. Some beneficiaries also described switching medications or remaining on newer therapies as coverage stabilized, which may further contribute to higher prescription expenditures.
9. There is little evidence that Tier 3 Advanced Medical Homes led to improvements in any metrics of note compared to Tier 1 and 2 Advanced Medical Homes, and the enthusiasm at launch did not really transpire into observed benefits. While there was

growth in the number AMH level 3 providers, the outcomes of AMH level 3 and level 1-2 are indistinguishable. The interviews provide some insight into some of the reasons why this growth didn't translate into changes in outcomes – namely, that the costs associated with providing level 3 services were occasionally perceived as not worth the increased revenue. CINs served as the key infrastructure, but providers reported that attribution challenges limited their ability to translate the infrastructure into measure improvement for beneficiaries.

10. The launch of Standard Plans did not affect all populations equally; there was substantial evidence of heterogeneity in the effect of transformation. In some cases, disparities narrowed, but in others, they grew. For example, African-American beneficiaries did not see the decreases in ED and inpatient use – and in some cases saw an increase.

Taken together, the strongest and most consistent strengths of the transformation emerge in chronic care management and expenditures, where Standard Plans appear to improve management and reduce high-cost utilization. In contrast, the most persistent challenges center on engaging beneficiaries during and immediately after hospital discharge and maintaining performance on wellness and preventive services, where declines at launch often persist or recover only partially. Patterns in the expansion period appear to suggest that the expansion population differs from the pre-expansion and may be affecting the estimated effects of the standard plan launch.

Tailored Plans

There are not many data points following TP launch, so we are more limited in our discussion.

We see similar patterns for wellness, chronic care, and hospital-based care as we observed in the SP analyses. For the behavioral health metrics, we expected TPs to excel. However, we saw **use of BH** decrease and many of the measures of follow up care after behavioral health hospitalization or emergency department use declined. Measures of substance use initiation did not show progress, although one of the brightest spots for TPs is the greater engagement for all types of SUD treatments among those who have initiated. **Prescription expenditures** are higher, which may mean that TPs are keeping people on medications or possibly switching to newer medications.

Qualitative findings provide important context for these mixed results. Providers and beneficiaries consistently described TPs as offering more intensive care management and stronger connections to behavioral health and social services, particularly for individuals with serious mental illness, substance use disorders, and complex needs. At the same time, interviews highlight significant operational challenges during TP implementation, including confusion about plan distinctions, fragmented transitions between SPs and TPs, administrative complexity, and persistent provider capacity constraints. Beneficiaries

described behavioral health coverage under TPs as stabilizing and essential, particularly for medication access and crisis prevention, which may help explain higher prescription expenditures and potentially greater medication continuity. However, both providers and beneficiaries noted that navigation challenges, siloed systems, and workforce shortages continue to limit outpatient engagement and timely follow-up.

Table 74 below summarizes the results of all measures at the end of the demonstration period. Measures where notable progress was observed for either the SP or TP population are highlighted.

Table 74: Results Summary

Measure (Metric abbreviation)	SP effects at SER (Nov 2024)	SP progress (Y/N)	TP effects at SER (Nov 2024)	TP progress (Y/N)	Methods††
Hypothesis 1.1: The implementation of Medicaid managed care will increase access to health care and improve the quality of care and health outcomes.					
Well-Child Visits (W30): Well-Child Visits in the First 15 Months of Life	I	Y	--	--	ITS
Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life	I	Y	--	--	ITS
Child and Adolescent Well-Care Visits (WCV)	ND	N	--	--	U
Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2	D	N	ND	N	CITS
Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13	I	Y	ND	N	ITS
Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation	D	N	D	N	ITS
Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition	D	N	ND	N	ITS
Infant Mortality: Deaths per 1,000 live births	ND	N	--	--	U

Neonatal Mortality: Deaths per 1,000 live births	ND	N	--	--	U
Death Rate by Group: Death Rate within 12 months Post-prison Release	ND	N	--	--	U
Death Rate by Group: Death Rate for people ever with an SMI	D	Y	--	--	U
Death Rate by Group: Death Rate for SUD Population	D	Y	--	--	U
Appropriate Testing for Pharyngitis	I	Y	ND	N	ITS
Appropriate Treatment for Upper Respiratory Infection	D	N	ND	N	ITS
Avoidance of Antibiotic Treatment in Children with Acute Bronchitis/Bronchiolitis (AAB)	I	Y	--	--	U
Avoidance of Antibiotic Treatment in Adults with Acute Bronchitis/Bronchiolitis (AAB)	I	Y	--	--	U
Monthly Dental Visit (ADV)	D	N	ND	N	ITS
Women's Preventive Care: Breast Cancer Screening (BCS) among Women Aged 50 to 70	ND	N	--	--	U
Women's Preventive Care: Cervical Cancer Screening (CCS) among Women Aged 21 to 64	D	N	--	--	U
Women's Preventive Care: Screening for Pregnancy Risk	D	N	ND	N	U
Women's Preventive Care: Chlamydia Screening (CHL) in Women ages 16-20	I	Y	--	--	U
Women's Preventive Care: Chlamydia Screening (CHL) in Women ages 21-24	I	Y	--	--	U

Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members under 21	ND	N	ND	N	ITS
Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care among Women 21 and older	I	Y	ND	N	ITS
Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21	ND	N	ND	N	ITS
Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+	I	Y	ND	N	ITS
Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 3 days of delivery	D	--	D	--	ITS
Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 90 days of delivery	D	--	ND	--	ITS
Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery	ND	--	ND	--	ITS
Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 90 days of delivery	ND	--	ND	--	ITS
Low-Risk Cesarean Delivery (LRCD)	ND	N	ND	N	ITS
Asthma Medication Ratio (AMR) in children	D	N	--	--	U
Asthma Medication Ratio (AMR) in adults	D	N	--	--	U

Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Bronchodilator	D	N	ND	N	ITS
Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid	ND	N	ND	N	ITS
Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC)	D	N	D	N	ITS
Statin Therapy: Statin Therapy for Patients with Diabetes (SPD)	D	N	D	N	ITS
Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP)	D	N	D	N	U
Access to Preventive/Ambulatory Health Services (AAP): For Adult Medicaid Beneficiaries	D	N	D	N	ITS
Prevention Quality Indicators Composite (PQI-90): Rate of Any Ambulatory Sensitive Care Conditions per 100,000	ND	N	--	--	U
Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions	ND	N	ND	N	ITS
Poor Physical Health Days in the past 30 days	ND	N	--	--	DiD
Poor Mental Health Days in the past 30 days	ND	N	--	--	DiD
Overweight/Obesity (BMI > 25) rate	ND	Y	--	--	DiD
Number of self-reported binge drinking episodes in the past 30 days	ND	N	--	--	DiD
Current tobacco use	D	Y	--	--	DiD

Low Birth Weight (LBW): Percent of Live Births Weighing Less than 2500 Grams	ND	N	ND	N	ITS
Hypothesis 1.2: The implementation of Medicaid managed care will I the rate of use of behavioral health services at the appropriate level of care and improve the quality of behavioral health care received					
Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service	ND	N	D	N	ITS (Sheps Proxy)
Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD	D	N	D	N	ITS (Sheps Proxy)
Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation	I	Y	ND	N	ITS (Sheps Proxy)
Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation	I	Y	ND	N	ITS (Sheps Proxy)
Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)	ND	N	ND	N	ITS (Sheps Proxy)
Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days	I	Y	ND	N	ITS (Sheps Proxy)
Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days	ND	N	ND	N	ITS (Sheps Proxy)
Inpatient Admissions for SUD	I	N	D	Y	ITS (Sheps Proxy)
Inpatient Admissions for SUD in the OUD population	ND	N	ND	N	ITS (Sheps Proxy)
Emergency Department Visits for SUD	I	N	I	N	ITS (Sheps Proxy)

Emergency Department Visits for SUD in the OUD population	I	N	I	N	ITS (Sheps Proxy)
30-day Hospital Readmissions Among Beneficiaries with SUD (M25)	ND	N	ND	N	ITS (Sheps Proxy)
Use of Behavioral Health Care for People with SMI/SUD/SED	--	--	D	N	ITS (Sheps Proxy)
Incarceration of Adults with Drug Related Charges	I	N	ND	N	ITS (Sheps Proxy)
Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)	I	Y	ND	N	ITS (Sheps Proxy)
Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)	I	Y	I	Y	ITS (Sheps Proxy)
Initiation of Alcohol Abuse or Dependence Treatment (IET-AD)	I	Y	ND	N	ITS (Sheps Proxy)
Engagement of Alcohol Abuse or Dependence Treatment (IET-AD)	I	Y	I	Y	ITS (Sheps Proxy)
Initiation of Other Drug Abuse or Dependence Treatment (IET-AD)	I	Y	ND	N	ITS (Sheps Proxy)
Engagement of Other Drug Abuse or Dependence Treatment (IET-AD)	ND	N	ND	N	ITS (Sheps Proxy)
Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 7 Days of ED Visit	ND	N	ND	N	ITS (Sheps Proxy)
Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 30 Days of ED Visit	D	N	ND	N	ITS (Sheps Proxy)

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 7 Days After ED Visit	D	N	ND	N	ITS (Sheps Proxy)
Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit	D	N	ND	N	ITS (Sheps Proxy)
Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge	ND	N	ND	N	ITS (Sheps Proxy)
Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge	ND	N	ND	N	ITS (Sheps Proxy)
Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge	ND	N	ND	N	ITS (Sheps Proxy)
Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge	ND	N	ND	N	ITS (Sheps Proxy)
Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with PCP	ND	N	D	N	ITS (Sheps Proxy)
Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with PCP	ND	N	D	N	ITS (Sheps Proxy)
Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with enhanced service	I	Y	ND	N	ITS (Sheps Proxy)

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with mental health provider	ND	N	ND	N	ITS (Sheps Proxy)
Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with mental health provider	I	Y	ND	N	ITS (Sheps Proxy)
Adherence to Antipsychotic Medications for Individuals with Schizophrenia (SAA)	--	--	--	--	ITS (Sheps Proxy)
Hypothesis 1.3: The implementation of Medicaid managed care will increase the use of medication-assisted treatment (MAT) and other opioid treatment services and decrease the long-term use of opioids					
Medication Assisted Treatment: OUD population (SUD 12)	I	Y	ND	N	ITS (Sheps Proxy)
Continuity of Pharmacotherapy for OUD for 180 days or more (SUD22)	D	N	--	--	U
Use of Opioids from Multiple Providers in Persons Without Cancer (OMP)	ND	N	--	--	U
Use of Opioids at High Dosage in Persons without Cancer (OHD-AD/SUD18)	I	N	--	--	U
Use of Opioids at High Dosage and from Multiple Providers in Persons without Cancer (OHDMP)	ND	N	--	--	U
Concurrent Use of Opioids and Benzodiazepines (COB-AD/SUD 21)	D	Y	--	--	U
Initiation of Opioid Abuse or Dependence Treatment (IET-AD)	I	Y	ND	N	ITS (Sheps Proxy)
Engagement of Opioid Abuse or Dependence Treatment (IET-AD)	I	Y	ND	N	ITS (Sheps Proxy)

Hypothesis 2.1: The implementation of Medicaid managed care will decrease the use of emergency departments for non-urgent use and hospital admissions for ambulatory sensitive conditions					
Hospital Admissions: Proportion of members with a hospital admission	D	Y	D	Y	ITS
Hospital Admissions: Number of days per month for beneficiaries with a hospital admission	D	Y	ND	N	ITS
Emergency Department Visits: Rate of members with emergency department visits	D	Y	ND	N	ITS
Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit	D	Y	D	Y	ITS
Hypothesis 2.2 The implementation of Medicaid managed care will increase the number of enrollees receiving care management, overall and during transitions in care					
Percent of Enrollees Receiving Care Management	I	Y	I	Y	ITS
Transitions of Care (TRC)	D	Y	D	N	ITS
Time to first SDOH Screening Contact Attempt from PHP Enrollment Date	--	--	--	--	U
Time to first SDOH Screening Completion from PHP Enrollment Date	--	--	--	--	U
Hypothesis 2.3 The implementation of Medicaid managed care will reduce Medicaid program expenditures.					
Medicaid Expenditures: Per Member Per Month Total Medicaid Service Expenditures	I	--	I	--	U
Medicaid Expenditures: Proportion of beneficiaries with an expenditure	I	--	I	--	ITS
Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries	D	--	D	--	ITS

Medicaid Expenditures: Per Member Per Month Medicaid Service Inpatient Expenditures	I	N	ND	N	U
Medicaid Expenditures: Per Member Per Month Medicaid Service Inpatient Expenditures	D	Y	D	Y	ITS
Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Inpatient services expenditure	I	N	ND	N	ITS
Medicaid Expenditures: Per Member Per Month Medicaid Service ER Expenditures	I	N	ND	N	U
Medicaid Expenditures: Proportion of beneficiaries with an ER expenditure	D	Y	ND	N	ITS
Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an ER expenditure	I	N	I	N	ITS
Medicaid Expenditures: Per Member Per Month Medicaid Service Outpatient Expenditures	ND	--	ND	--	U
Medicaid Expenditures: Proportion of beneficiaries with an Outpatient expenditure	I	Y	D	N	ITS
Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient expenditure	D	--	I	--	ITS
Medicaid Expenditures: Per Member Per Month Medicaid Service Outpatient E&M Expenditures	ND	--	ND	--	U
Medicaid Expenditures: Proportion of beneficiaries with an Outpatient E&M expenditure	I	Y	D	N	ITS

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient E&M expenditure	D	--	I	--	ITS
Medicaid Expenditures: Behavioral Health Expenditures Per Member Per Month	I	--	I	--	U
Medicaid Expenditures: Behavioral health expenditures among beneficiaries with a BH expenditure	I	--	I	--	ITS
Medicaid Expenditures: Proportion of beneficiaries with a behavioral health expenditure	I	Y	ND	N	ITS (Sheps Proxy)
Medicaid Expenditures: Acute Care Crisis Expenditures Per Member Per Month	I	--	I	--	U
Medicaid Expenditures: Proportion of beneficiaries with an Acute Care Crisis expenditure	D	--	ND	--	ITS (Sheps Proxy)
Medicaid Expenditures: Acute Care Crisis Services among users	I	N	ND	N	ITS (Sheps Proxy)
Medicaid Expenditures: Per Member Per Month Medicaid Service Prescription Expenditures	I	--	I	--	U
Medicaid Expenditures: Proportion of beneficiaries with a Prescription Expenditure	I	--	I	--	ITS
Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had a prescription expenditure	I	--	I	--	ITS
Medicaid Expenditures: Per Member Per Month Medicaid Service Dental Expenditures	D	--	ND	--	U

Medicaid Expenditures: Proportion of beneficiaries with a Dental expenditure	D	N	D	N	ITS
Medicaid Expenditures: Total Medicaid Services Expenditures for beneficiaries who had a Dental expenditure	D	N	D	N	ITS
Hypothesis 2.4 The Implementation of Medicaid managed care will increase provider satisfaction and participation in the Medicaid Program.					
Provider Participation in Medicaid with SP Contracts	I	Y	--	--	U
Provider Participation in Medicaid with TP Contract	--	--	--	--	U
Total Provider Participation in Medicaid	I	Y	--	--	U
Total Mental Health Provider Participation in Medicaid	I	Y	--	--	U
Total Child and Adolescent Well-Care Visit Provider Participation in Medicaid	I	Y	--	--	U

††Methods include formal statistical tests (ITS [interrupted time series], CITS [comparative interrupted time series], DiD [difference-in-differences]) and untested descriptive methods (trends [annual, monthly, quarterly], PMPM [per member per month], CIF [cumulative incidence function]). The untested methods rely on visual inspection of descriptive trends. I = significant increase; D = significant decrease; ND = no significant difference; Y = yes; N = no; – = not applicable; U = untested (trends, CIF, PMPM). AMH measures under H1.4 are reported in a separate table. H1.5 is excluded because it summarizes disparities across subgroups rather than testing a measure-level effect.

Table 75 below summaries the results of all measures for Hypothesis 1.4 comparing AMH Tier 3 practices to AMH Tier 1-2 practices.

Table 75: AMH Measure Set Summary

AMH Measure Set	Measure (Abbreviation)	Adjusted difference between AMH3 and AMH1-2	AMH3 vs. AMH1-2 (Higher/Lower/No difference)	Methods
	Number of SP enrollees attributed to an AMH	--	ND	Unadjusted counts
	Number of Providers that contract with an SP by AMH Level	--	ND	Unadjusted counts
	Number of TP enrollees attributed to an AMH	--	ND	Unadjusted counts
	Number of Providers that contract with an TP by AMH Level	--	ND	Unadjusted counts
	Percent of Enrollees Receiving Care Management	1.54% pts	Higher	DiD
	Access to Preventive/Ambulatory Health Services (AAP)	0.84% pts	Higher	DiD
Y	Child and Adolescent Well-Care Visits (WCV)	--	Higher	Unadjusted trends
Y	Well-child visits in first 30 months (W30)	--	No difference	DiD
Y	Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21	--	No difference	DiD
Y	Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+	--	No difference	DiD
Y	Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for members under 21	--	No difference	DiD

Y	Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older	--	No difference	DiD
Y	Chlamydia Screening in Women in Women ages 16-20 (CHL)	--	Higher	Unadjusted trends
Y	Chlamydia Screening in Women in Women ages 21-24 (CHL)	--	Higher	Unadjusted trends
Y	Women's Preventive Care: Cervical Cancer Screening (CCS) among Women Aged 21 to 64	--	No difference	Unadjusted trends
Y	Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2	--	No difference	DiD
Y	Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13	--	No difference	DiD
	Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation	--	No difference	DiD
	Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition	-2.35% pts	Lower	DiD
	Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Physical Activity	--	No difference	DiD

Y	Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions	--	No difference	DiD
	Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days	--	No difference	DiD (Sheps Proxy)
	Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days	--	No difference	DiD (Sheps Proxy)
	Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge	--	No difference	DiD (Sheps Proxy)
	Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge	--	No difference	DiD (Sheps Proxy)
	Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge	--	No difference	DiD (Sheps Proxy)
	Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge	7.51% pts	Higher	DiD (Sheps Proxy)
	Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with enhanced service	--	No difference	DiD (Sheps Proxy)
	Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with enhanced service	--	No difference	DiD (Sheps Proxy)

	Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with mental health provider	--	No difference	DiD (Sheps Proxy)
	Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with mental health provider	--	No difference	DiD (Sheps Proxy)
	Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with PCP	--	No difference	DiD (Sheps Proxy)
	Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with PCP	7.73% pts	Higher	DiD (Sheps Proxy)
	Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation	--	No difference	DiD (Sheps Proxy)
	Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation	--	No difference	DiD (Sheps Proxy)
	Asthma Medication Ratio in Children (AMR)	--	No difference	Unadjusted trends
	Asthma Medication Ratio in Adults (AMR)	--	No difference	Unadjusted trends
	Prevention Quality Indicators Composite (PQI-90): Rate of Any Ambulatory Sensitive Care Conditions per 100,000	--		Unadjusted trends

Abbreviations

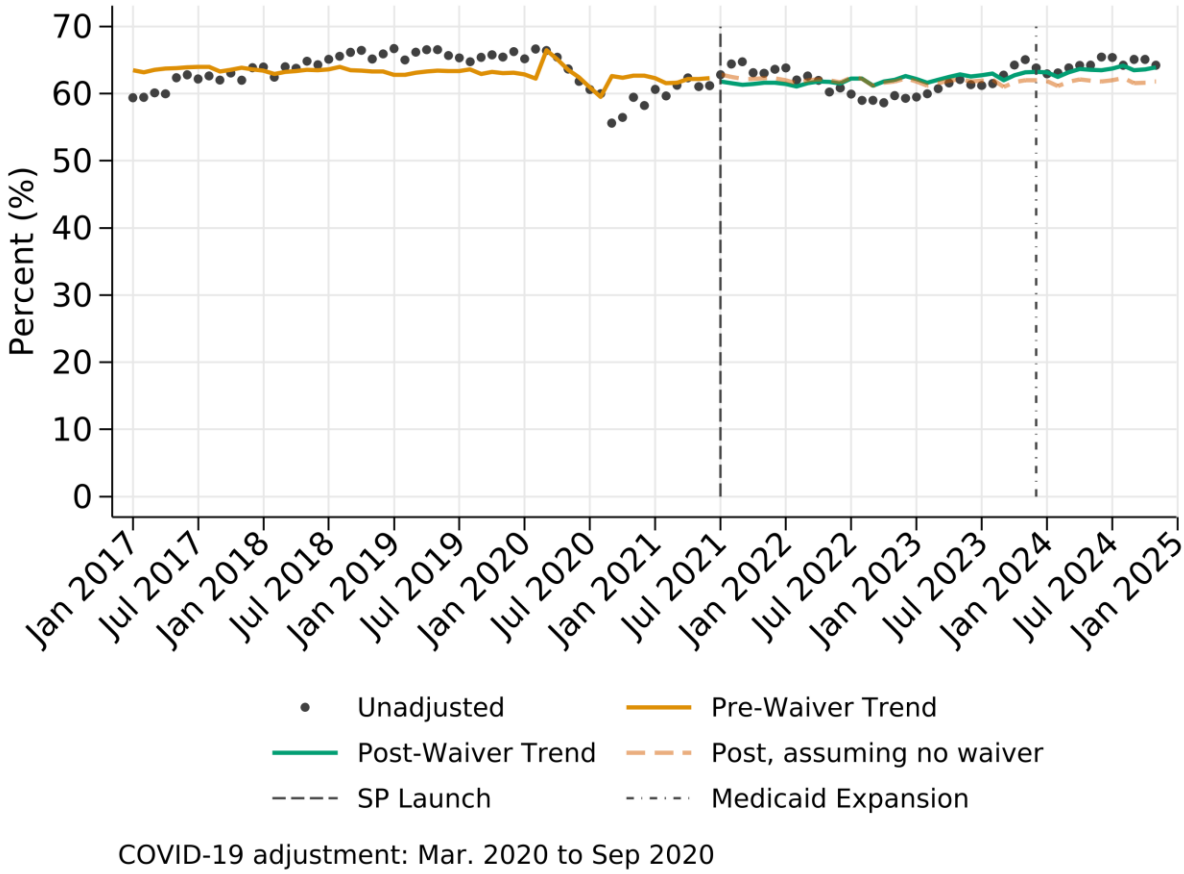
AMHs – Advanced Medical Homes
APMs – Alternative Payment Models
BRFSS – Behavioral Risk Factor Surveillance System
CDPS Rx – Chronic Illness and Disability Payment System with Prescription Use flags
CMS – Center for Medicare & Medicaid Services
DHHS – Department of Health and Human Services
DiD – Difference in differences
EBPs – Evidence-Based Practices
ED – Emergency Department
FFS – Fee-for-service
HOP – Healthy Opportunities Pilots
I/DD – Intellectual or Developmental Disabilities
IMD – Institute for Mental Disease
ITS – Interrupted time series
MOUD – Medications for Opioid Use Disorders
OUD – Opioid Use Disorder
PHPs – Prepaid Health Plans
PHE – Public Health Emergency
PMPM – Per-member per-month
PUMAs – Public Use Microdata Areas
SDOH – Social Determinants of Health
SER – Summative Evaluation Report
SMI – Severe Mental Illness
SPs – Standard Plans
SUD – Substance Use Disorder
TBI – Traumatic Brain Injuries
TPs – Tailored Plans
VBP – Value-Based Payments

Appendix A: Standard Plan Measures

Well-Child Visits (W30)

Well-Child Visits (W30): Well-Child Visits in the First 15 Months of Life (Figure)

Figure 1: Trends in Well-Child Visits (W30): Well-Child Visits in the First 15 Months of Life



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 15 month olds) in the NC Medicaid population as determined in the metric specifications.

Well-Child Visits (W30): Well-Child Visits in the First 15 Months of Life (Table)

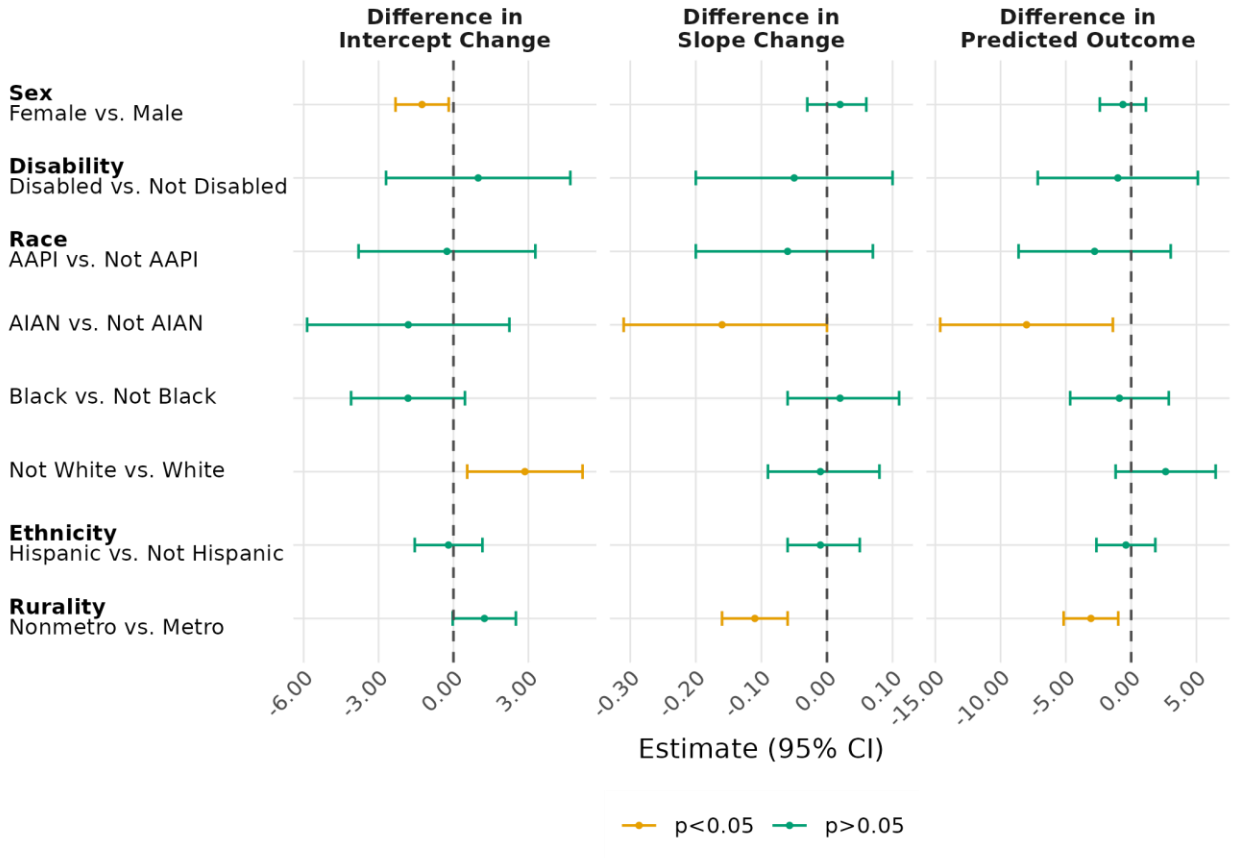
Table 1: Interrupted time series estimates of Well-Child Visits (W30): Well-Child Visits in the First 15 Months of Life

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	62.40* (62.00, 62.80)	61.37* (60.97, 61.76)	-1.03* (-1.59, -0.47)
Monthly Change	-0.028* (-0.040, -0.016)	0.050* (0.033, 0.067)	0.078* (0.057, 0.098)
Predicted Average Outcome Nov 2024	61.28* (60.43, 62.14)	63.36* (62.96, 63.75)	2.07* (1.13, 3.01)
N			483,271

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 15 month olds) in the NC Medicaid population as determined in the metric specifications.*

Well-Child Visits (W30): Well-Child Visits in the First 15 Months of Life (Contrast Plot)

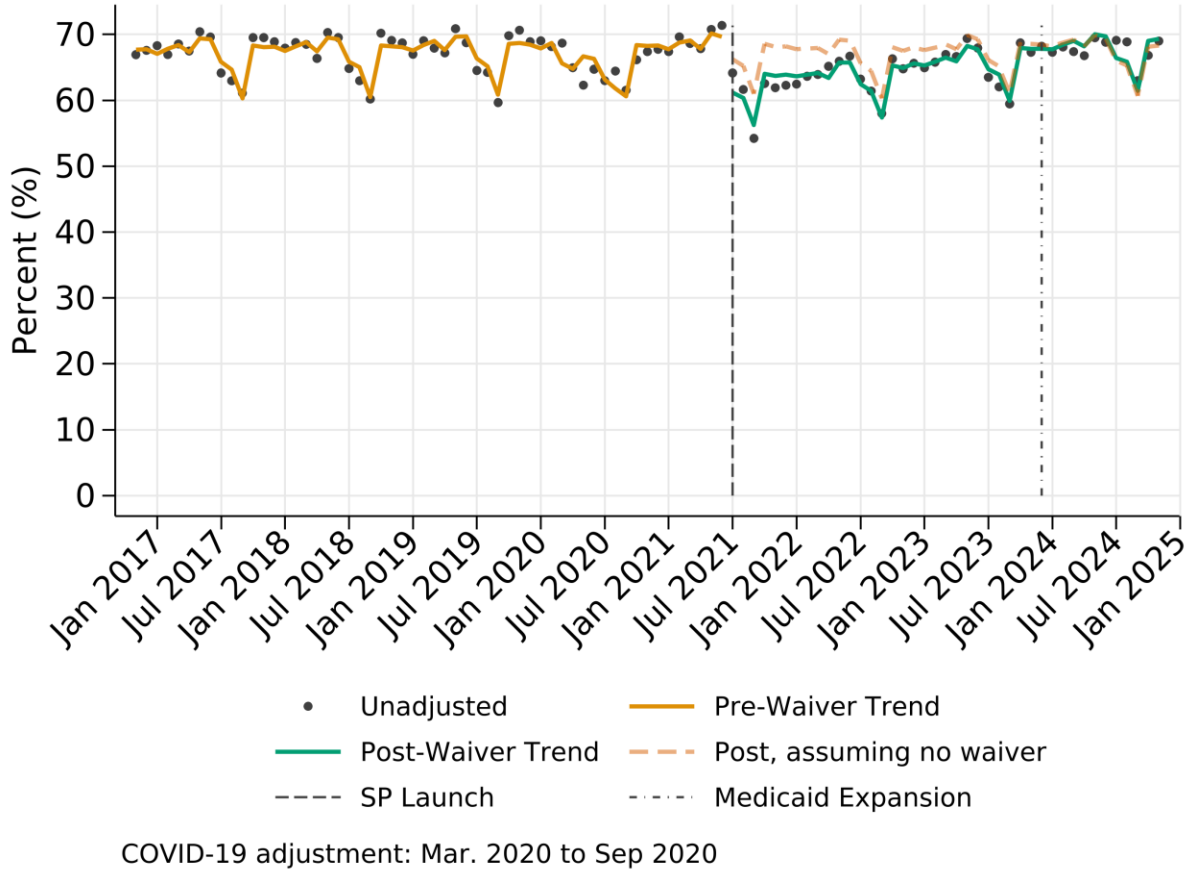
Figure 2: Comparison groups in Well-Child Visits (W30): Well-Child Visits in the First 15 Months of Life



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life (Figure)

Figure 3: Trends in Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 30 month olds) in the NC Medicaid population as determined in the metric specifications.

Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life (Table)

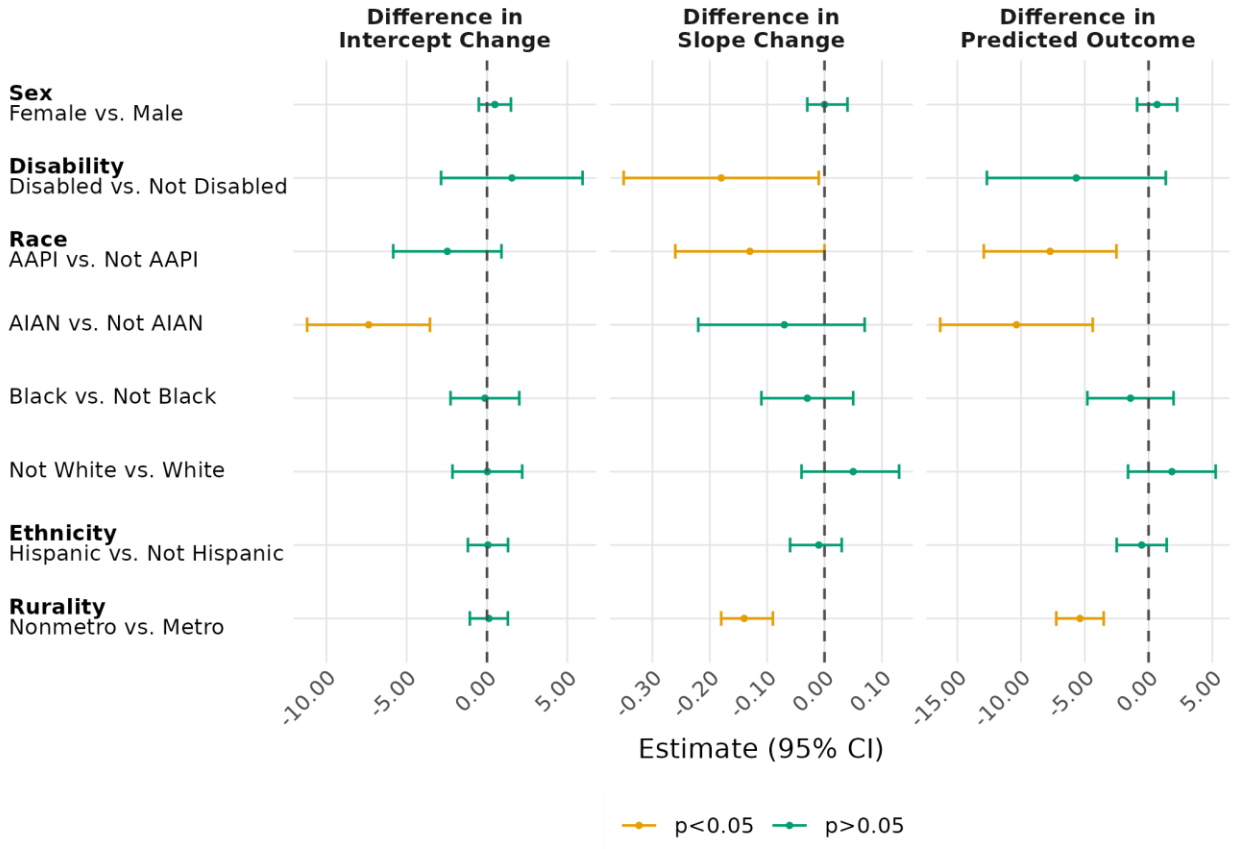
Table 2: Interrupted time series estimates of Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	67.35* (66.99, 67.71)	62.32* (61.94, 62.70)	-5.02* (-5.55, -4.50)
Monthly Change	0.0033 (-0.0071, 0.014)	0.16* (0.14, 0.17)	0.15* (0.13, 0.17)
Predicted Average Outcome Nov 2024	67.48* (66.72, 68.23)	68.52* (68.15, 68.90)	1.05* (0.21, 1.88)
N			548,264

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 30 month olds) in the NC Medicaid population as determined in the metric specifications.*

Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life (Contrast Plot)

Figure 4: Comparison groups in Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life

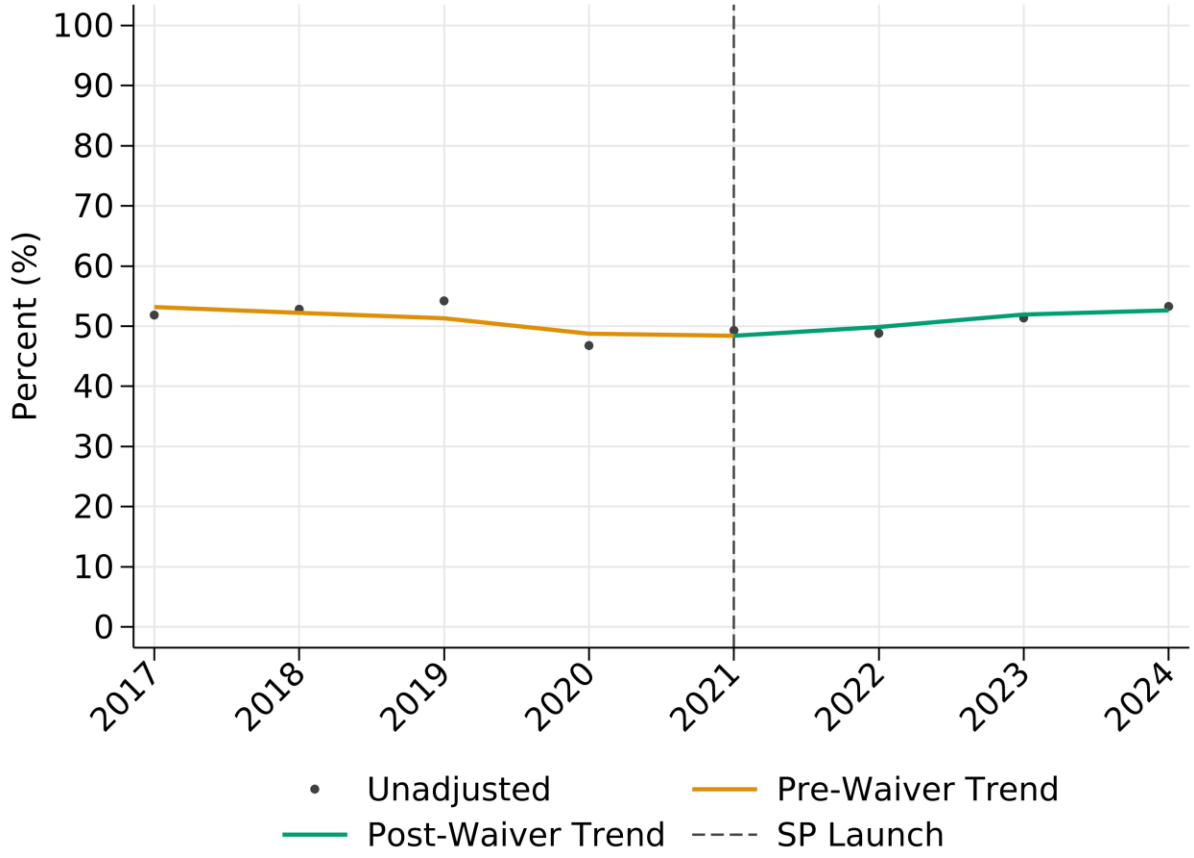


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Child and Adolescent Well-Care Visits (WCV)

Child and Adolescent Well-Care Visits (WCV) (Figure)

Figure 5: Trends in Child and Adolescent Well-Care Visits (WCV)

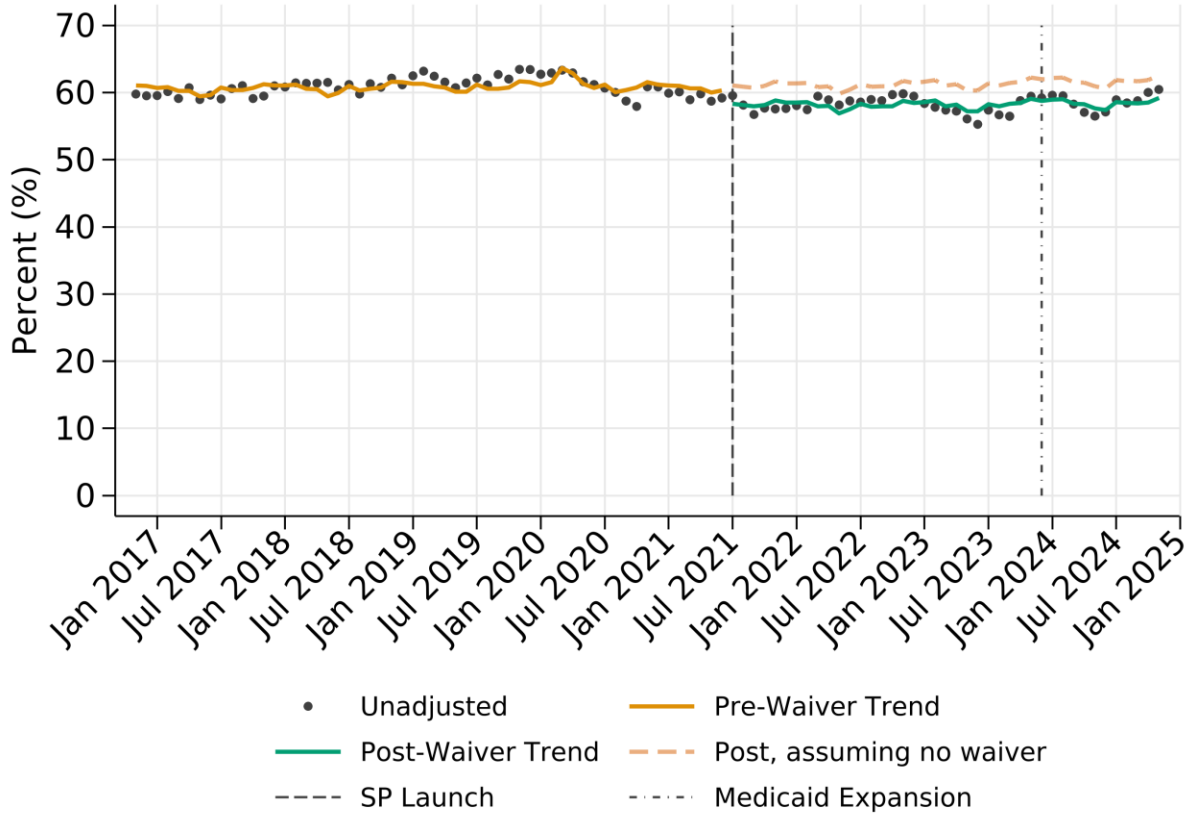


Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3-21) in the NC Medicaid population as determined in the metric specifications.

Childhood Immunization Status (CIS)

Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2 (Figure)

Figure 6: Trends in Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 1-2) in the NC Medicaid population as determined in the metric specifications.

Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2 (Table)

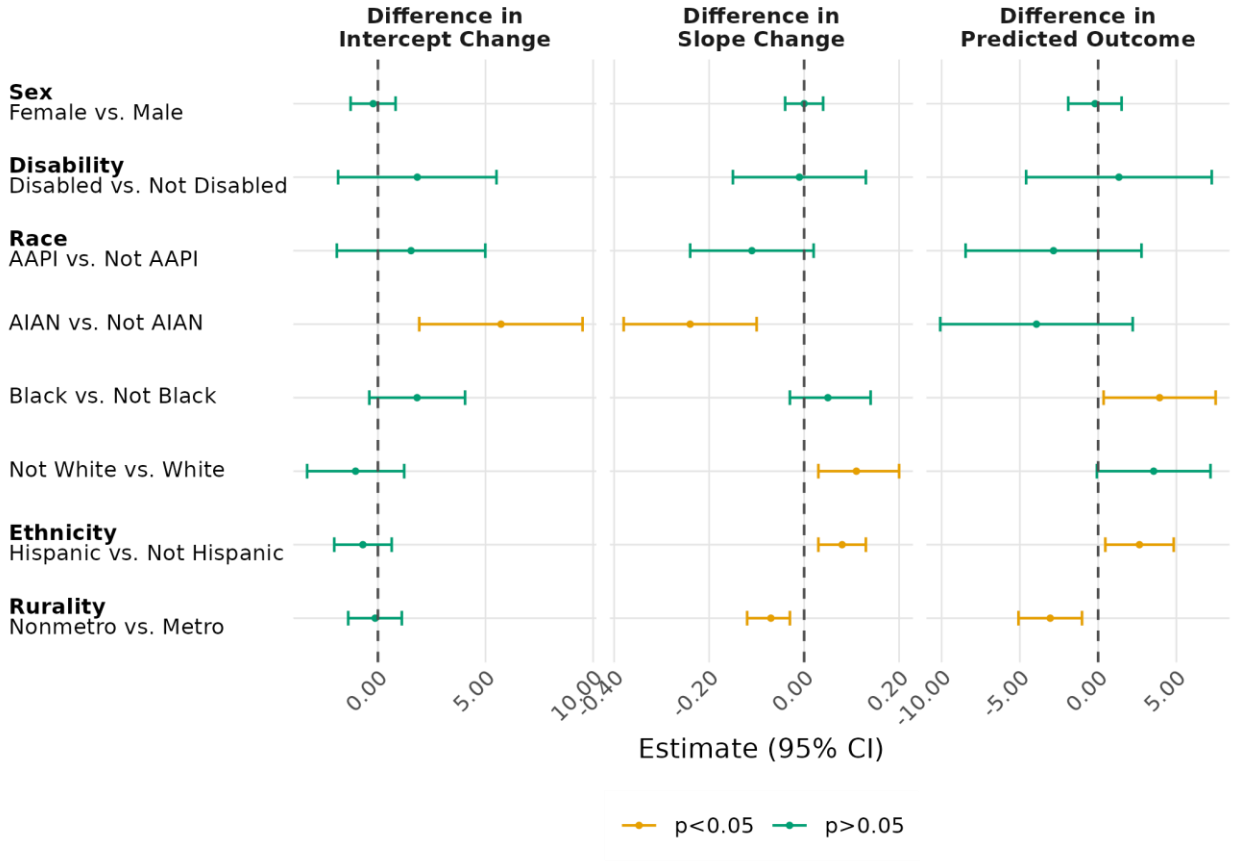
Table 3: Interrupted time series estimates of Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	61.05* (60.66, 61.45)	58.31* (57.92, 58.69)	-2.75* (-3.30, -2.20)
Monthly Change	0.011 (-0.0001, 0.023)	-0.0040 (-0.021, 0.013)	-0.015 (-0.035, 0.0049)
Predicted Average Outcome Nov 2024	61.50* (60.68, 62.32)	58.15* (57.75, 58.54)	-3.36* (-4.27, -2.45)
N			526,508

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 1-2) in the NC Medicaid population as determined in the metric specifications.*

Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2 (Contrast Plot)

Figure 7: Comparison groups in Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2

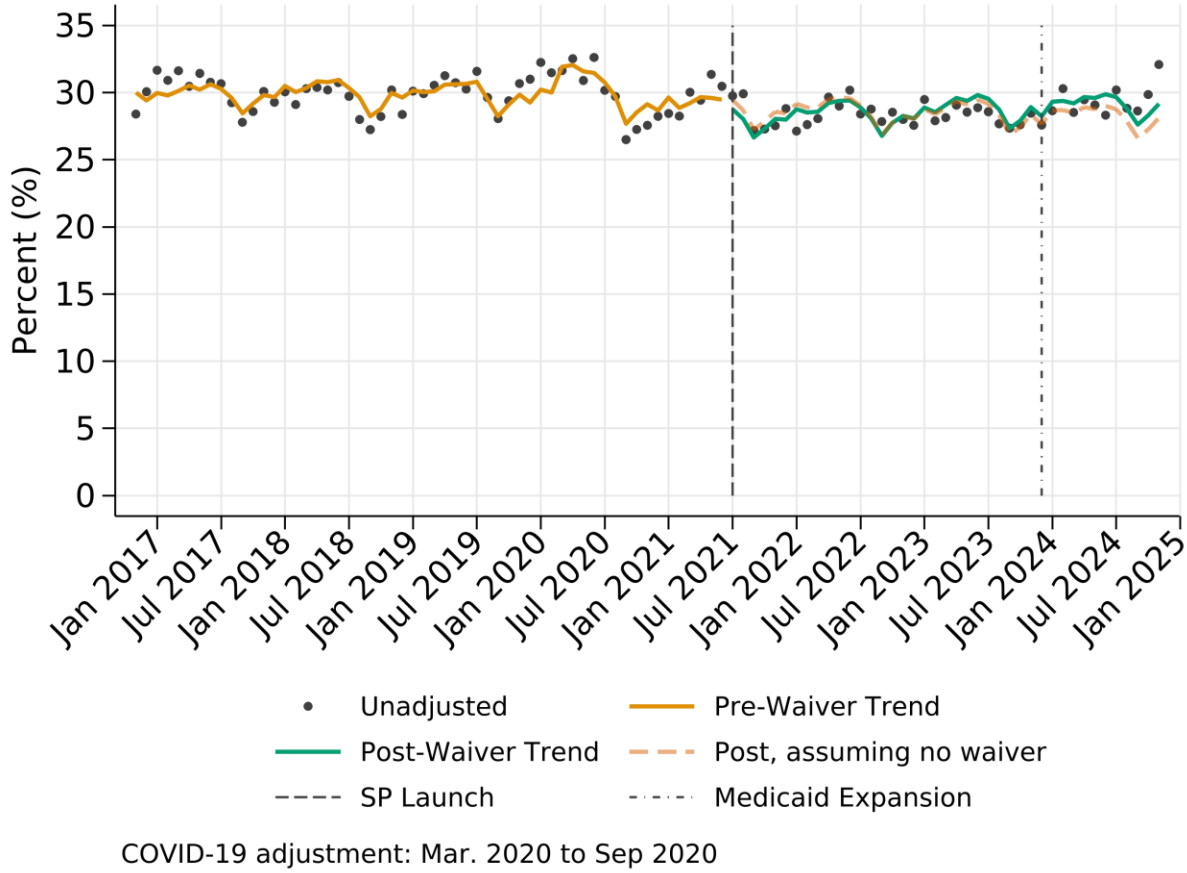


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Immunizations for Adolescents (IMA)

Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13 (Figure)

Figure 8: Trends in Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 12-13) in the NC Medicaid population as determined in the metric specifications.

Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13 (Table)

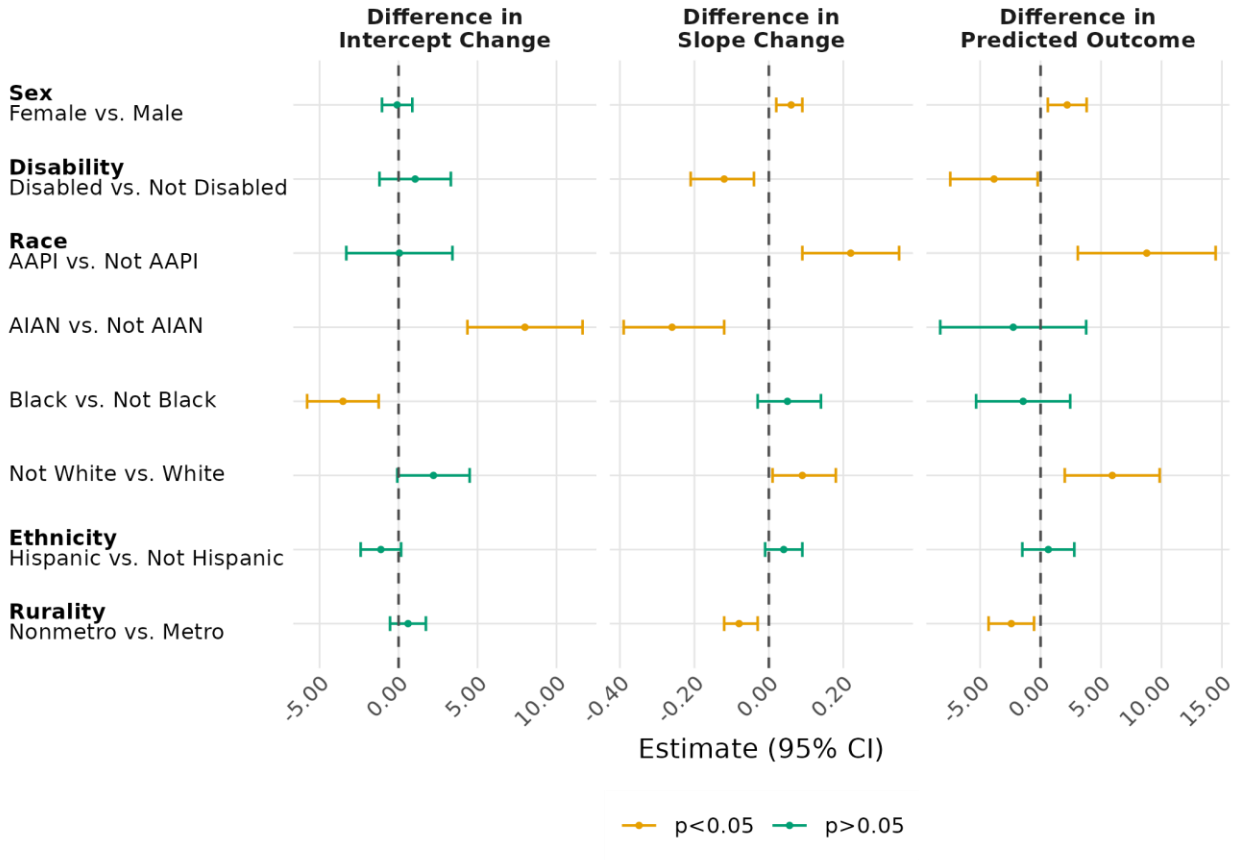
Table 4: Interrupted time series estimates of Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	29.04* (28.68, 29.40)	28.36* (28.01, 28.71)	-0.68* (-1.19, -0.18)
Monthly Change	-0.021* (-0.032, -0.0100)	0.023* (0.0079, 0.038)	0.044* (0.025, 0.063)
Predicted Average Outcome Nov 2024	28.21* (27.44, 28.98)	29.28* (28.93, 29.64)	1.07* (0.23, 1.92)
N			515,853

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 12-13) in the NC Medicaid population as determined in the metric specifications.*

Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13 (Contrast Plot)

Figure 9: Comparison groups in Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13

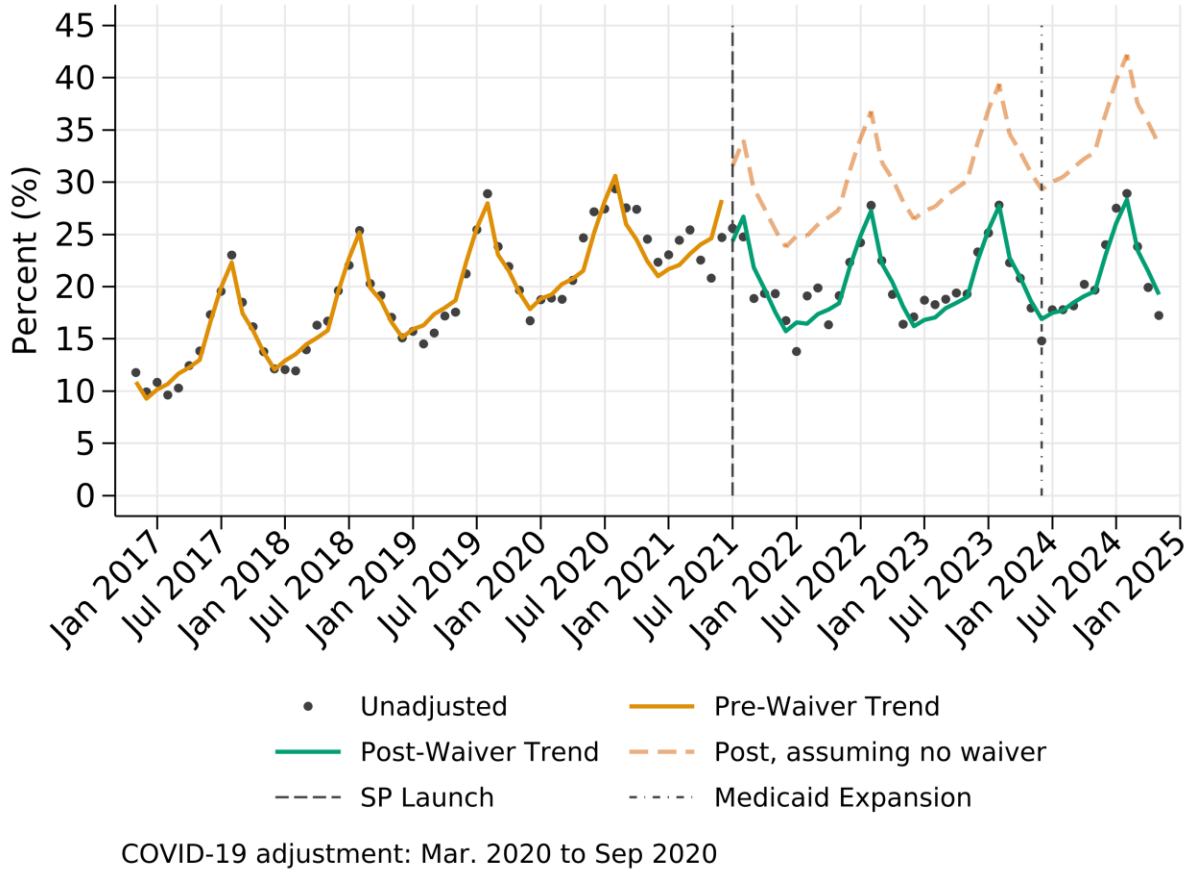


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC)

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation (Figure)

Figure 10: Trends in Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation (Table)

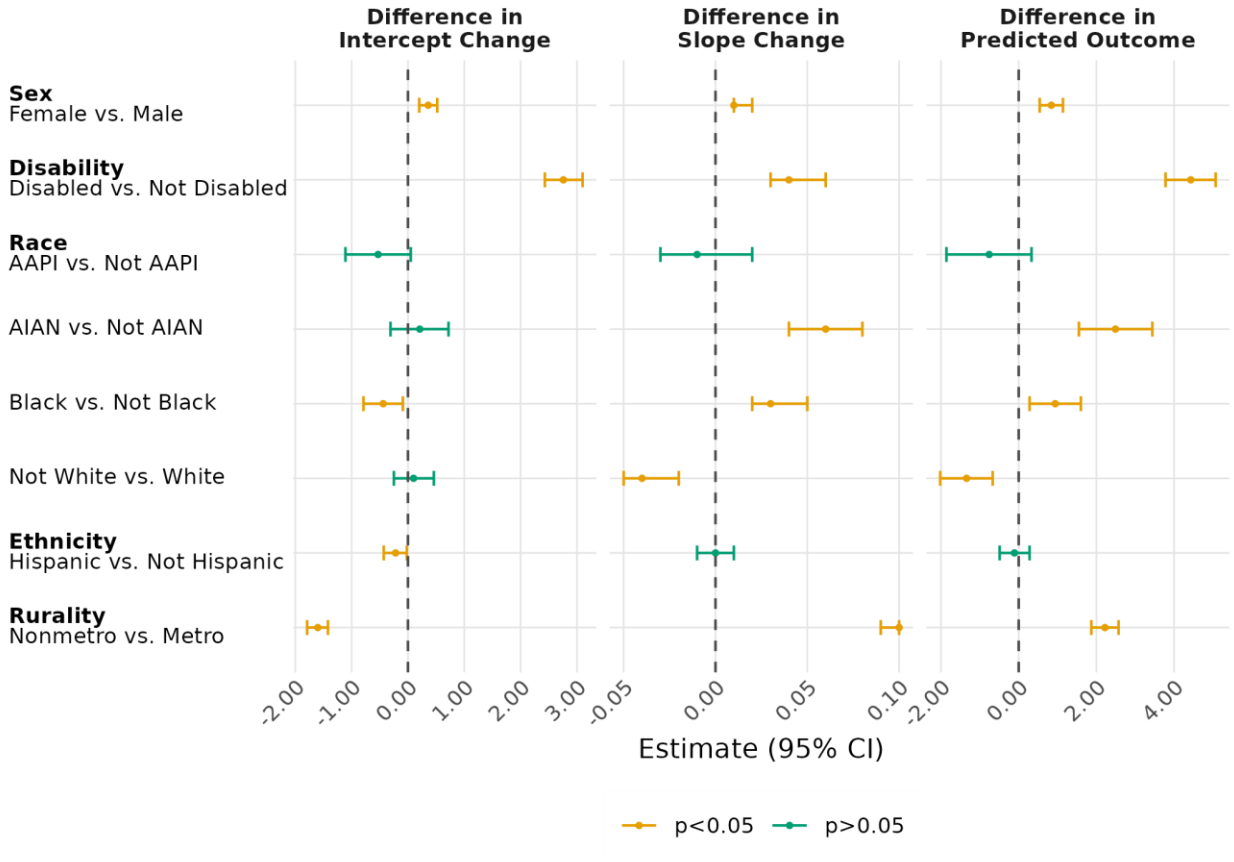
Table 5: Interrupted time series estimates of Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	26.08* (26.00, 26.15)	18.92* (18.85, 18.99)	-7.16* (-7.24, -7.08)
Monthly Change	0.24* (0.24, 0.24)	0.058* (0.056, 0.061)	-0.18* (-0.18, -0.18)
Predicted Average Outcome Nov 2024	35.64* (35.50, 35.78)	21.25* (21.18, 21.31)	-14.39* (-14.54, -14.24)
N			17,070,851

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.*

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation (Contrast Plot)

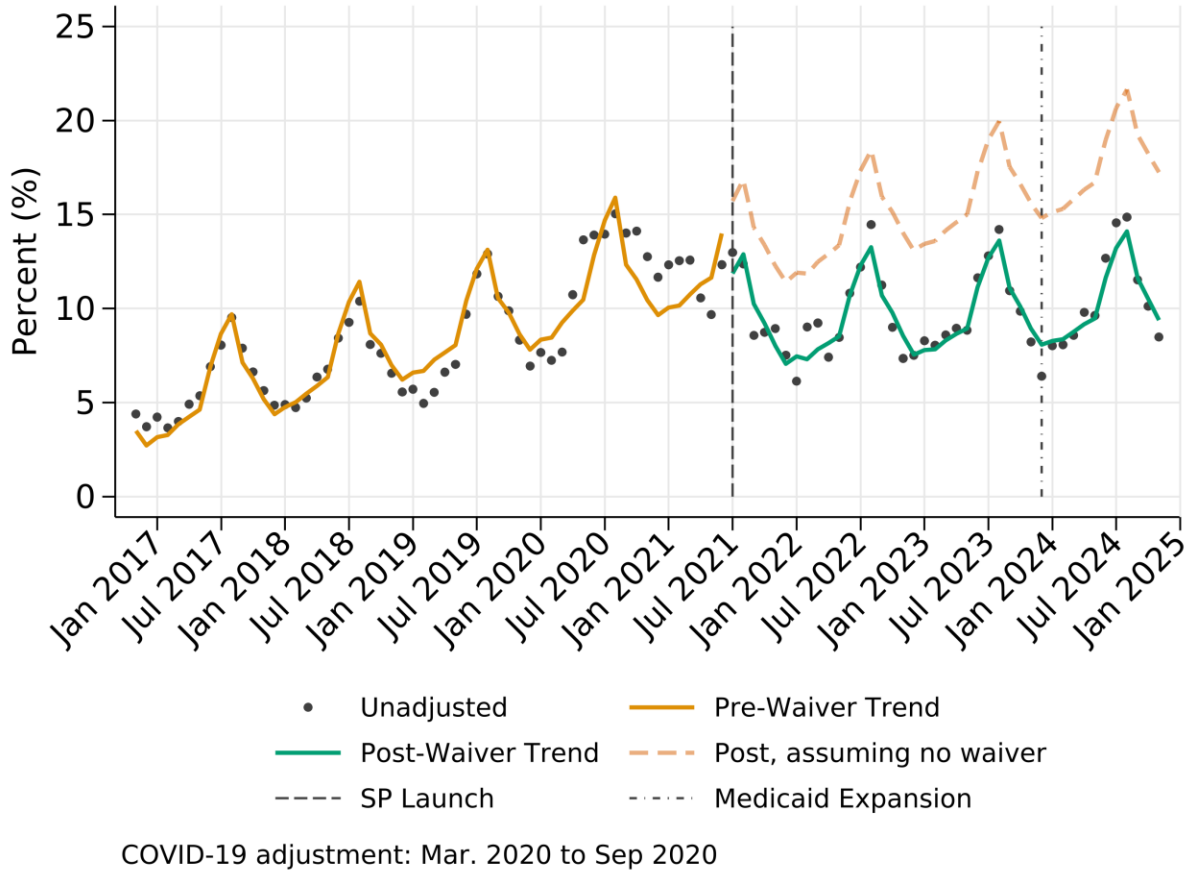
Figure 11: Comparison groups in Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition (Figure)

Figure 12: Trends in Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition (Table)

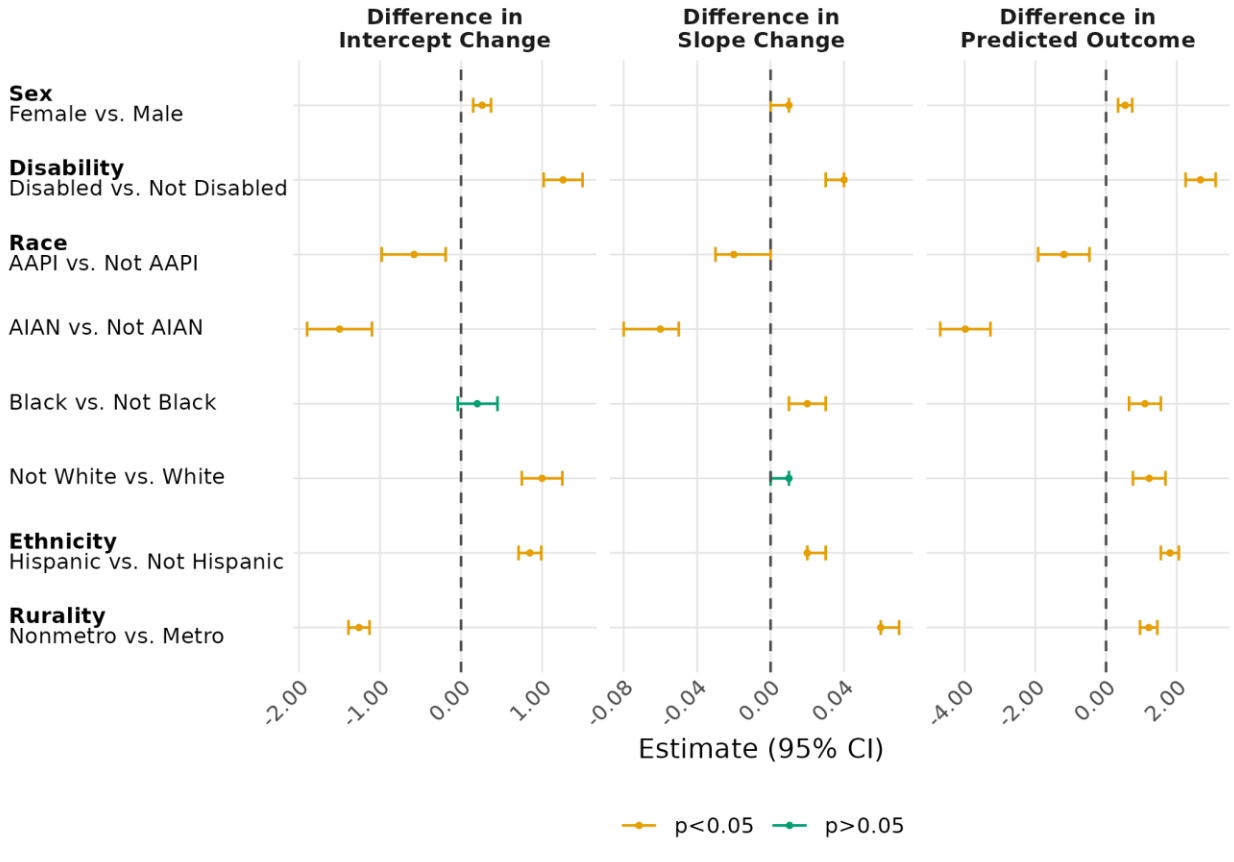
Table 6: Interrupted time series estimates of Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	12.53* (12.48, 12.59)	8.68* (8.63, 8.72)	-3.86* (-3.92, -3.80)
Monthly Change	0.14* (0.14, 0.15)	0.045* (0.043, 0.046)	-0.100* (-0.10, -0.097)
Predicted Average Outcome Nov 2024	18.31* (18.21, 18.41)	10.47* (10.43, 10.51)	-7.84* (-7.94, -7.74)
N			17,070,851

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.*

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition (Contrast Plot)

Figure 13: Comparison groups in Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition

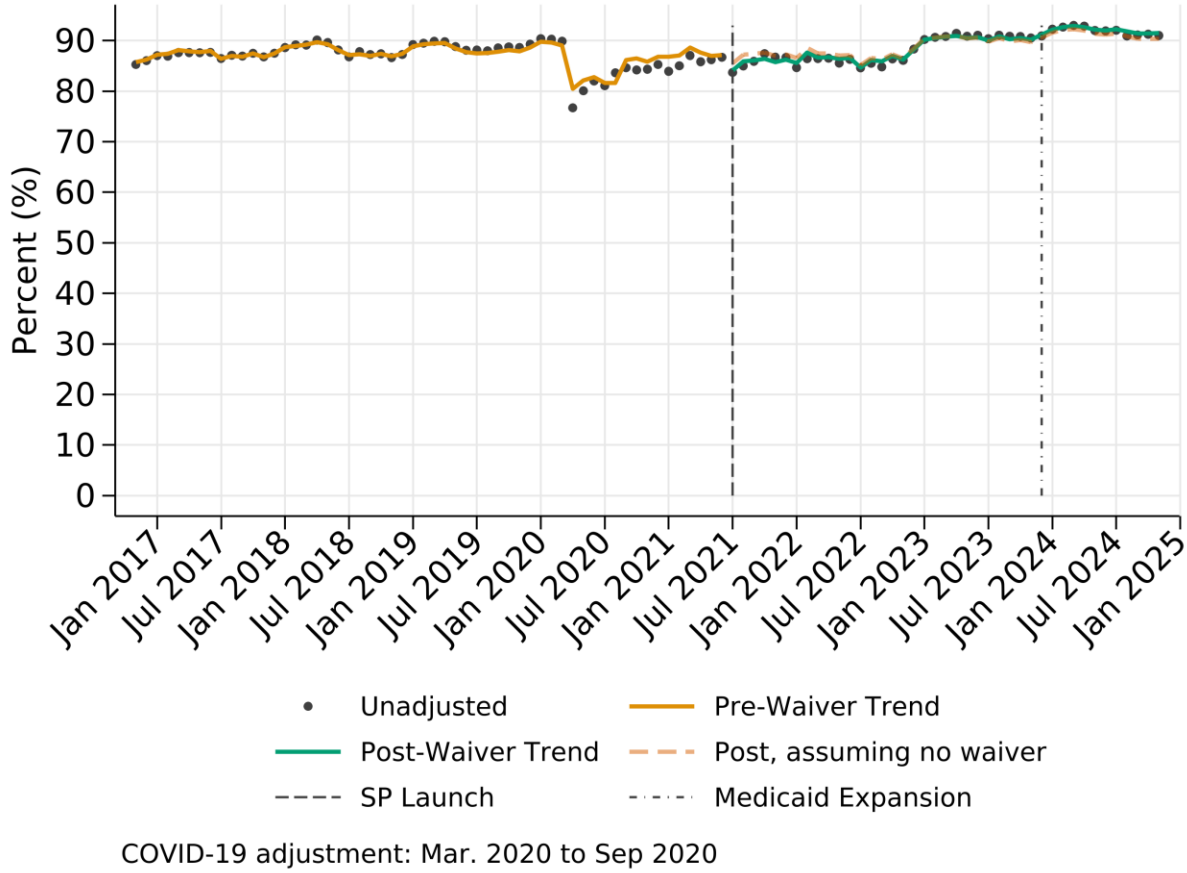


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Appropriate Testing for Pharyngitis

Appropriate Testing for Pharyngitis (Figure)

Figure 14: Trends in Appropriate Testing for Pharyngitis



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3-99) in the NC Medicaid population as determined in the metric specifications.

Appropriate Testing for Pharyngitis (Table)

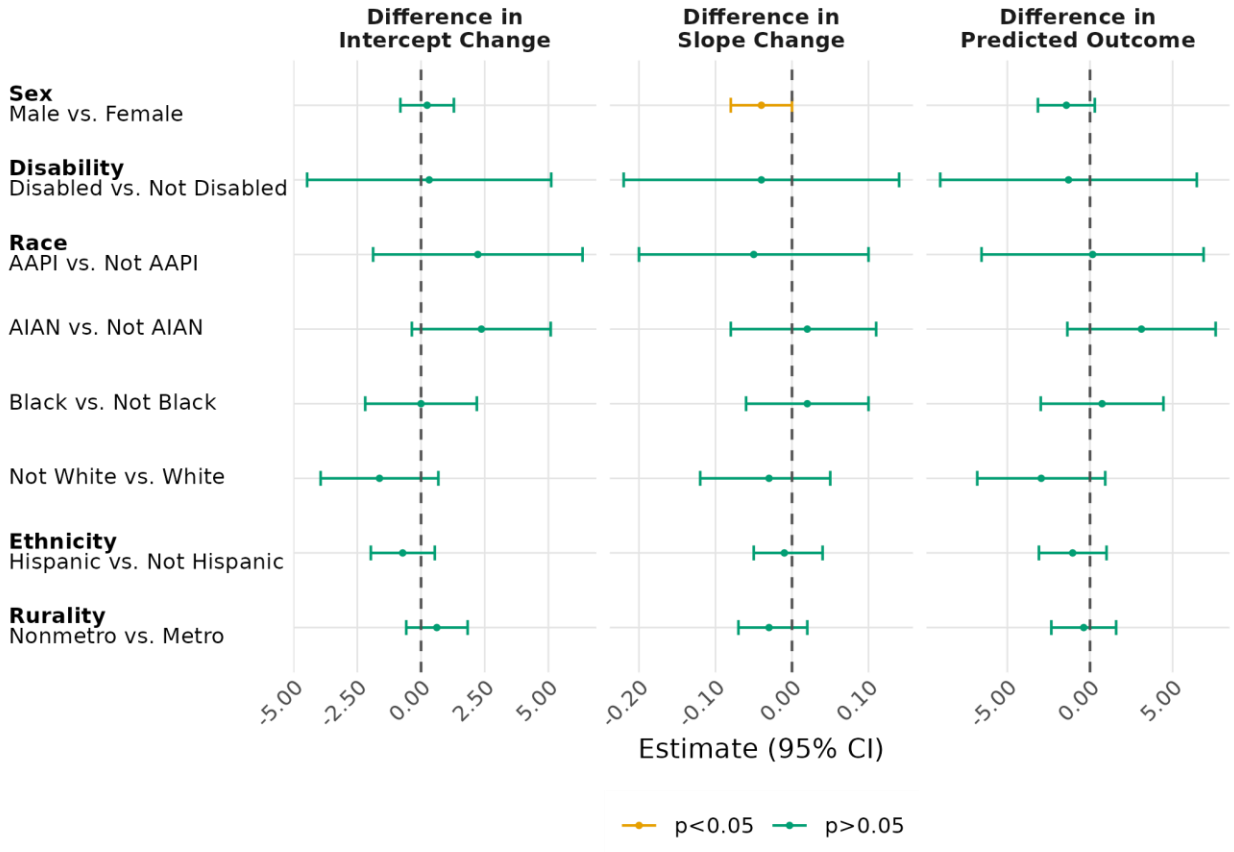
Table 7: Interrupted time series estimates of Appropriate Testing for Pharyngitis

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	88.14* (87.13, 89.15)	85.64* (84.85, 86.42)	-2.50* (-3.90, -1.10)
Monthly Change	-0.019 (-0.068, 0.030)	0.15* (0.085, 0.22)	0.17* (0.13, 0.21)
Predicted Average Outcome Nov 2024	87.37* (84.54, 90.21)	91.68* (89.64, 93.72)	4.30* (2.32, 6.29)
N			733,660

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3-99) in the NC Medicaid population as determined in the metric specifications.*

Appropriate Testing for Pharyngitis (Contrast Plot)

Figure 15: Comparison groups in Appropriate Testing for Pharyngitis

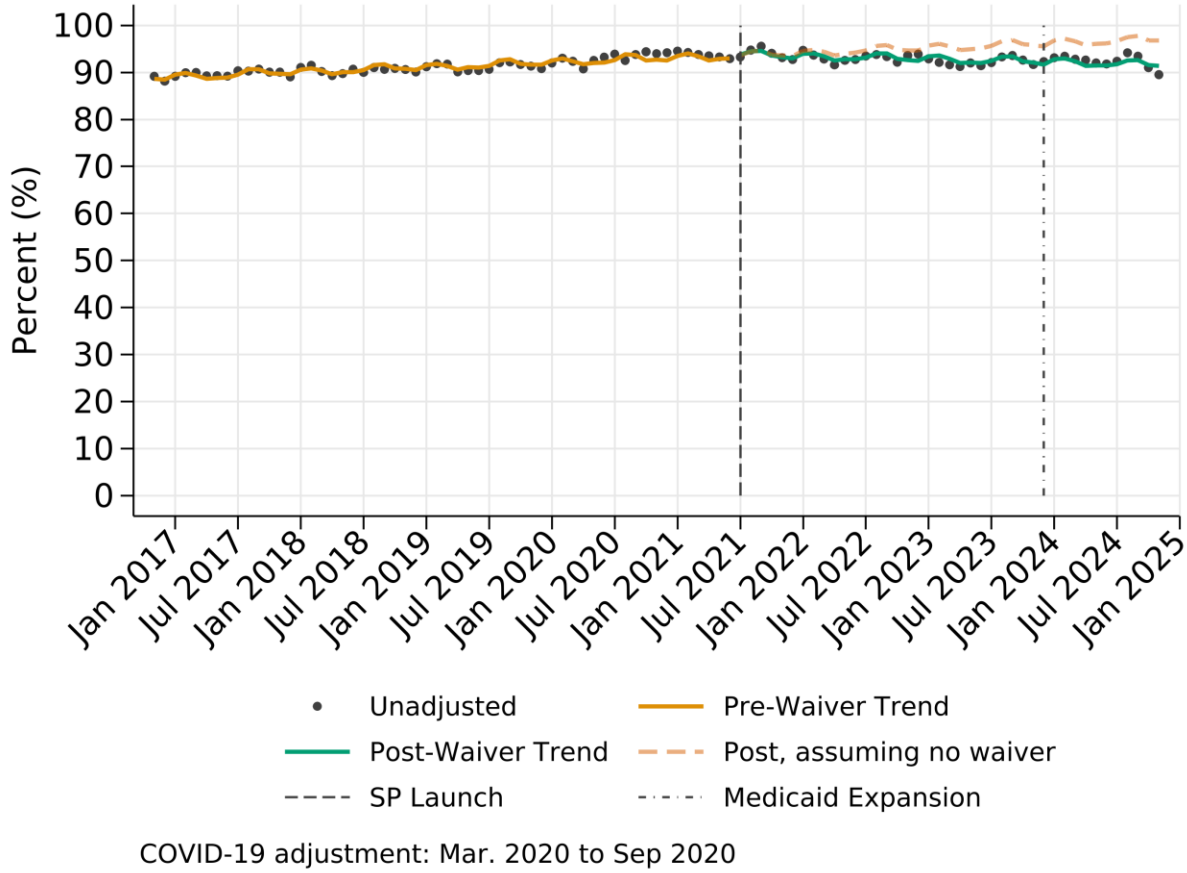


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Appropriate Treatment for Upper Respiratory Infection

Appropriate Treatment for Upper Respiratory Infection (Figure)

Figure 16: Trends in Appropriate Treatment for Upper Respiratory Infection



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3 months-18) in the NC Medicaid population as determined in the metric specifications.

Appropriate Treatment for Upper Respiratory Infection (Table)

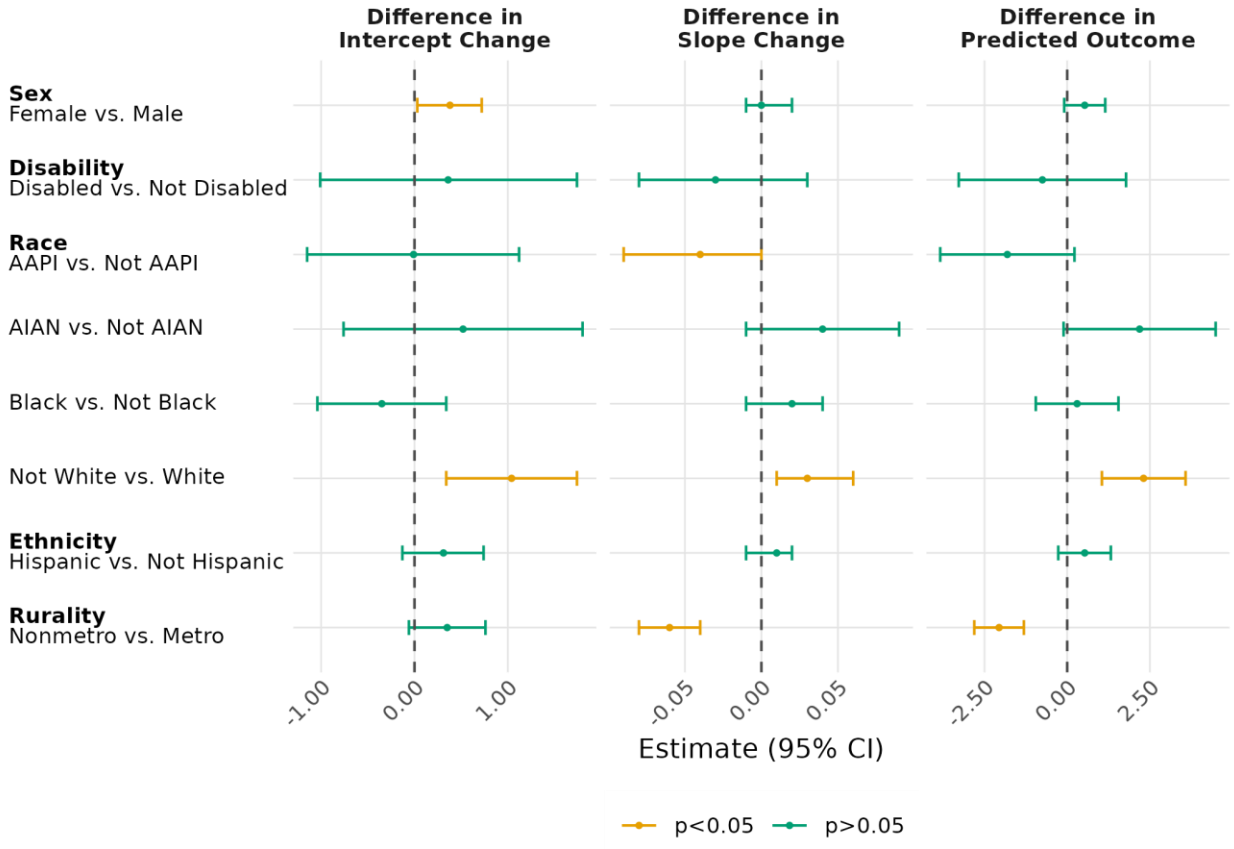
Table 8: Interrupted time series estimates of Appropriate Treatment for Upper Respiratory Infection

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	93.73* (93.59, 93.87)	93.92* (93.81, 94.04)	0.19* (0.015, 0.37)
Monthly Change	0.085* (0.081, 0.089)	-0.055* (-0.060, -0.050)	-0.14* (-0.15, -0.13)
Predicted Average Outcome Nov 2024	97.13* (96.84, 97.42)	91.72* (91.59, 91.85)	-5.41* (-5.73, -5.09)
N			1,628,391

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3 months-18) in the NC Medicaid population as determined in the metric specifications.*

Appropriate Treatment for Upper Respiratory Infection (Contrast Plot)

Figure 17: Comparison groups in Appropriate Treatment for Upper Respiratory Infection

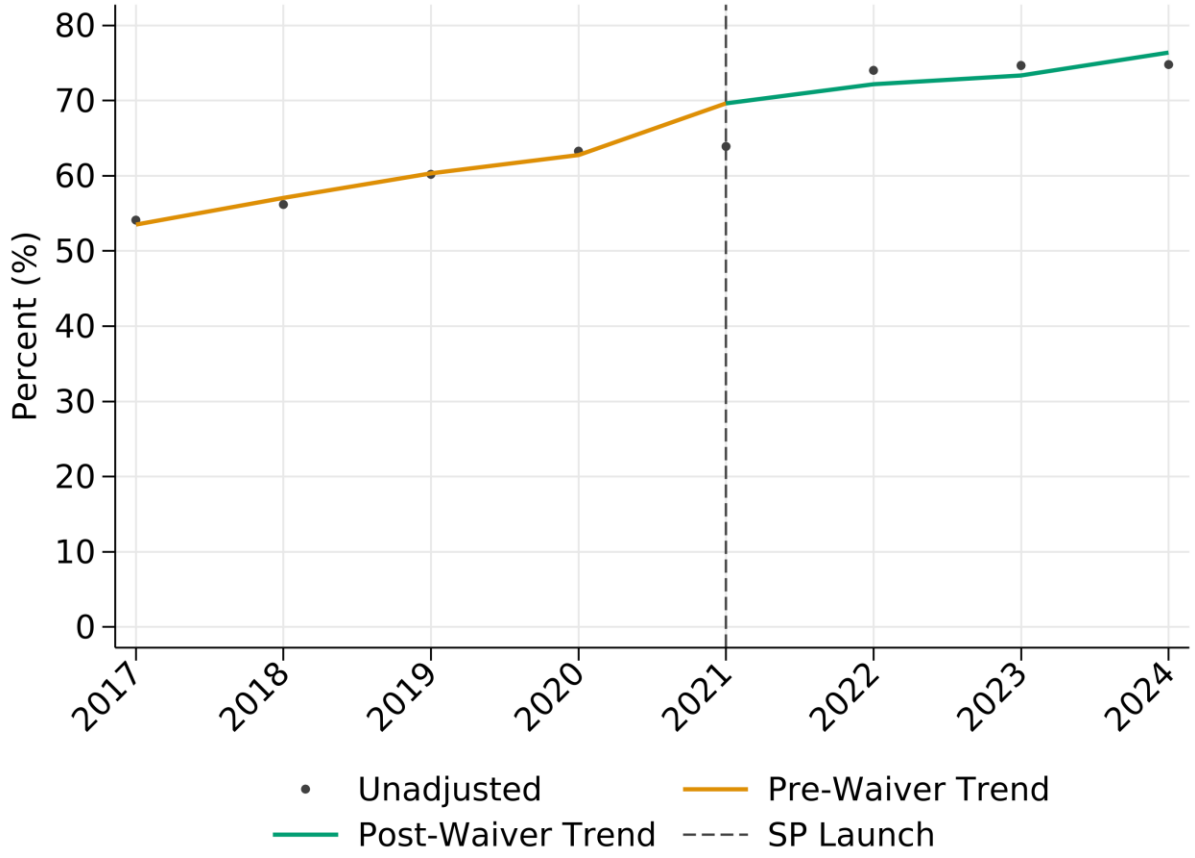


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Avoidance of Antibiotic Treatment for Acute Bronchitis/Bronchiolitis (AAB)

Avoidance of Antibiotic Treatment in Children with Acute Bronchitis/Bronchiolitis (AAB) (Figure)

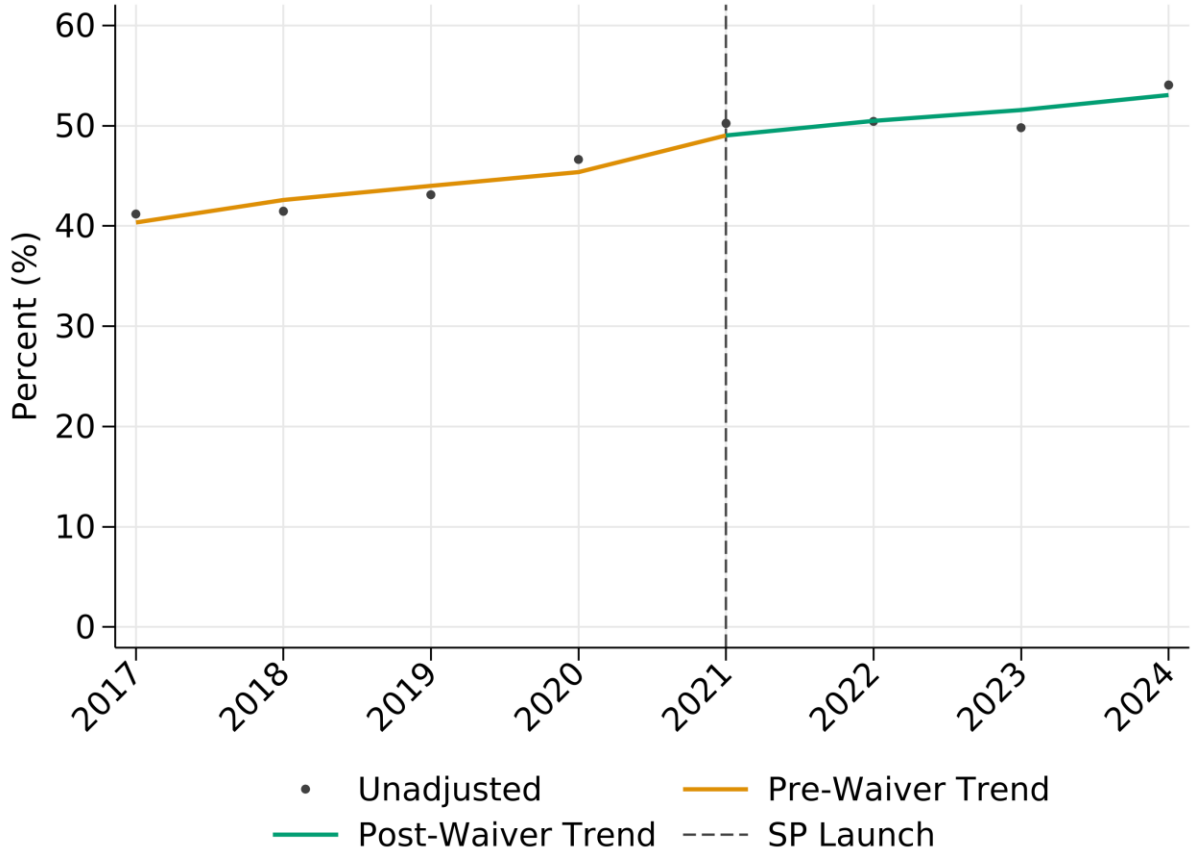
Figure 18: Trends in Avoidance of Antibiotic Treatment in Children with Acute Bronchitis/Bronchiolitis (AAB)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3 months - 17 years) in the NC Medicaid population as determined in the metric specifications.

Avoidance of Antibiotic Treatment in Adults with Acute Bronchitis/Bronchiolitis (AAB) (Figure)

Figure 19: Trends in Avoidance of Antibiotic Treatment in Adults with Acute Bronchitis/Bronchiolitis (AAB)

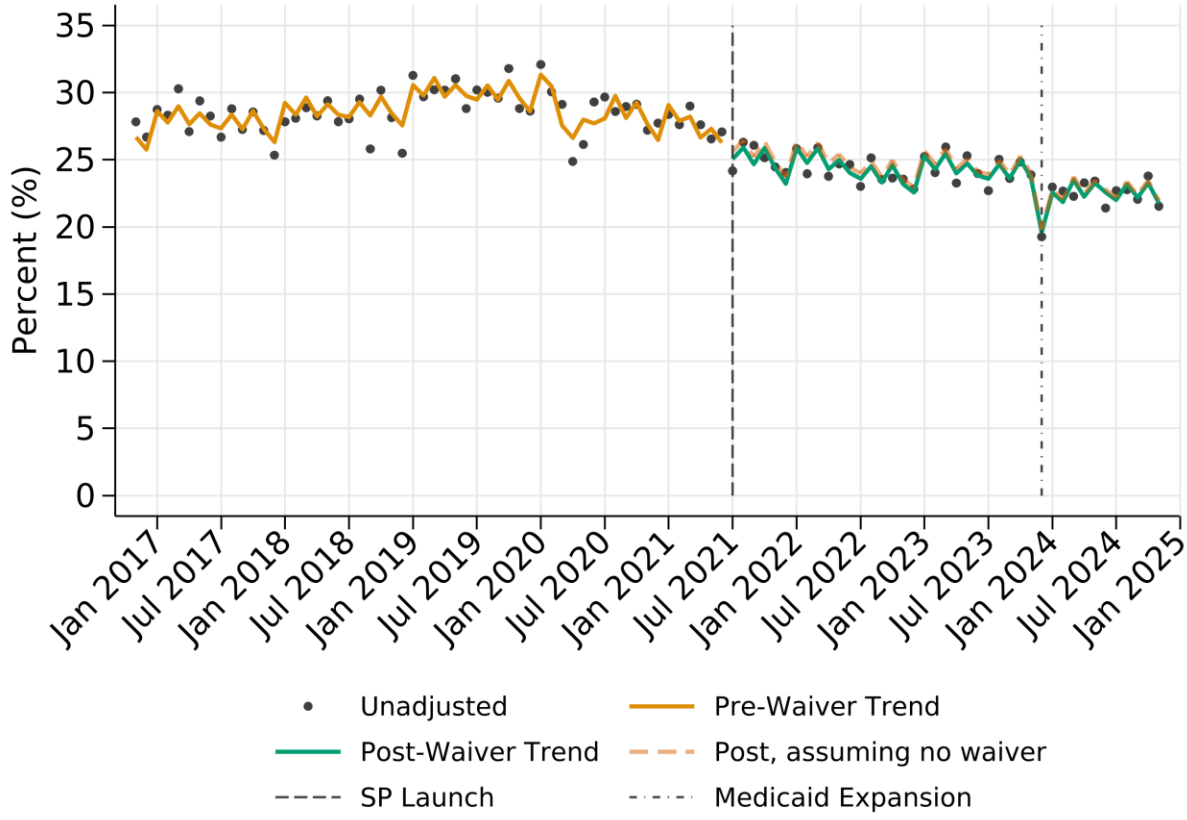


Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Access to Preventive/Ambulatory Health Services (AAP)

Access to Preventive/Ambulatory Health Services (AAP): For Adult Medicaid Beneficiaries (Figure)

Figure 20: Trends in Access to Preventive/Ambulatory Health Services (AAP): For Adult Medicaid Beneficiaries



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 20+) in the NC Medicaid population as determined in the metric specifications.

Access to Preventive/Ambulatory Health Services (AAP): For Adult Medicaid Beneficiaries (Table)

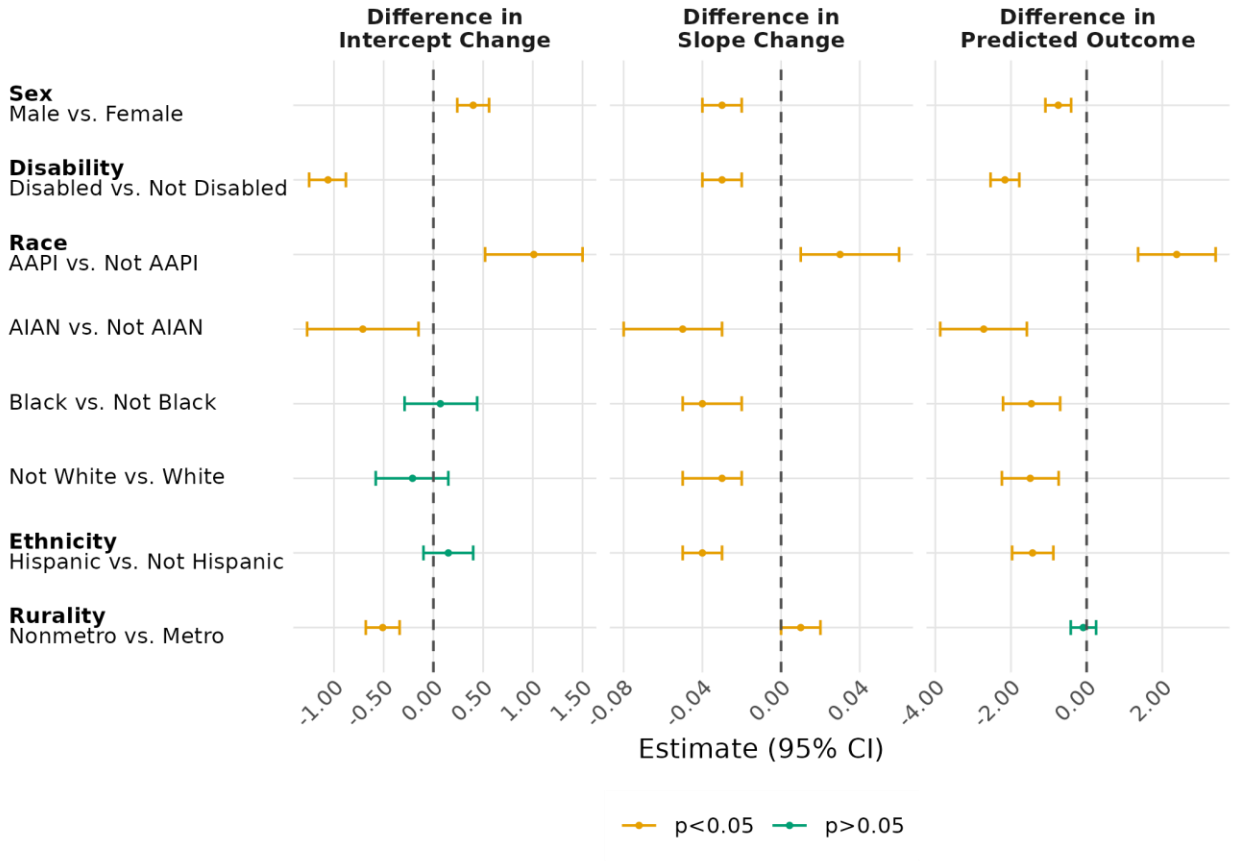
Table 9: Interrupted time series estimates of Access to Preventive/Ambulatory Health Services (AAP): For Adult Medicaid Beneficiaries

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	26.51* (26.31, 26.71)	25.28* (25.07, 25.49)	-1.23* (-1.46, -1.00)
Monthly Change	0.010 (-0.0005, 0.021)	0.013* (0.0012, 0.024)	0.0027 (-0.011, 0.016)
Predicted Average Outcome Nov 2024	26.91* (26.39, 27.44)	25.79* (25.41, 26.18)	-1.12* (-1.67, -0.57)
N			46,190,172

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 20+) in the NC Medicaid population as determined in the metric specifications.*

Access to Preventive/Ambulatory Health Services (AAP): For Adult Medicaid Beneficiaries (Contrast Plot)

Figure 21: Comparison groups in Access to Preventive/Ambulatory Health Services (AAP): For Adult Medicaid Beneficiaries

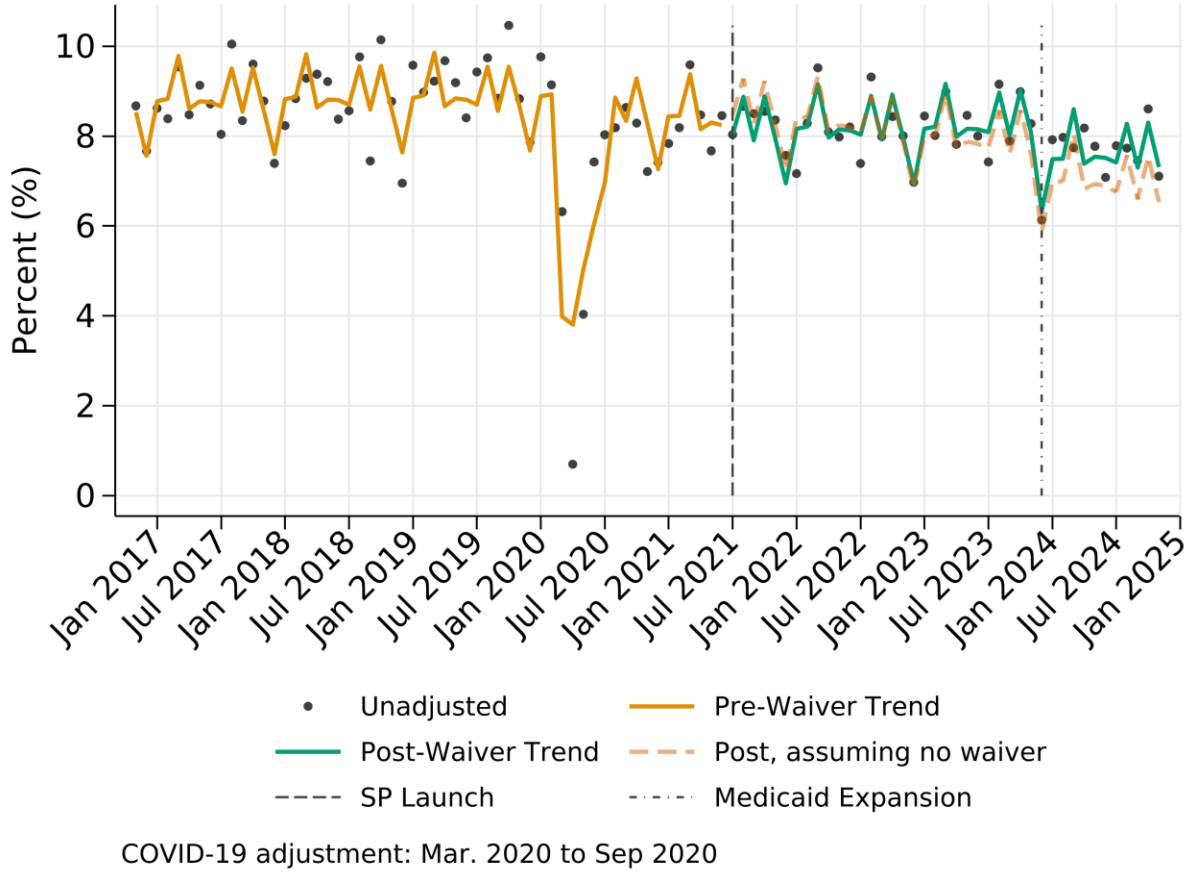


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Monthly Dental Visit (ADV)

Monthly Dental Visit (ADV) (Figure)

Figure 22: Trends in Monthly Dental Visit (ADV)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-64) in the NC Medicaid population as determined in the metric specifications.

Monthly Dental Visit (ADV) (Table)

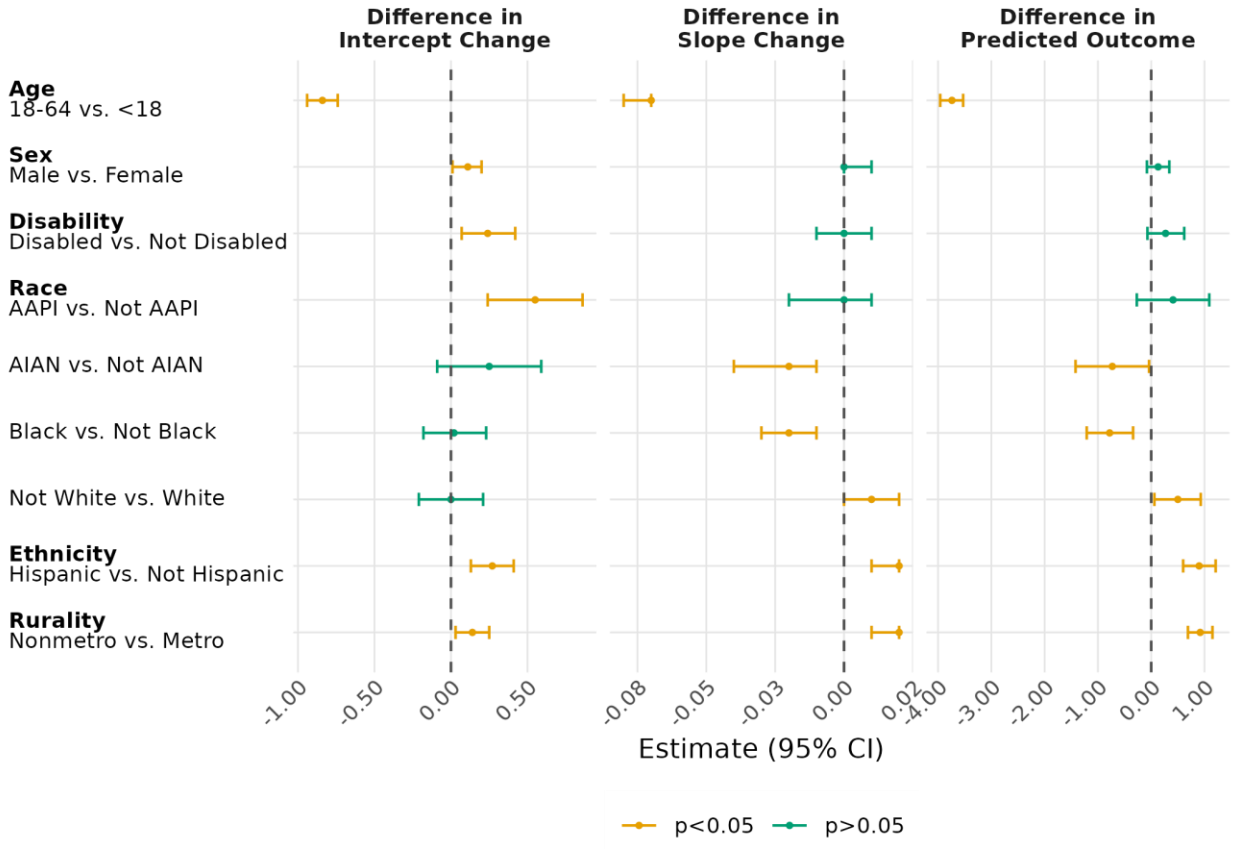
Table 10: Interrupted time series estimates of Monthly Dental Visit (ADV)

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	8.10* (8.02, 8.18)	7.91* (7.82, 8.01)	-0.19* (-0.26, -0.11)
Monthly Change	-0.0032 (-0.0073, 0.0009)	0.036* (0.029, 0.042)	0.039* (0.032, 0.046)
Predicted Average Outcome Nov 2024	7.97* (7.75, 8.20)	9.34* (9.15, 9.52)	1.37* (1.11, 1.62)
N			32,977,464

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-64) in the NC Medicaid population as determined in the metric specifications.*

Monthly Dental Visit (ADV) (Contrast Plot)

Figure 23: Comparison groups in Monthly Dental Visit (ADV)

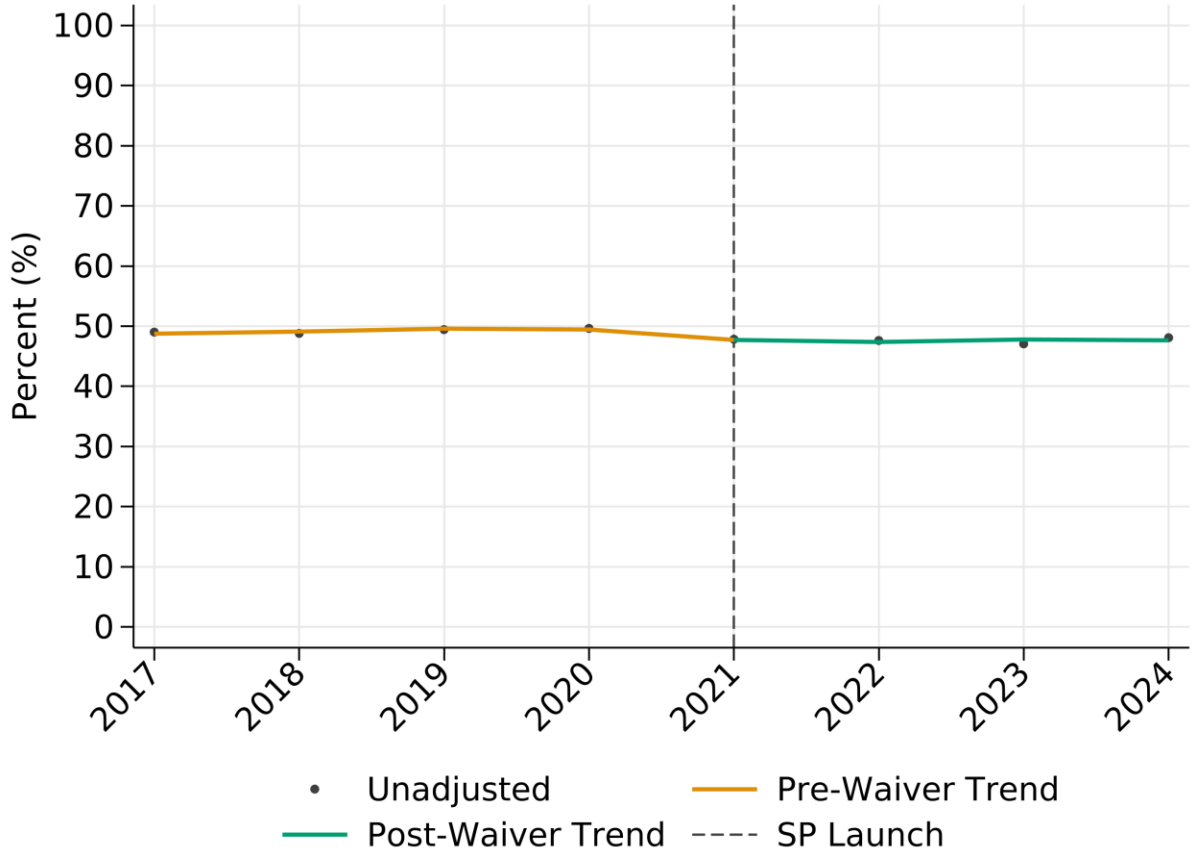


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Women's Preventive Care

Women's Preventive Care: Breast Cancer Screening (BCS) among Women Aged 50 to 70 (Figure)

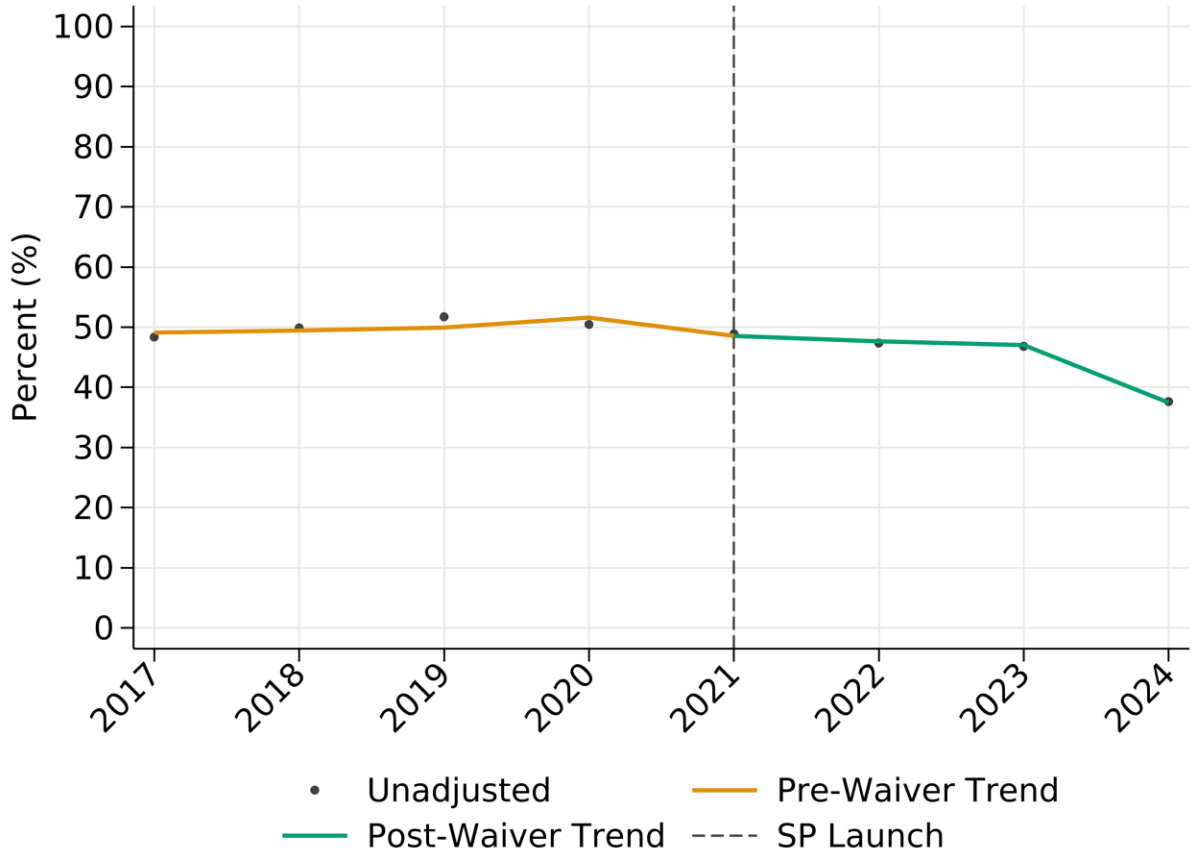
Figure 24: Trends in Women's Preventive Care: Breast Cancer Screening (BCS) among Women Aged 50 to 70



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 50-74) in the NC Medicaid population as determined in the metric specifications.

Women's Preventive Care: Cervical Cancer Screening (CCS) among Women Aged 21 to 64 (Figure)

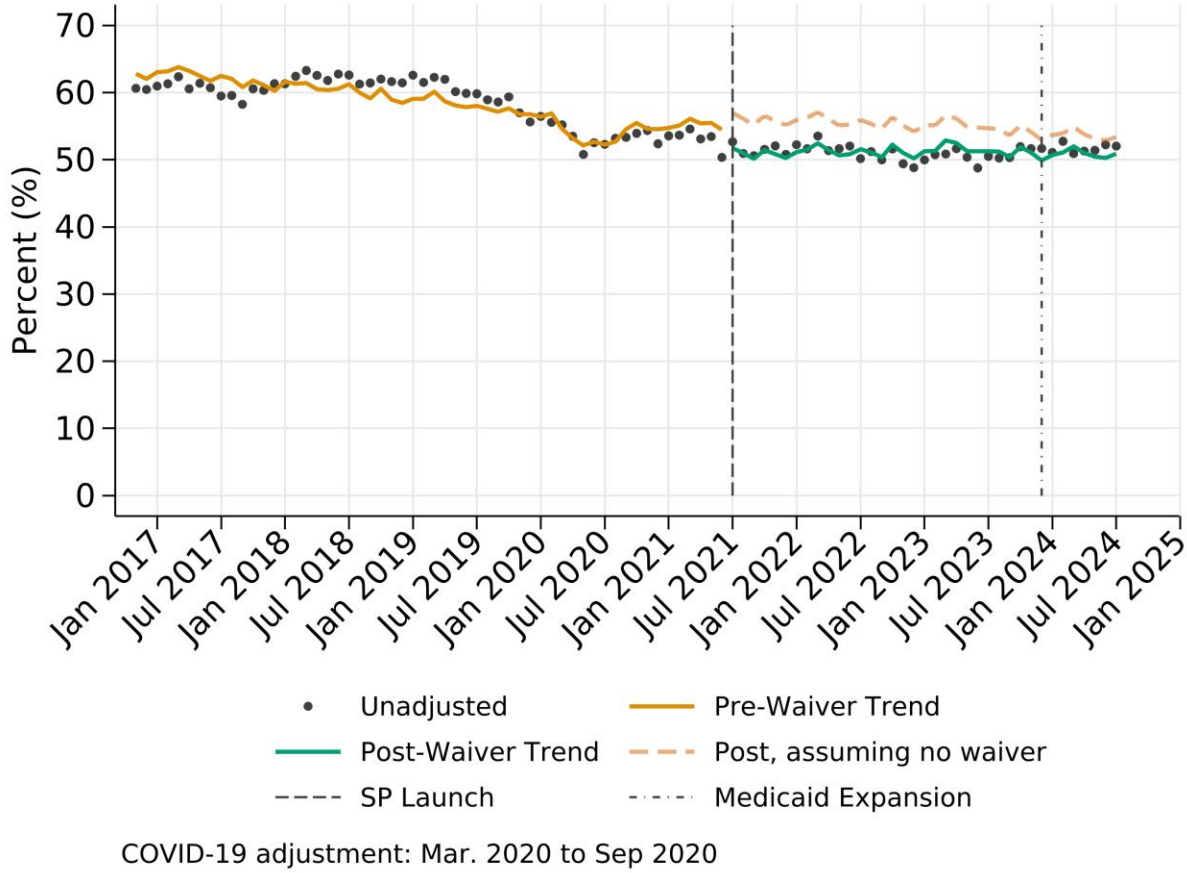
Figure 25: Trends in Women's Preventive Care: Cervical Cancer Screening (CCS) among Women Aged 21 to 64



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-64) in the NC Medicaid population as determined in the metric specifications.

Women's Preventive Care: Screening for Pregnancy Risk (Figure)

Figure 26: Trends in Women's Preventive Care: Screening for Pregnancy Risk



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 14-44) in the NC Medicaid population as determined in the metric specifications.

Pregnancy risk screening occurs at the first prenatal visit (first trimester or within 42 days of later enrollment). SP attribution was assigned based on SP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment, consistent with program guidelines.

Women's Preventive Care: Screening for Pregnancy Risk (Table)

Table 11: Interrupted time series estimates of Women's Preventive Care: Screening for Pregnancy Risk

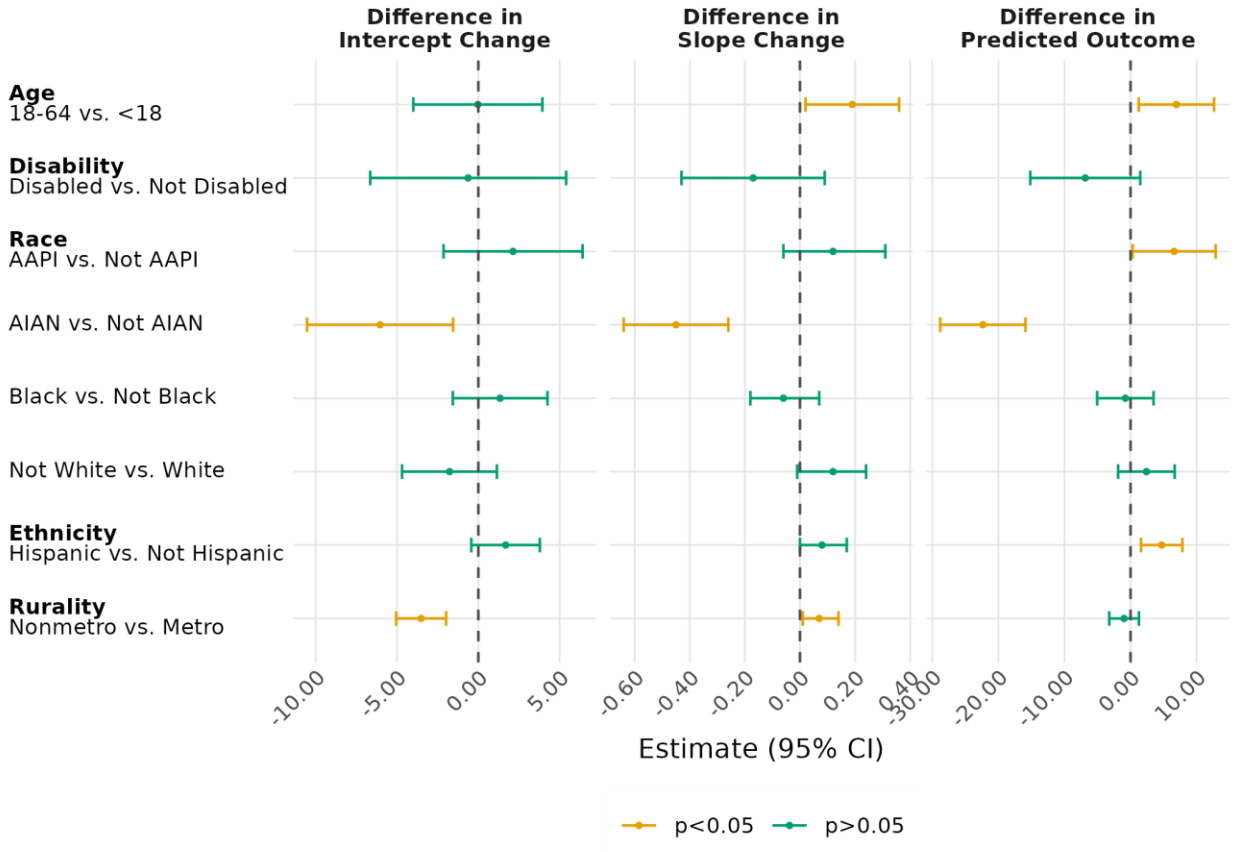
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	55.47* (55.04, 55.91)	50.21* (49.69, 50.74)	-5.26* (-5.93, -4.58)
Monthly Change	-0.16* (-0.17, -0.15)	-0.085* (-0.11, -0.060)	0.076* (0.048, 0.10)
Predicted Average Outcome Jul 2024	49.68* (48.82, 50.53)	47.16* (46.62, 47.69)	-2.52* (-3.53, -1.51)
N			354,508

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 14-44) in the NC Medicaid population as determined in the metric specifications.*

Pregnancy risk screening occurs at the first prenatal visit (first trimester or within 42 days of later enrollment). SP attribution was assigned based on SP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment, consistent with program guidelines.

Women's Preventive Care: Screening for Pregnancy Risk (Contrast Plot)

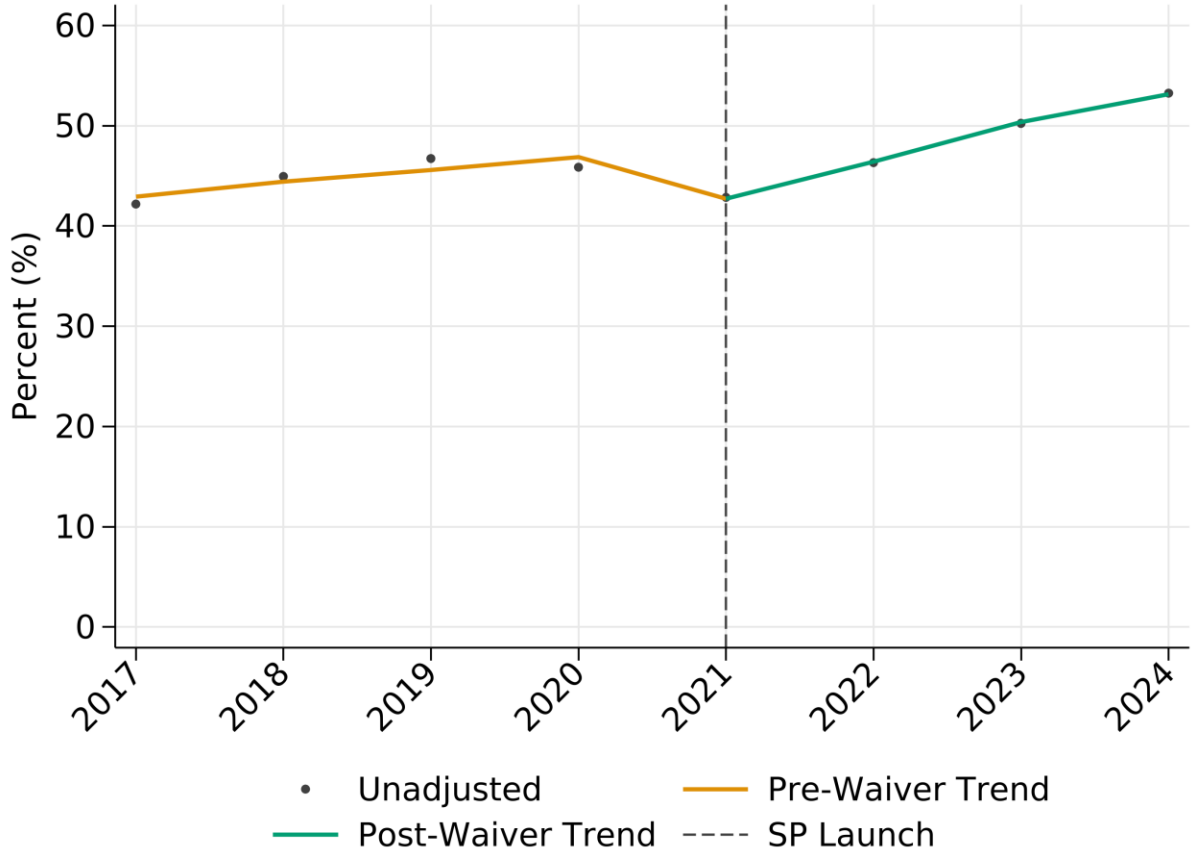
Figure 27: Comparison groups in Women's Preventive Care: Screening for Pregnancy Risk



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
Pregnancy risk screening occurs at the first prenatal visit (first trimester or within 42 days of later enrollment). SP attribution was assigned based on SP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment, consistent with program guidelines.

Women's Preventive Care: Chlamydia Screening (CHL) in Women ages 16-20 (Figure)

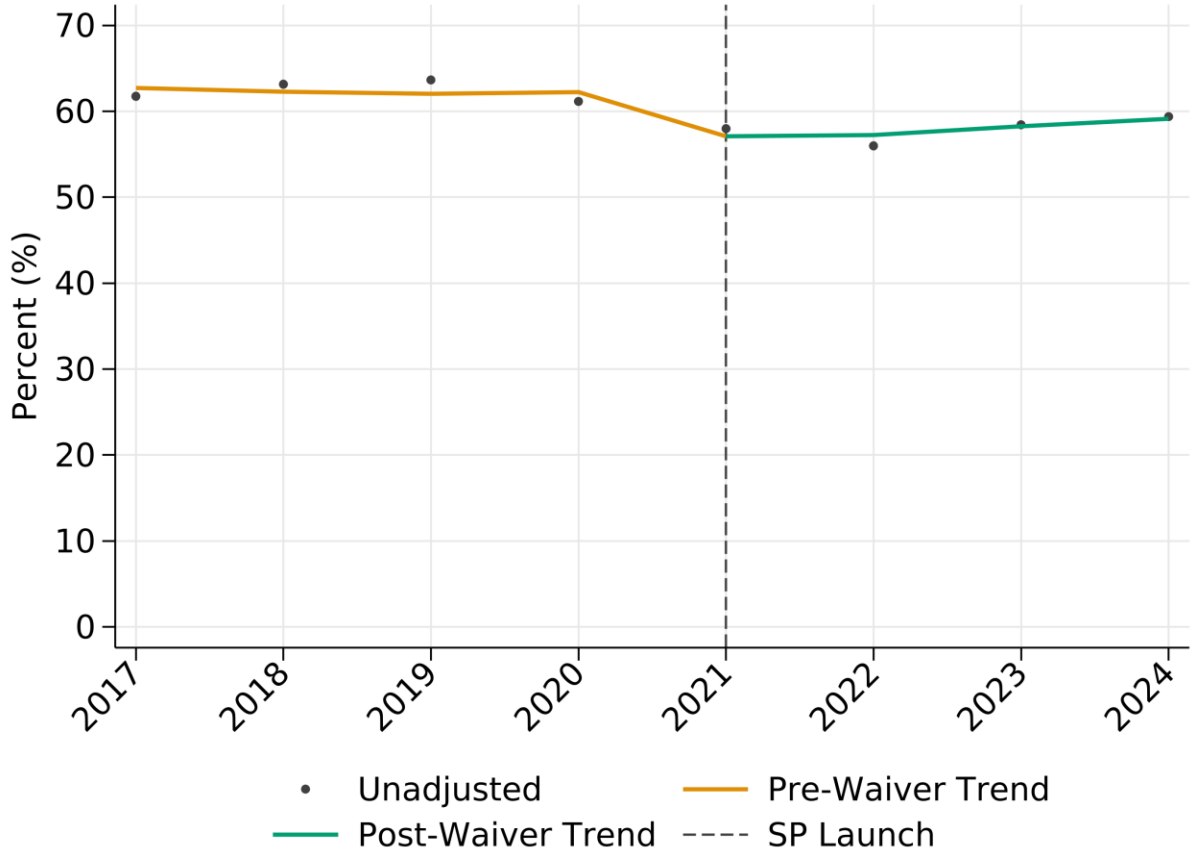
Figure 28: Trends in Women's Preventive Care: Chlamydia Screening (CHL) in Women ages 16-20



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 16-20) in the NC Medicaid population as determined in the metric specifications.

Women's Preventive Care: Chlamydia Screening (CHL) in Women ages 21-24 (Figure)

Figure 29: Trends in Women's Preventive Care: Chlamydia Screening (CHL) in Women ages 21-24

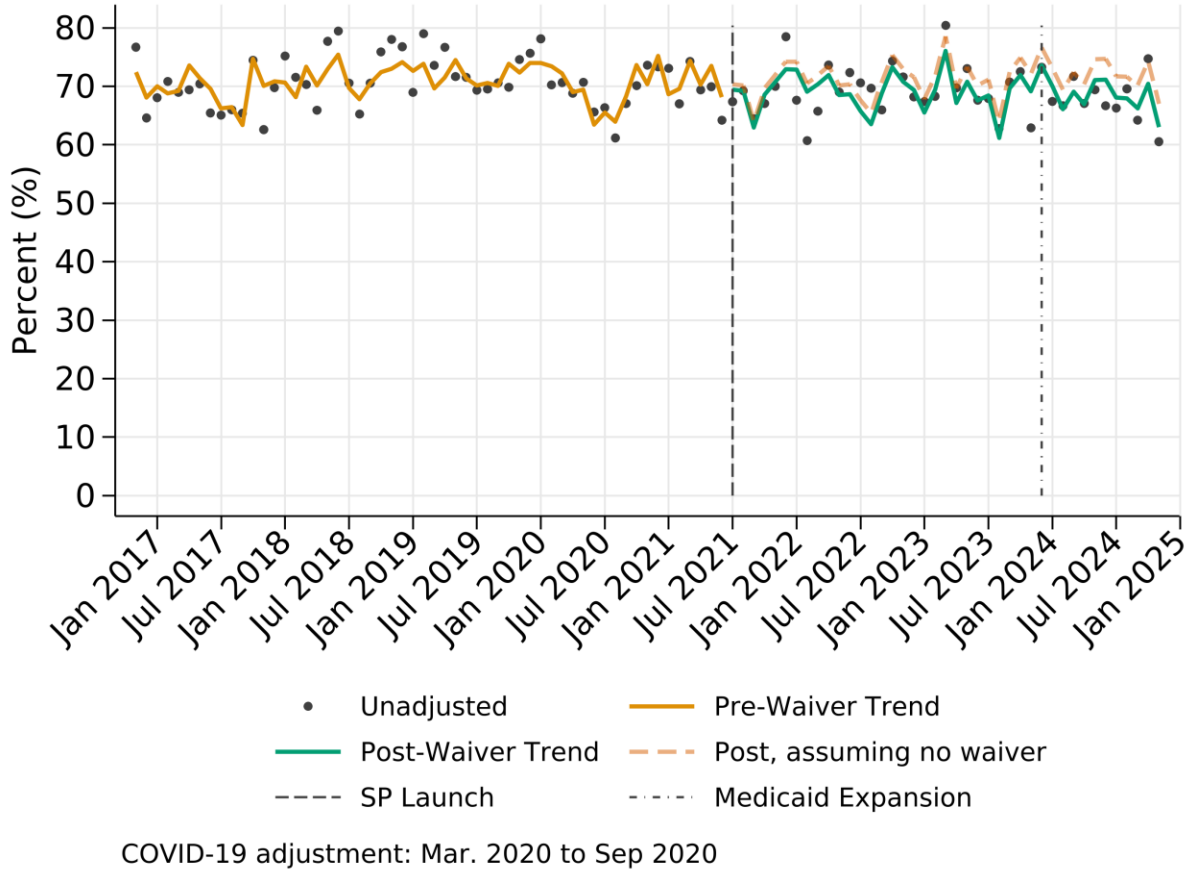


Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-24) in the NC Medicaid population as determined in the metric specifications.

Prenatal and Postpartum Care (PPC)

Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members under 21 (Figure)

Figure 30: Trends in Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members under 21



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 0-20) in the NC Medicaid population as determined in the metric specifications.

SP attribution was assigned based on SP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment (if not enrolled in the first trimester).

Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members under 21 (Table)

Table 12: Interrupted time series estimates of Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members under 21

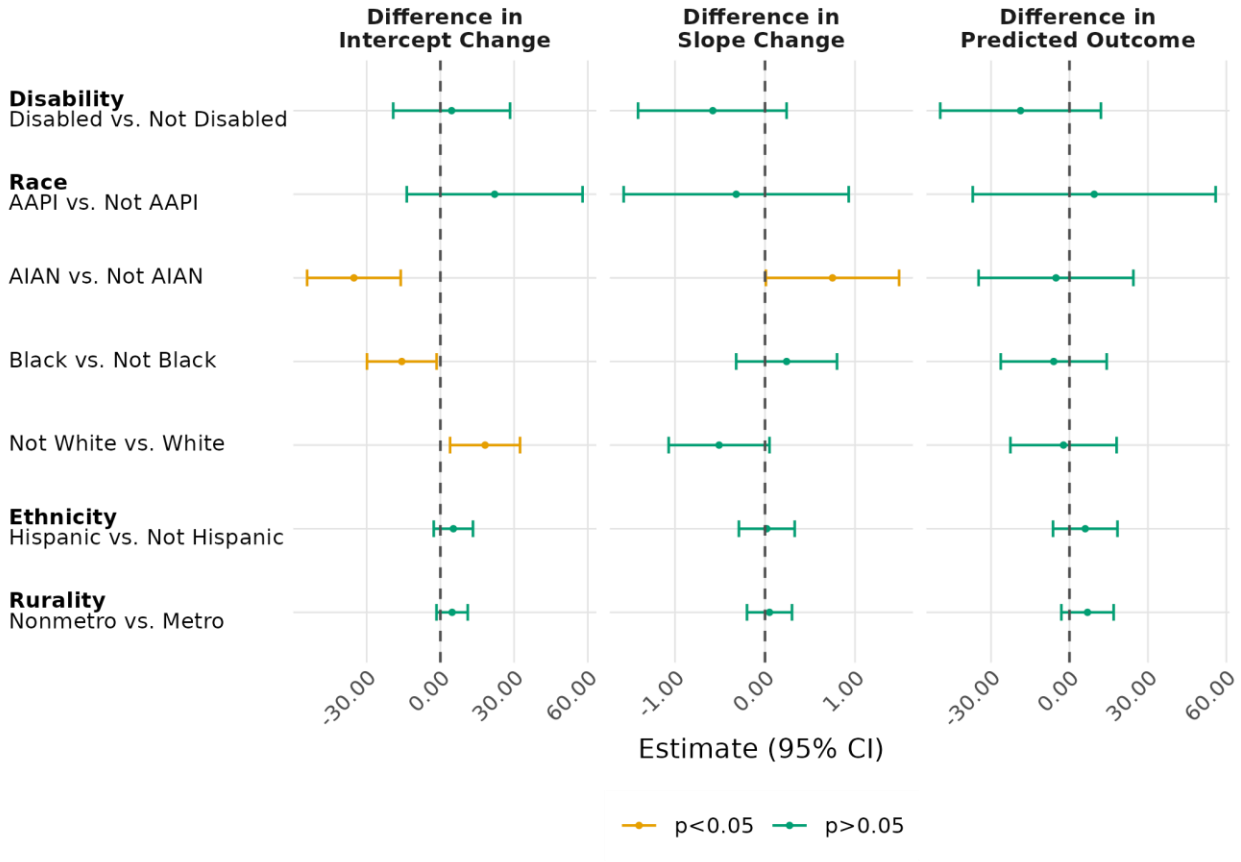
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	71.79* (69.75, 73.82)	70.89* (68.56, 73.22)	-0.90 (-3.99, 2.19)
Monthly Change	0.060* (0.0032, 0.12)	-0.017 (-0.12, 0.085)	-0.077 (-0.19, 0.039)
Predicted Average Outcome Nov 2024	74.20* (69.99, 78.40)	70.23* (67.86, 72.59)	-3.97 (-8.79, 0.84)
N			10,918

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 0-20) in the NC Medicaid population as determined in the metric specifications.*

SP attribution was assigned based on SP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment (if not enrolled in the first trimester).

Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members under 21 (Contrast Plot)

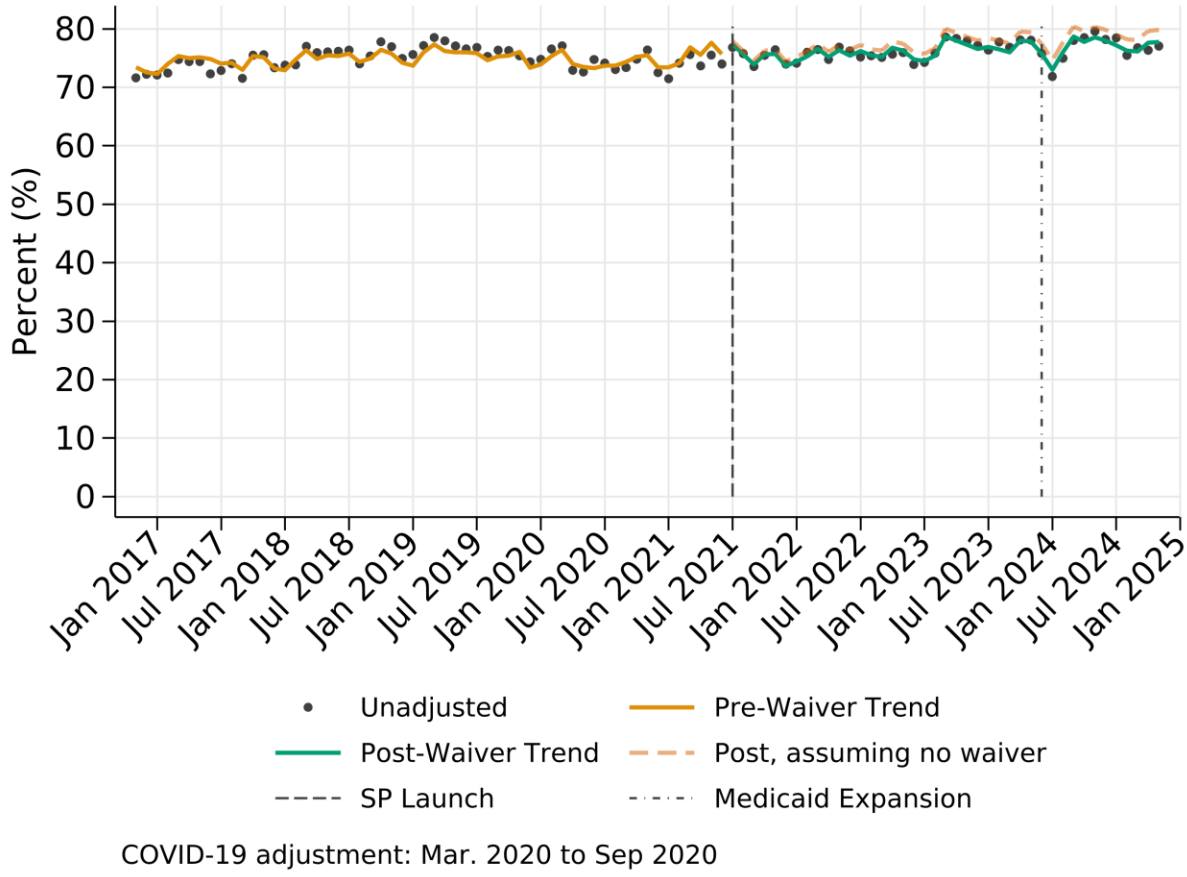
Figure 31: Comparison groups in Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members under 21



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
SP attribution was assigned based on SP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment (if not enrolled in the first trimester).

Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older (Figure)

Figure 32: Trends in Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-64) in the NC Medicaid population as determined in the metric specifications.

AMH attribution was assigned based on AMH eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.

Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older (Table)

Table 13: Interrupted time series estimates of Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older

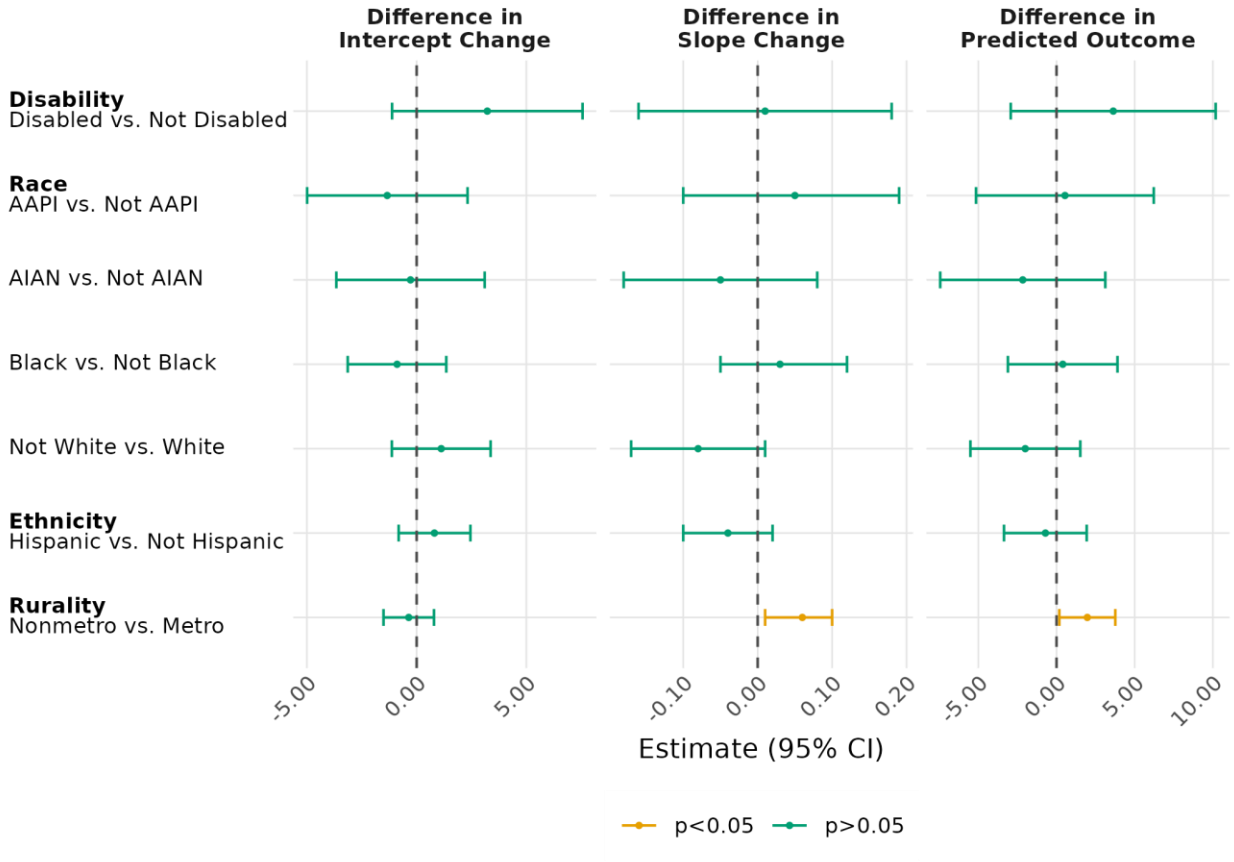
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	76.44* (76.09, 76.80)	75.88* (75.49, 76.28)	-0.56* (-1.09, -0.031)
Monthly Change	0.052* (0.042, 0.063)	0.015 (-0.0023, 0.033)	-0.037* (-0.057, -0.017)
Predicted Average Outcome Nov 2024	78.54* (77.80, 79.28)	76.49* (76.08, 76.91)	-2.05* (-2.90, -1.20)
N			342,327

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-64) in the NC Medicaid population as determined in the metric specifications.*

AMH attribution was assigned based on AMH eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.

Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older (Contrast Plot)

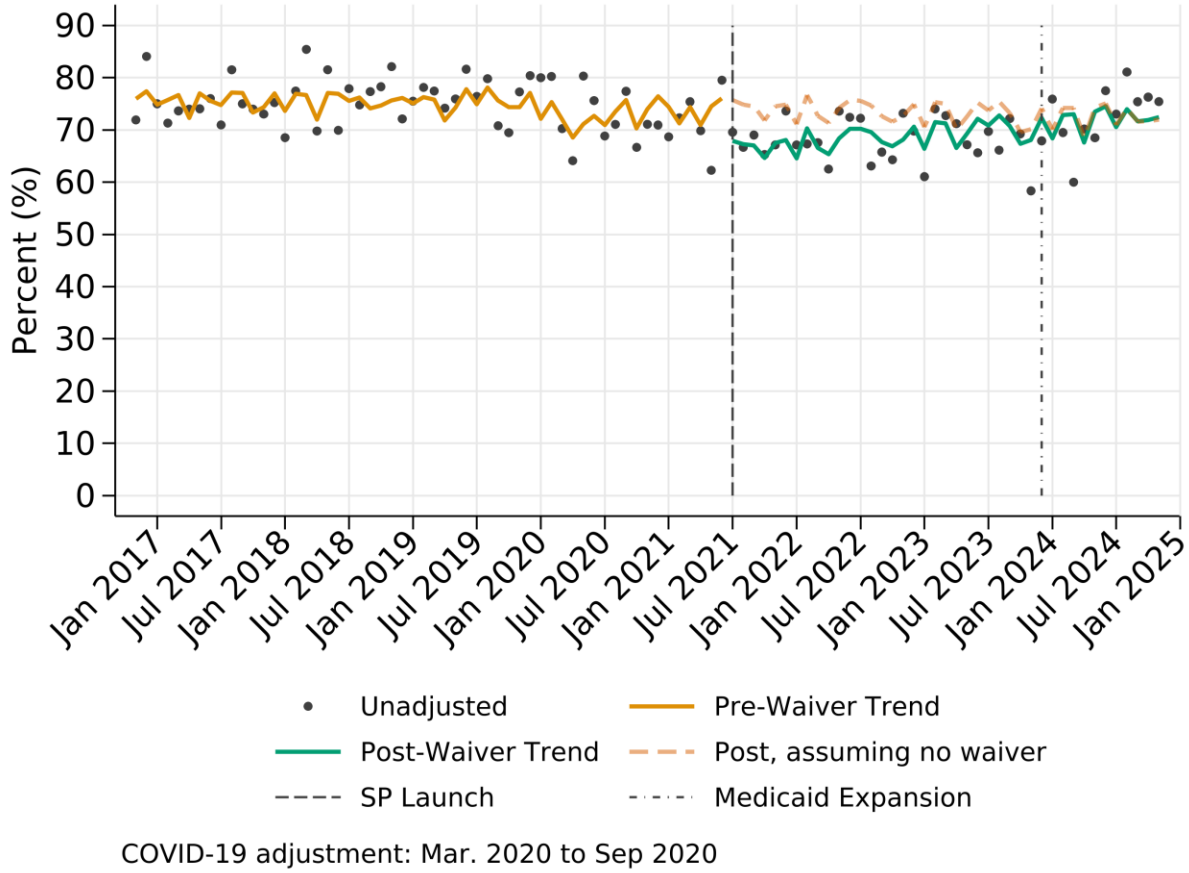
Figure 33: Comparison groups in Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
AMH attribution was assigned based on AMH eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.

Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21 (Figure)

Figure 34: Trends in Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged under 21) in the NC Medicaid population as determined in the metric specifications.

The Medicaid Expansion population has been excluded.

Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21 (Table)

Table 14: Interrupted time series estimates of Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21

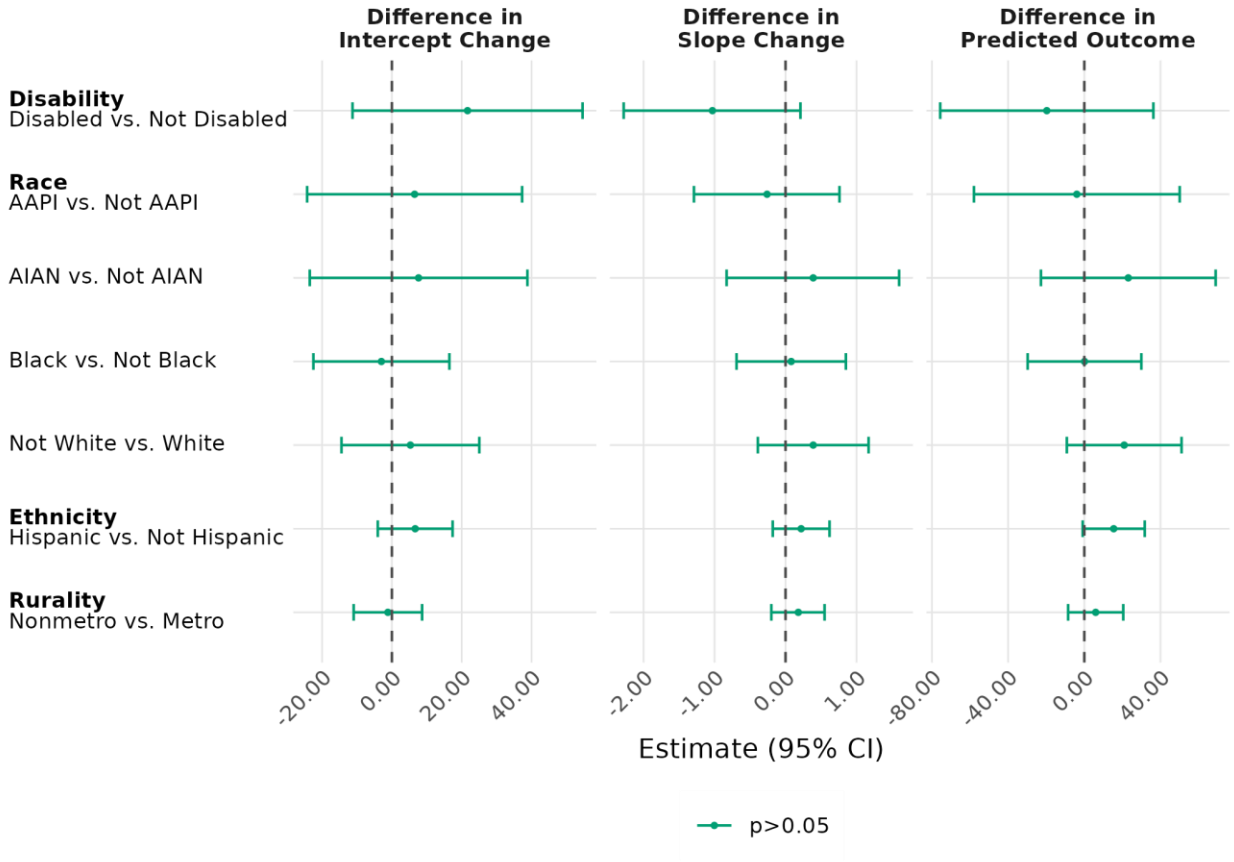
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	73.97* (71.10, 76.84)	66.14* (62.82, 69.45)	-7.83* (-12.22, -3.45)
Monthly Change	-0.044 (-0.12, 0.036)	0.16* (0.023, 0.30)	0.21* (0.046, 0.37)
Predicted Average Outcome Nov 2024	72.23* (66.34, 78.12)	72.68* (69.43, 75.93)	0.45 (-6.27, 7.17)
N			8,152

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged under 21) in the NC Medicaid population as determined in the metric specifications.*

The Medicaid Expansion population has been excluded.

Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21 (Contrast Plot)

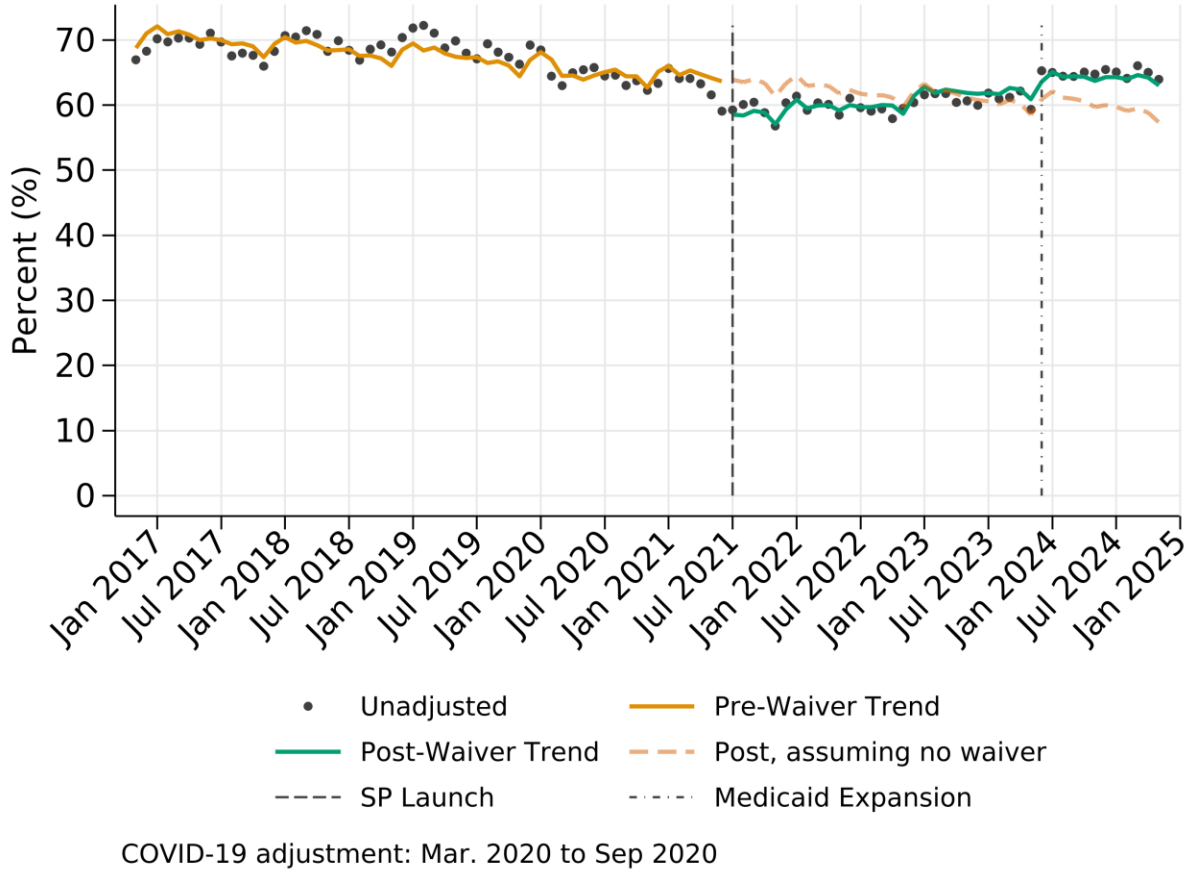
Figure 35: Comparison groups in Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+ (Figure)

Figure 36: Trends in Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21+) in the NC Medicaid population as determined in the metric specifications.

The Medicaid Expansion population has been excluded.

Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+ (Table)

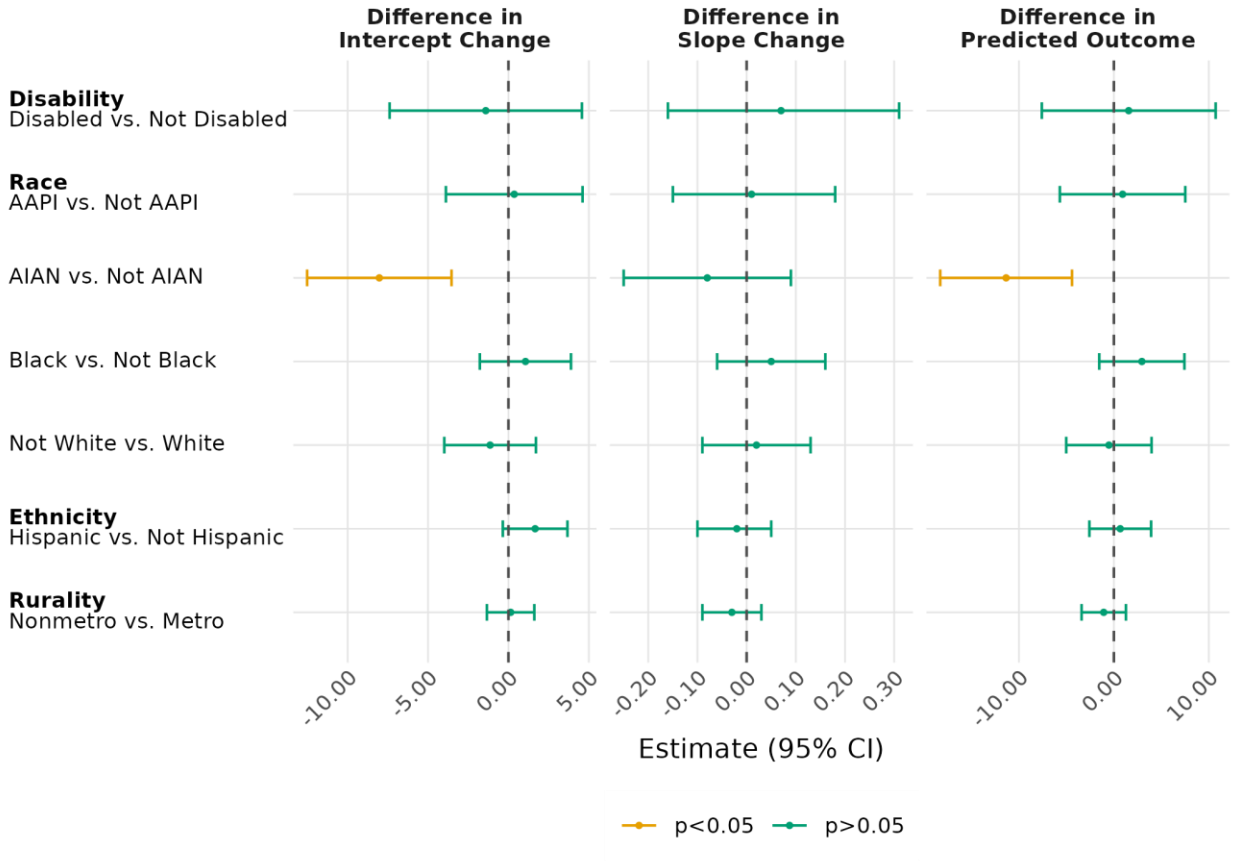
Table 15: Interrupted time series estimates of Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	63.97* (63.52, 64.43)	58.56* (58.08, 59.04)	-5.42* (-6.08, -4.76)
Monthly Change	-0.12* (-0.13, -0.11)	0.16* (0.14, 0.18)	0.28* (0.25, 0.30)
Predicted Average Outcome Nov 2024	59.16* (58.21, 60.10)	64.85* (64.36, 65.35)	5.70* (4.64, 6.76)
N			355,048

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21+) in the NC Medicaid population as determined in the metric specifications.*
The Medicaid Expansion population has been excluded.

Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+ (Contrast Plot)

Figure 37: Comparison groups in Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+

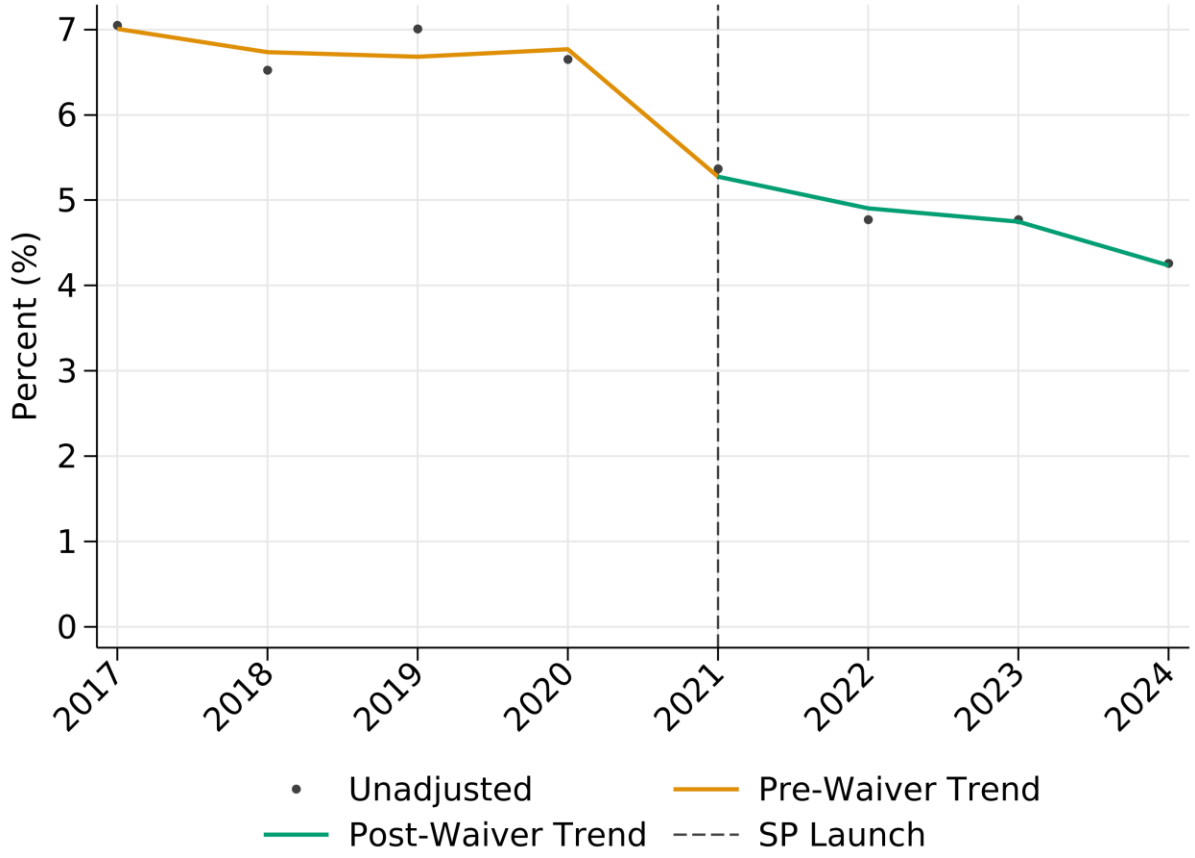


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

Contraceptive Care: All Women (CCW)

Contraceptive Care All Women: Beneficiaries ages 21-44 who were provided a most or moderately effective method of contraception (Figure)

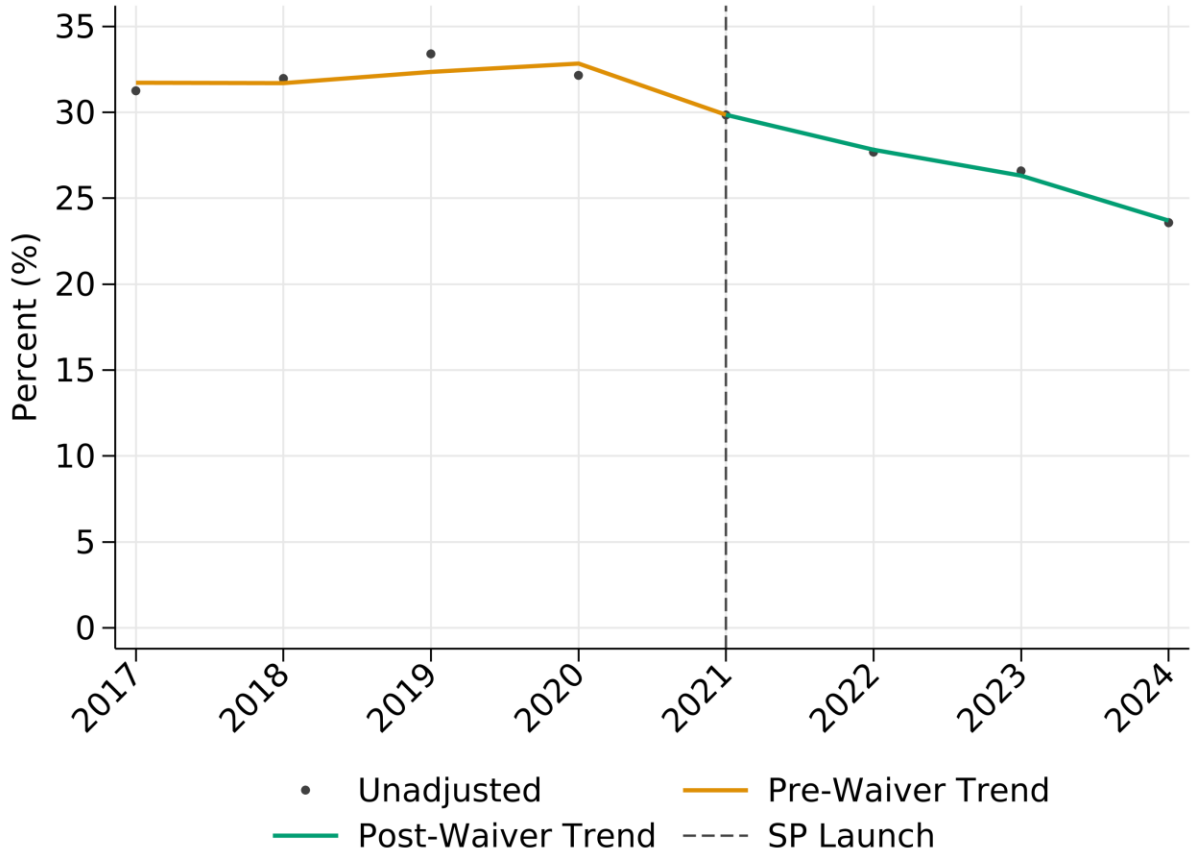
Figure 38: Trends in Contraceptive Care All Women: Beneficiaries ages 21-44 who were provided a most or moderately effective method of contraception



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.

Contraceptive Care All Women: Beneficiaries ages 21-44 who were provided a long-acting reversible method of contraception (Figure)

Figure 39: Trends in Contraceptive Care All Women: Beneficiaries ages 21-44 who were provided a long-acting reversible method of contraception

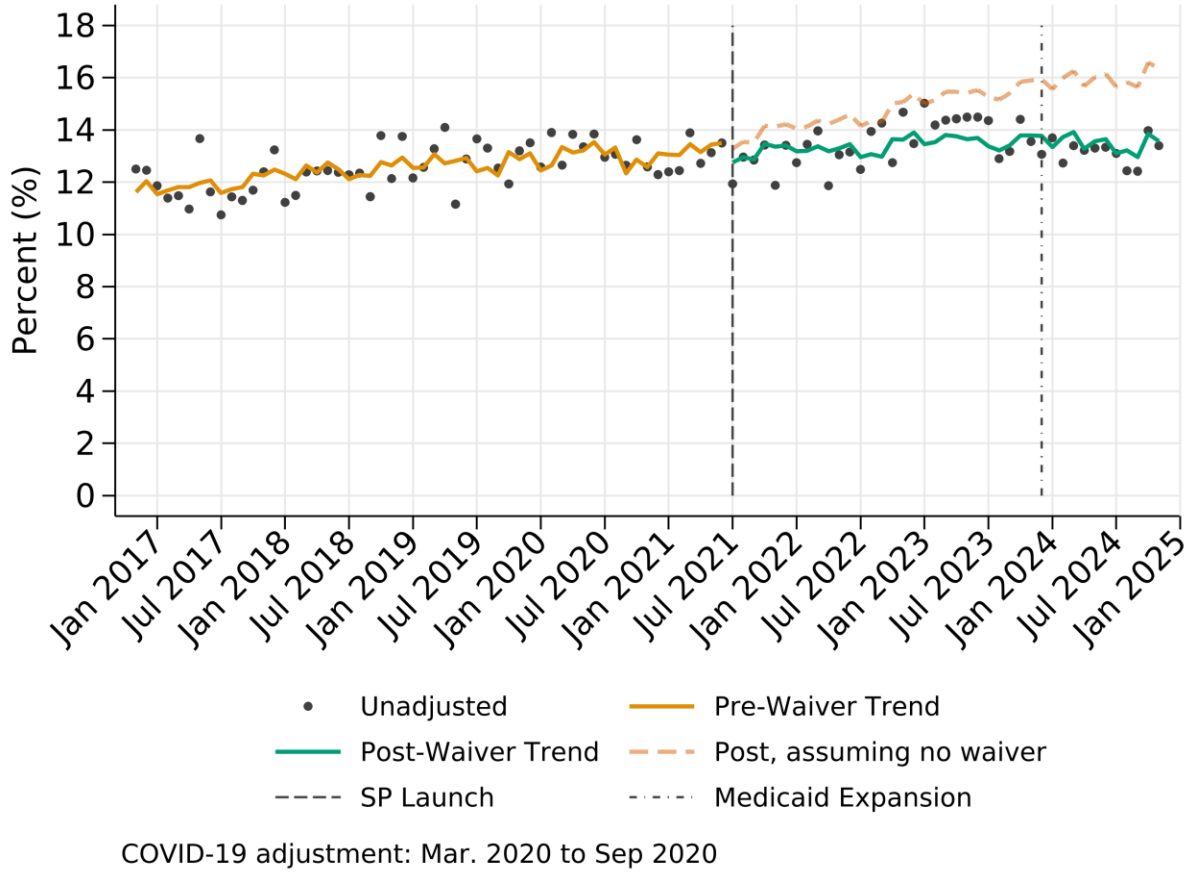


Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.

Contraceptive Care: Postpartum (CCP)

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 3 days of delivery (Figure)

Figure 40: Trends in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 3 days of delivery



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 3 days of delivery (Table)

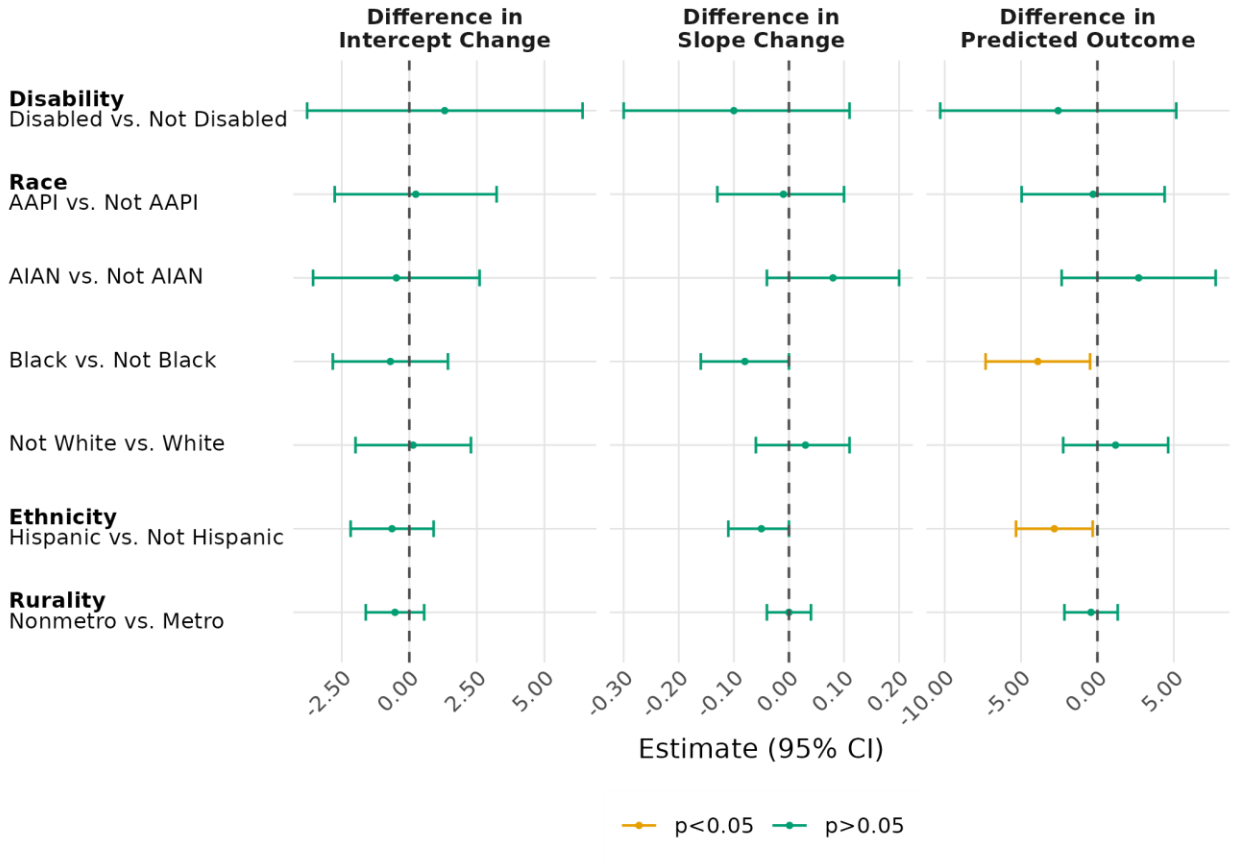
Table 16: Interrupted time series estimates of Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 3 days of delivery

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	13.80* (13.45, 14.14)	13.26* (12.91, 13.62)	-0.53* (-1.02, -0.039)
Monthly Change	0.024* (0.014, 0.034)	-0.032* (-0.047, -0.016)	-0.056* (-0.075, -0.038)
Predicted Average Outcome Nov 2024	14.77* (14.05, 15.49)	11.99* (11.62, 12.36)	-2.78* (-3.59, -1.97)
N			298,695

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.*

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 3 days of delivery (Contrast Plot)

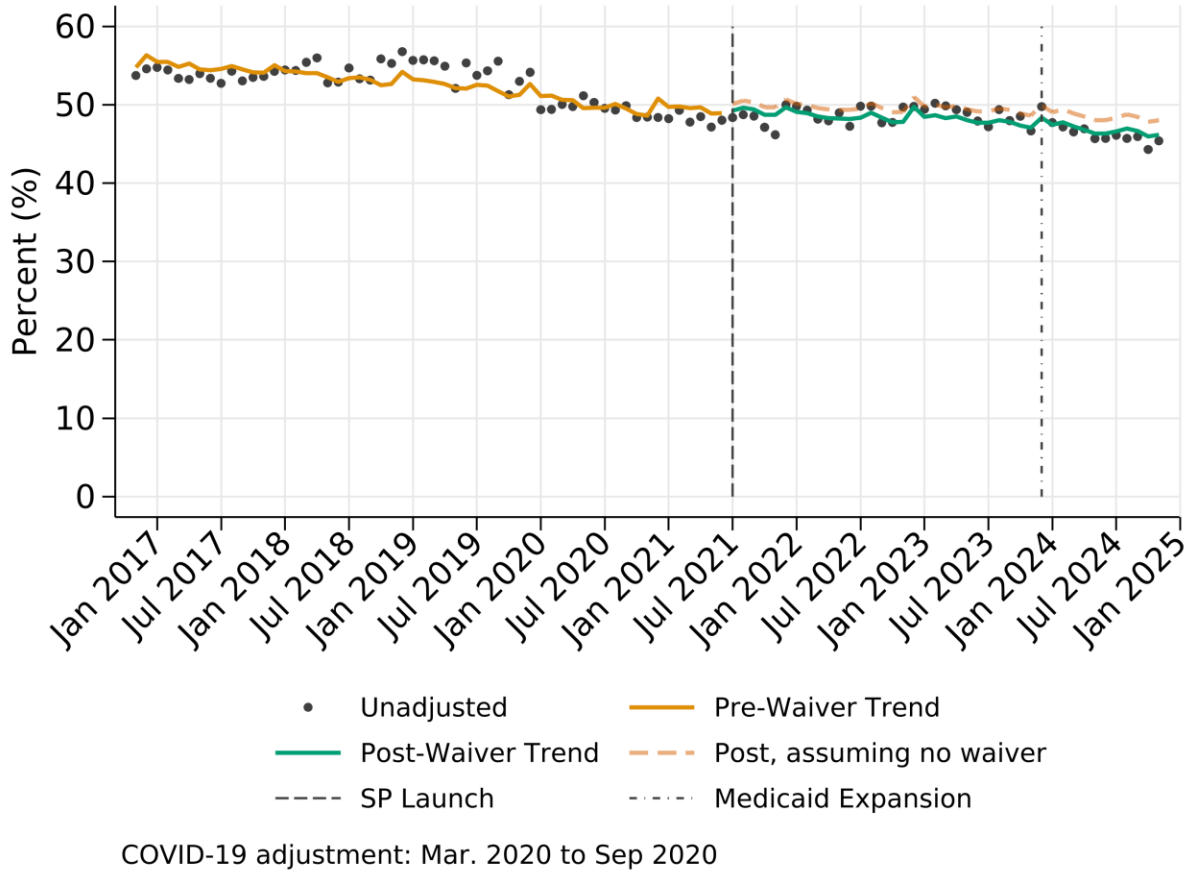
Figure 41: Comparison groups in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 3 days of delivery



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 90 days of delivery (Figure)

Figure 42: Trends in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 90 days of delivery



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 90 days of delivery (Table)

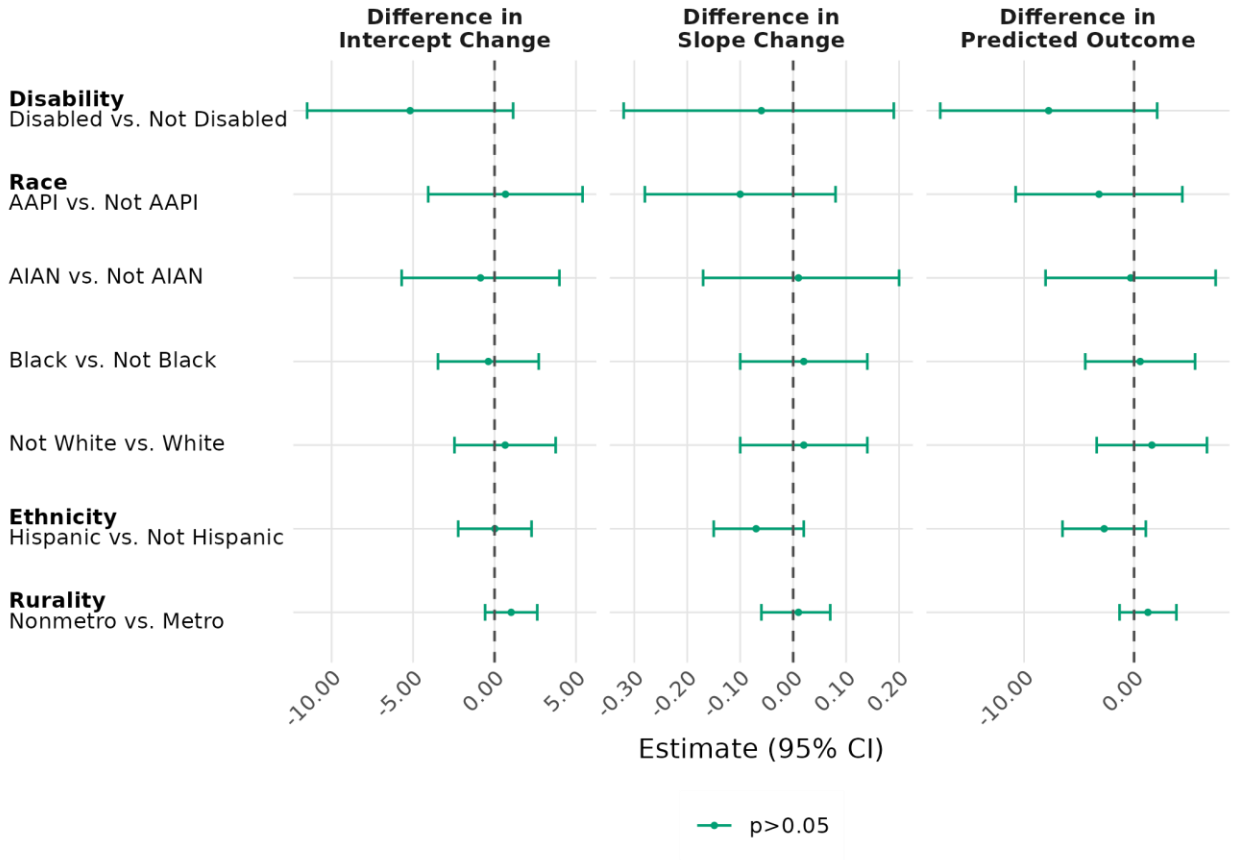
Table 17: Interrupted time series estimates of Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 90 days of delivery

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	50.36* (49.84, 50.87)	49.48* (48.96, 50.00)	-0.88* (-1.60, -0.15)
Monthly Change	-0.094* (-0.11, -0.079)	-0.12* (-0.14, -0.096)	-0.025 (-0.052, 0.0025)
Predicted Average Outcome Nov 2024	46.60* (45.53, 47.68)	44.73* (44.19, 45.28)	-1.87* (-3.08, -0.67)
N			298,695

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.*

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 90 days of delivery (Contrast Plot)

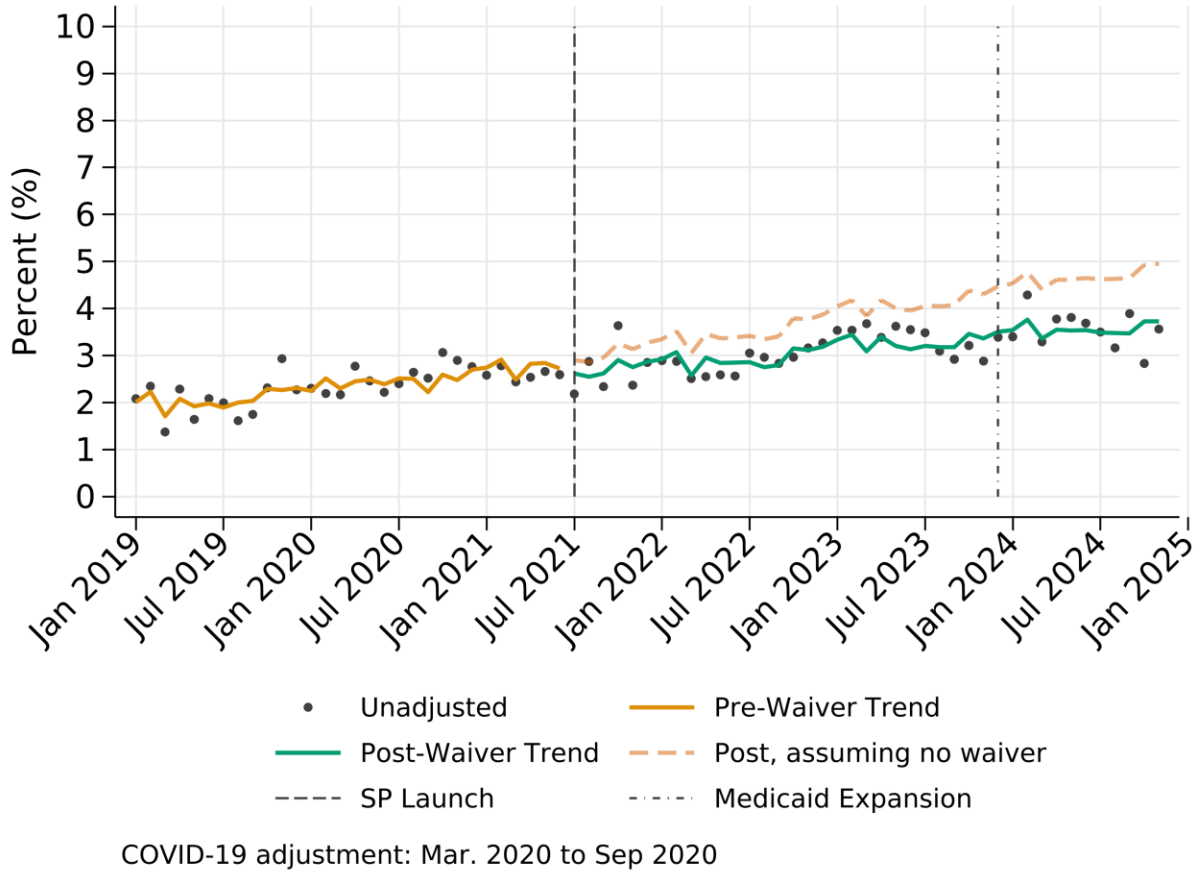
Figure 43: Comparison groups in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 90 days of delivery



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery (Figure)

Figure 44: Trends in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery (Table)

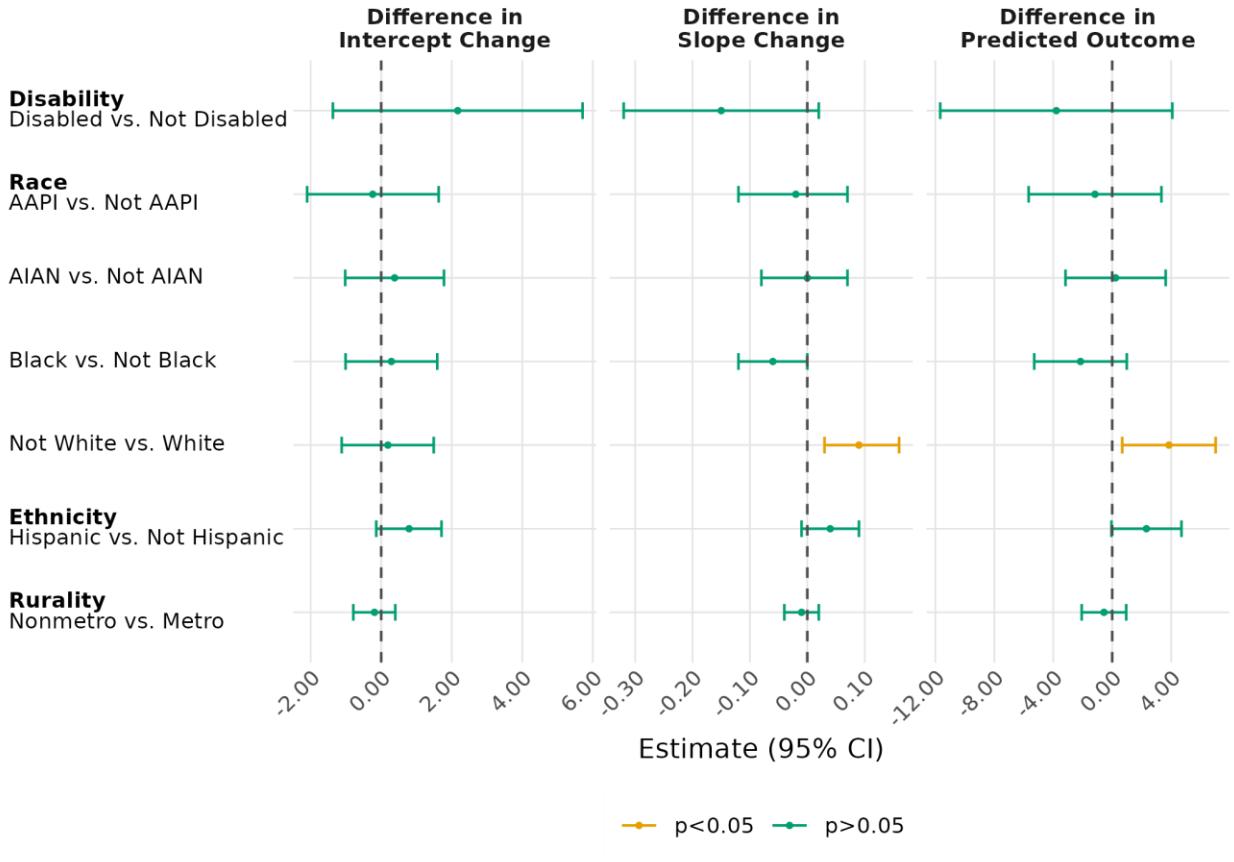
Table 18: Interrupted time series estimates of Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	3.02* (2.80, 3.24)	2.74* (2.56, 2.91)	-0.28* (-0.57, -0.0031)
Monthly Change	0.043* (0.032, 0.055)	0.020* (0.012, 0.028)	-0.024* (-0.038, -0.0095)
Predicted Average Outcome Nov 2024	4.75* (4.09, 5.41)	3.52* (3.33, 3.72)	-1.22* (-1.91, -0.54)
N			225,822

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.*

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery (Contrast Plot)

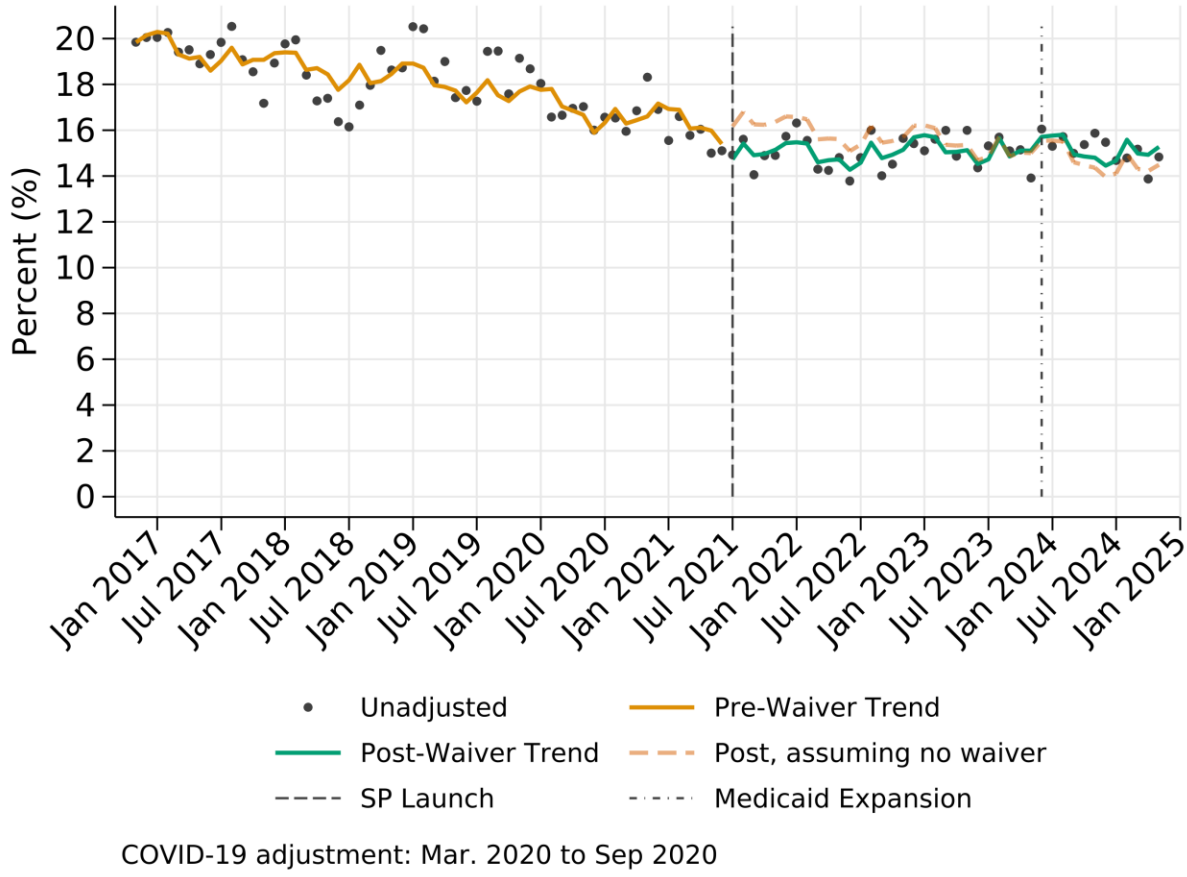
Figure 45: Comparison groups in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 90 days of delivery (Figure)

Figure 46: Trends in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 90 days of delivery



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 90 days of delivery (Table)

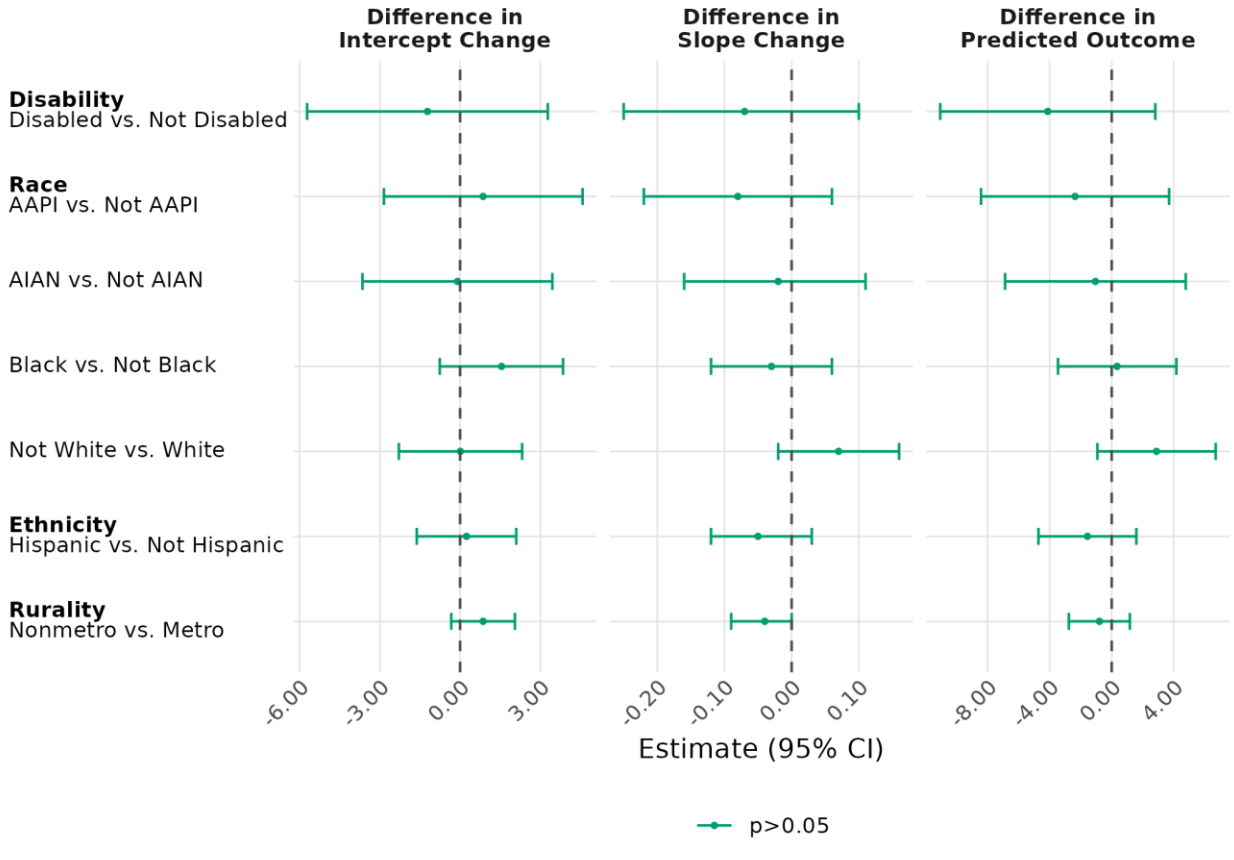
Table 19: Interrupted time series estimates of Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 90 days of delivery

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	16.45* (16.06, 16.83)	15.00* (14.63, 15.38)	-1.44* (-1.98, -0.90)
Monthly Change	-0.058* (-0.070, -0.046)	-0.0024 (-0.019, 0.014)	0.056* (0.035, 0.076)
Predicted Average Outcome Nov 2024	14.13* (13.31, 14.95)	14.91* (14.51, 15.30)	0.78 (-0.13, 1.69)
N			298,695

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.*

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 90 days of delivery (Contrast Plot)

Figure 47: Comparison groups in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 90 days of delivery

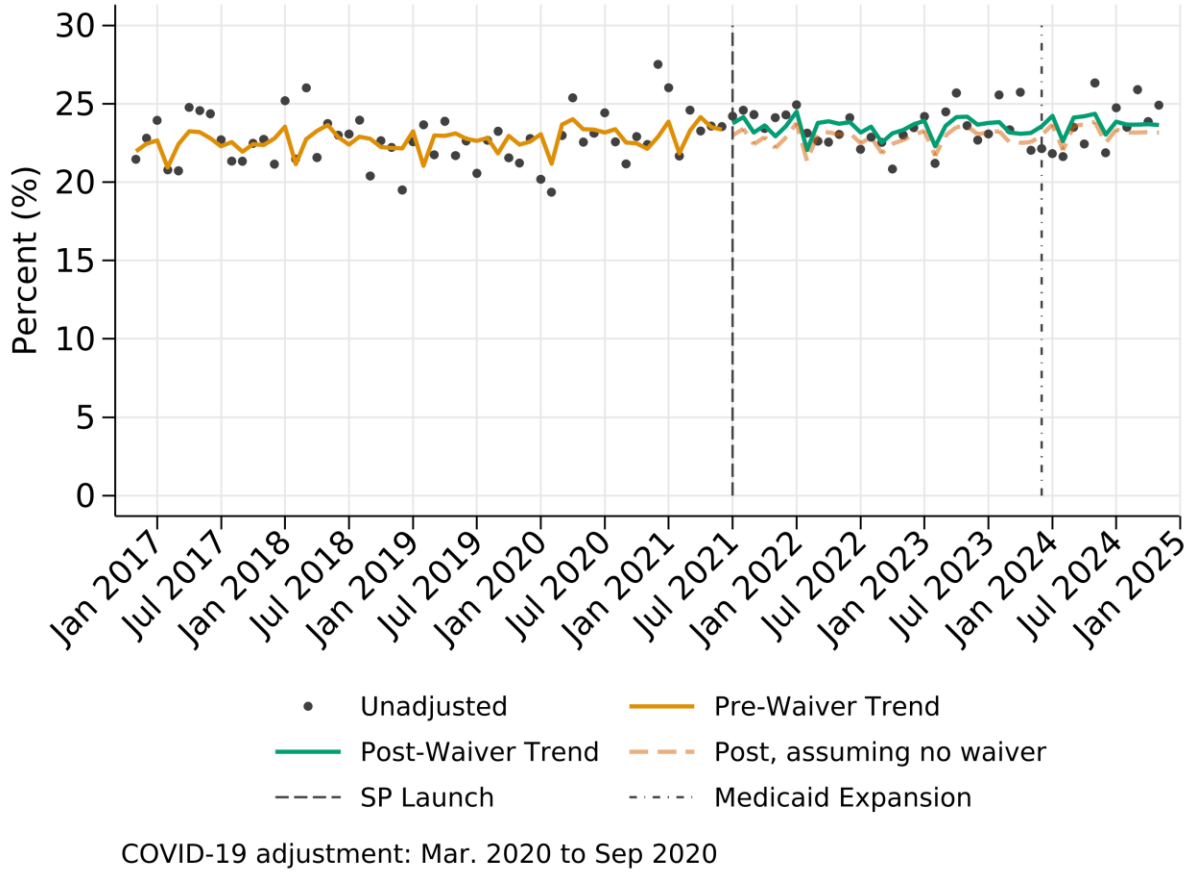


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Low-Risk Cesarean Delivery (LRCD)

Low-Risk Cesarean Delivery (LRCD) (Figure)

Figure 48: Trends in Low-Risk Cesarean Delivery (LRCD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 0-64) in the NC Medicaid population as determined in the metric specifications.

Demographic and enrollment information were derived from the mother rather than the child. SP attribution was determined by the mother's SP eligibility or enrollment status at the time of delivery.

Low-Risk Cesarean Delivery (LRCD) (Table)

Table 20: Interrupted time series estimates of Low-Risk Cesarean Delivery (LRCD)

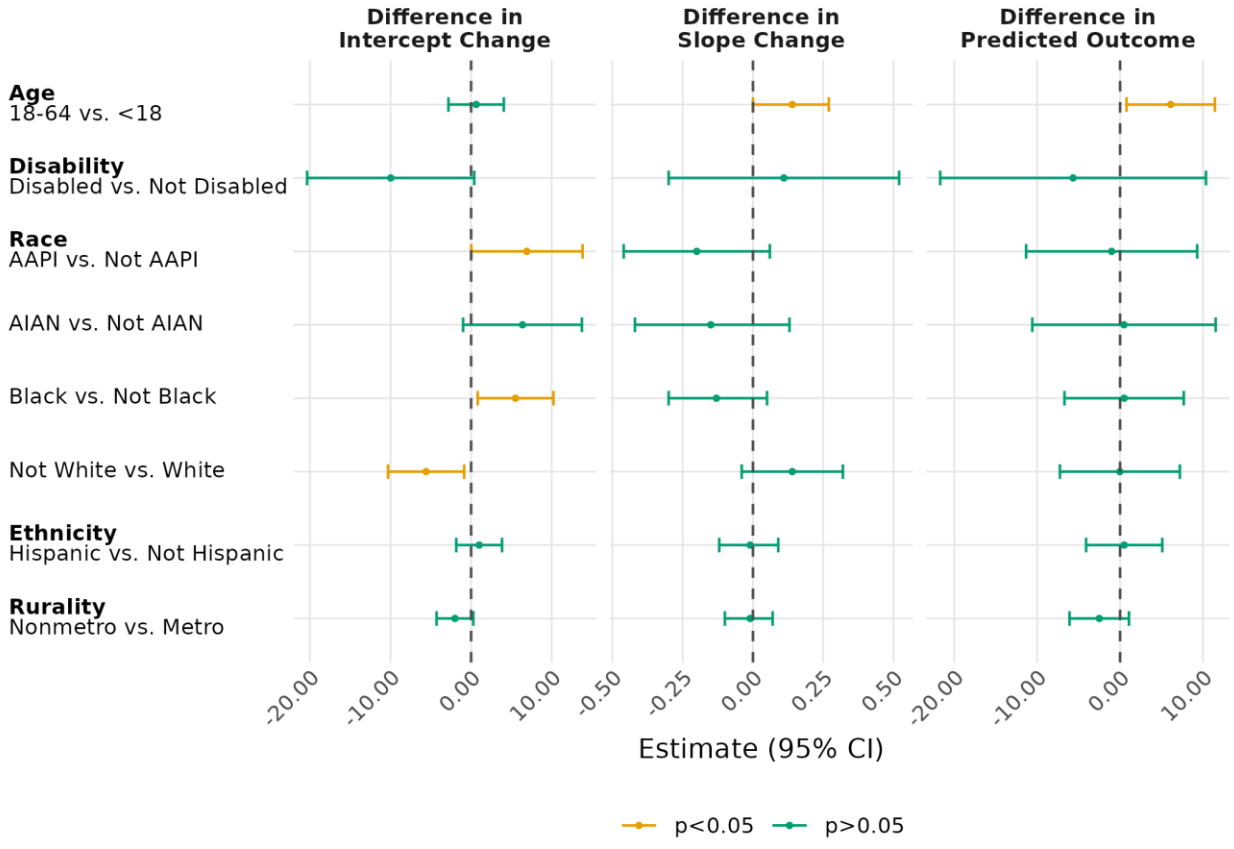
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	22.72* (22.04, 23.40)	23.48* (22.74, 24.22)	0.76 (-0.25, 1.77)
Monthly Change	-0.0050 (-0.024, 0.015)	-0.012 (-0.044, 0.020)	-0.0068 (-0.044, 0.031)
Predicted Average Outcome Nov 2024	22.52* (21.10, 23.94)	23.01* (22.25, 23.77)	0.49 (-1.13, 2.10)
N			123,933

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 0-64) in the NC Medicaid population as determined in the metric specifications.*

Demographic and enrollment information were derived from the mother rather than the child. SP attribution was determined by the mother's SP eligibility or enrollment status at the time of delivery.

Low-Risk Cesarean Delivery (LRCD) (Contrast Plot)

Figure 49: Comparison groups in Low-Risk Cesarean Delivery (LRCD)

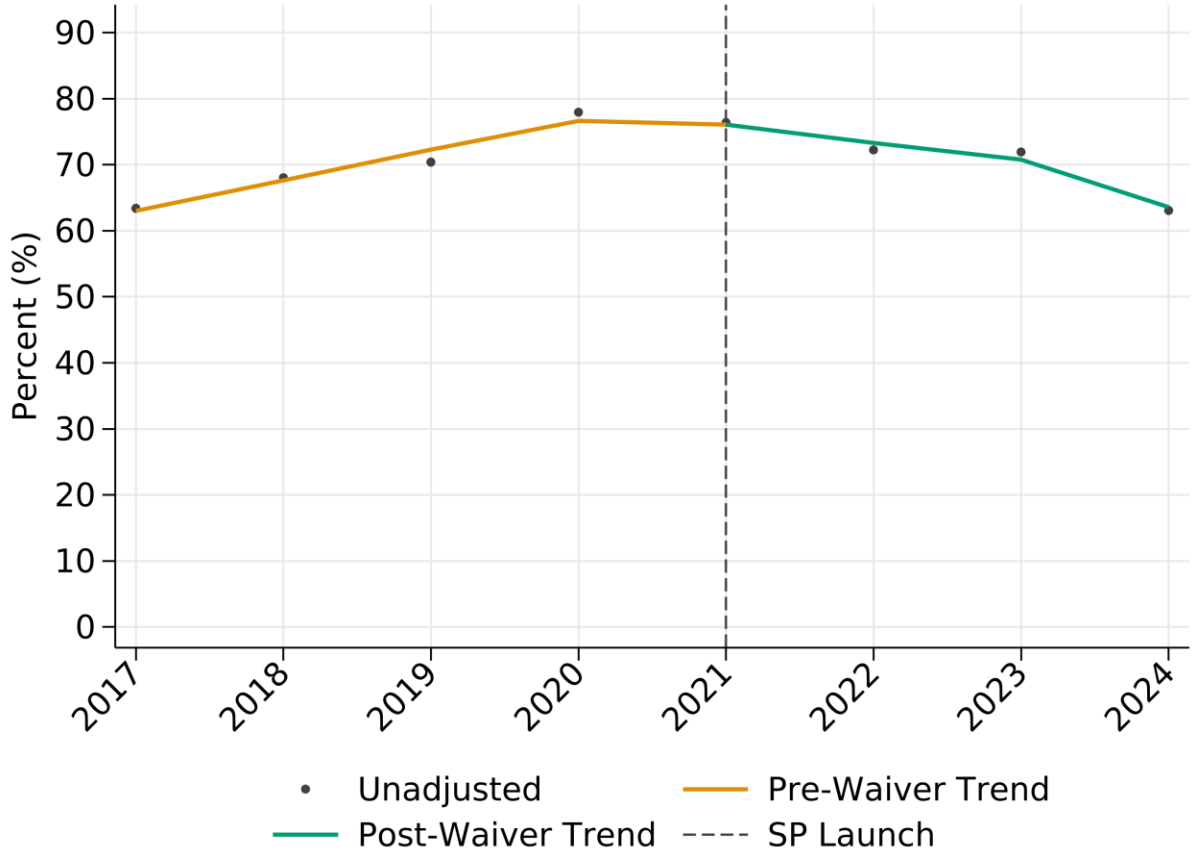


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female). Demographic and enrollment information were derived from the mother rather than the child. SP attribution was determined by the mother's SP eligibility or enrollment status at the time of delivery.

Asthma Medication Ratio (AMR)

Asthma Medication Ratio in Children (AMR) (Figure)

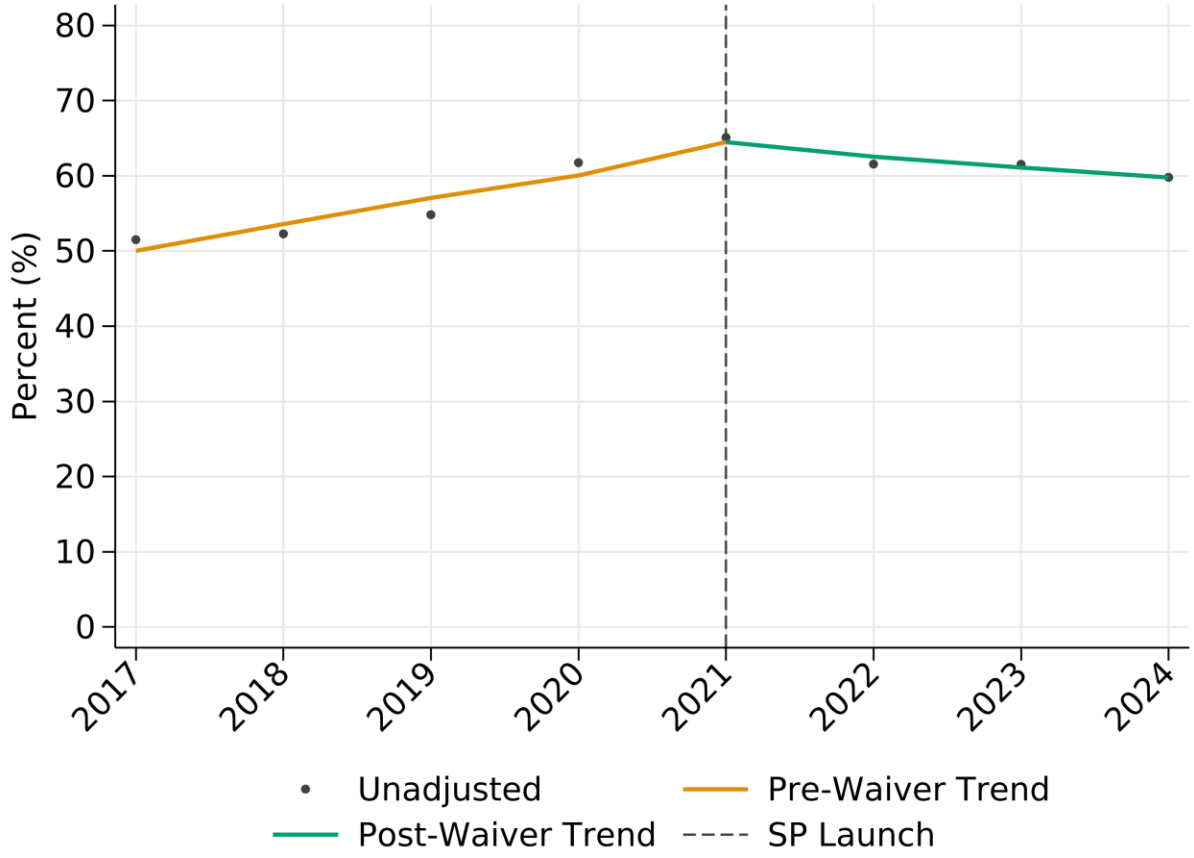
Figure 50: Trends in Asthma Medication Ratio in Children (AMR)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 5-18) in the NC Medicaid population as determined in the metric specifications.

Asthma Medication Ratio in Adults (AMR) (Figure)

Figure 51: Trends in Asthma Medication Ratio in Adults (AMR)

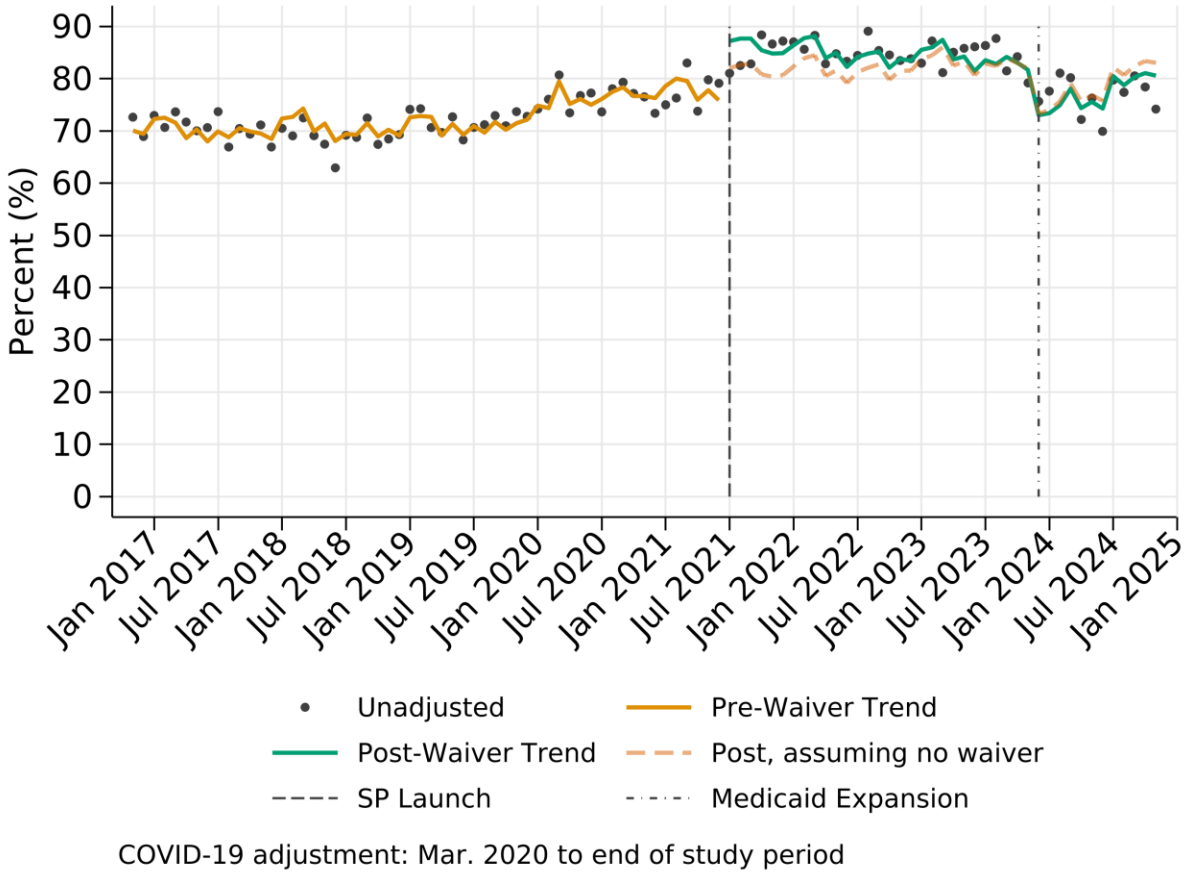


Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18-64) in the NC Medicaid population as determined in the metric specifications.

Pharmacotherapy Management of COPD Exacerbation (PCE)

Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Bronchodilator (Figure)

Figure 52: Trends in Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Bronchodilator



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 40+) in the NC Medicaid population as determined in the metric specifications.

Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Bronchodilator (Table)

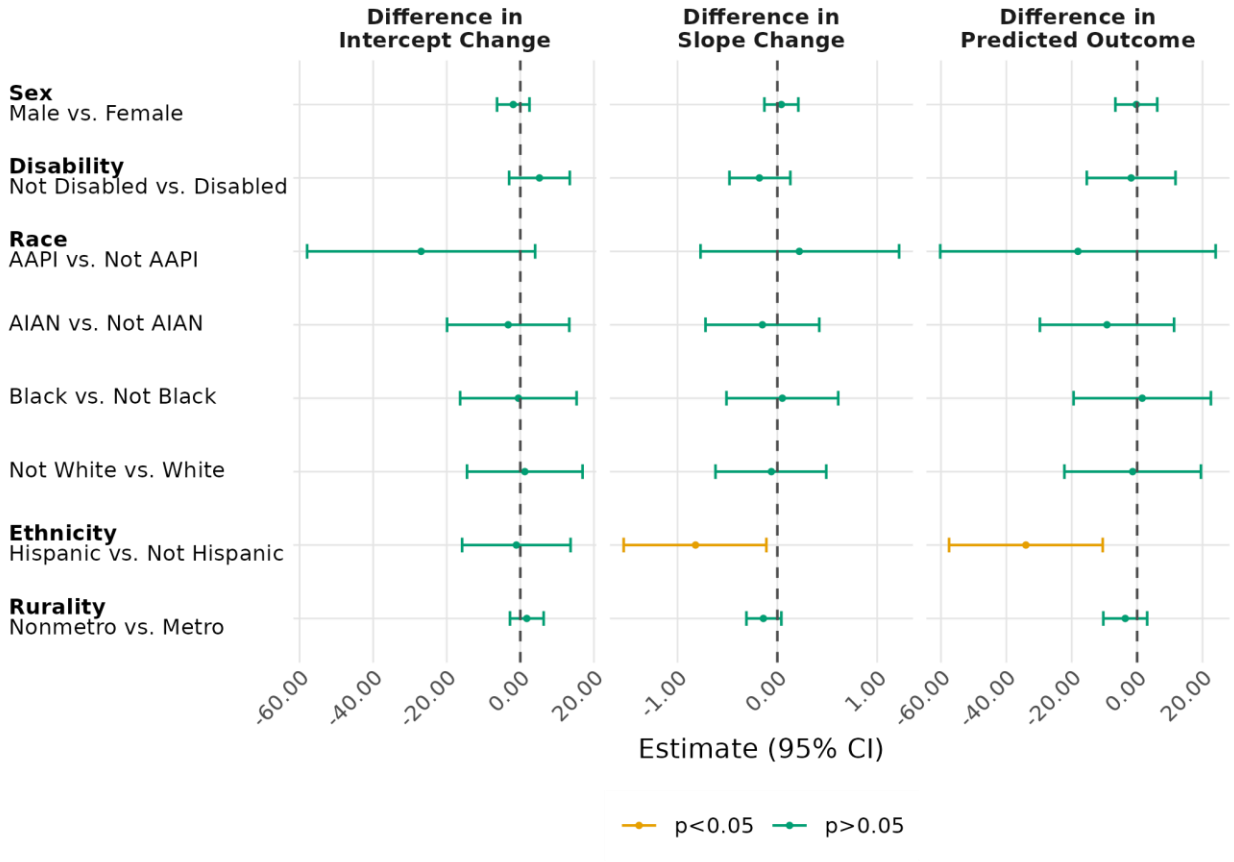
Table 21: Interrupted time series estimates of Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Bronchodilator

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	77.09* (74.54, 79.64)	82.29* (80.43, 84.14)	5.20* (2.18, 8.22)
Monthly Change	0.056* (0.0022, 0.11)	-0.14 (-0.41, 0.14)	-0.19 (-0.46, 0.080)
Predicted Average Outcome Nov 2024	80.91* (68.36, 93.46)	78.44* (76.68, 80.19)	-2.47 (-15.17, 10.23)
N			34,176

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 40+) in the NC Medicaid population as determined in the metric specifications.*

Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Bronchodilator (Contrast Plot)

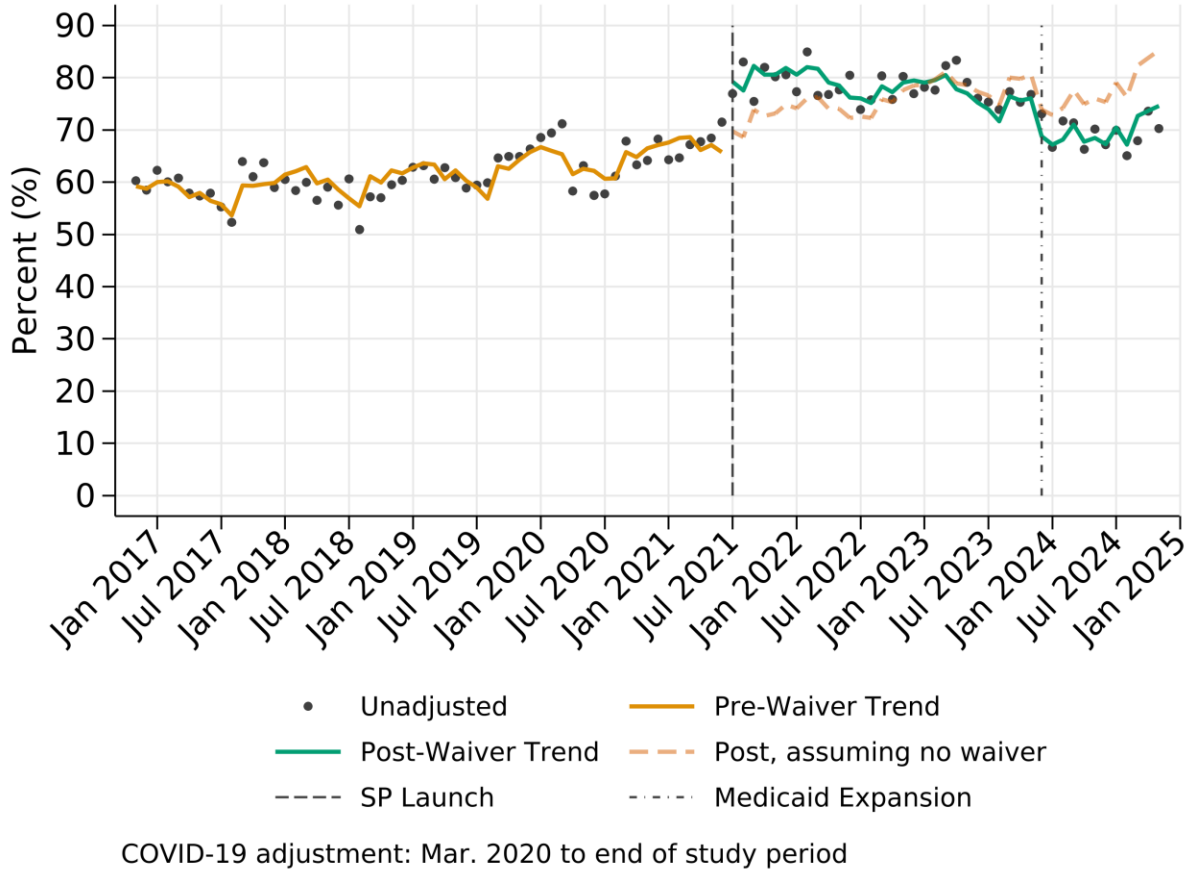
Figure 53: Comparison groups in Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Bronchodilator



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid (Figure)

Figure 54: Trends in Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 40+) in the NC Medicaid population as determined in the metric specifications.

Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid (Table)

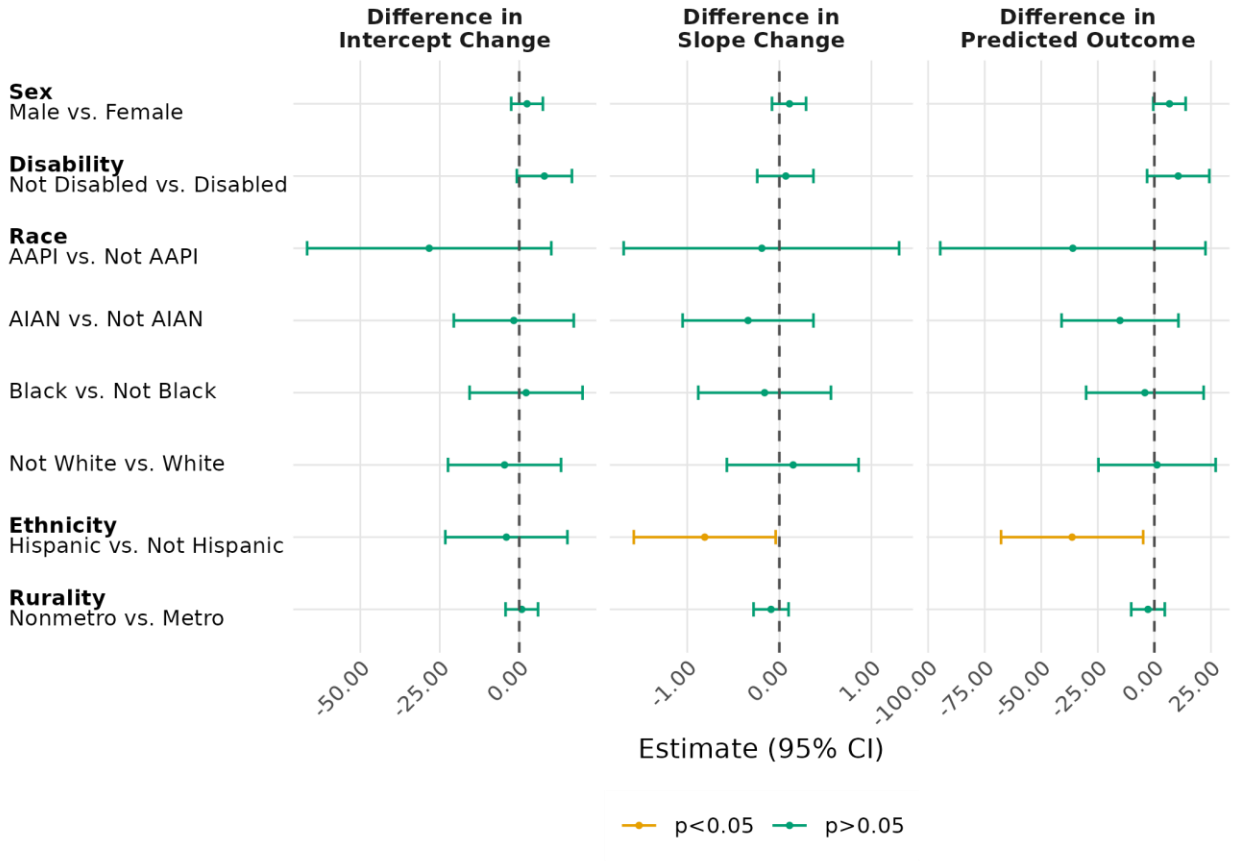
Table 22: Interrupted time series estimates of Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	67.76* (64.79, 70.73)	77.18* (75.19, 79.17)	9.42* (5.89, 12.95)
Monthly Change	0.18* (0.12, 0.24)	-0.32* (-0.64, -0.0018)	-0.50* (-0.81, -0.19)
Predicted Average Outcome Nov 2024	81.11* (66.49, 95.72)	70.49* (68.57, 72.42)	-10.61 (-25.36, 4.13)
N			34,176

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 40+) in the NC Medicaid population as determined in the metric specifications.*

Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid (Contrast Plot)

Figure 55: Comparison groups in Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid

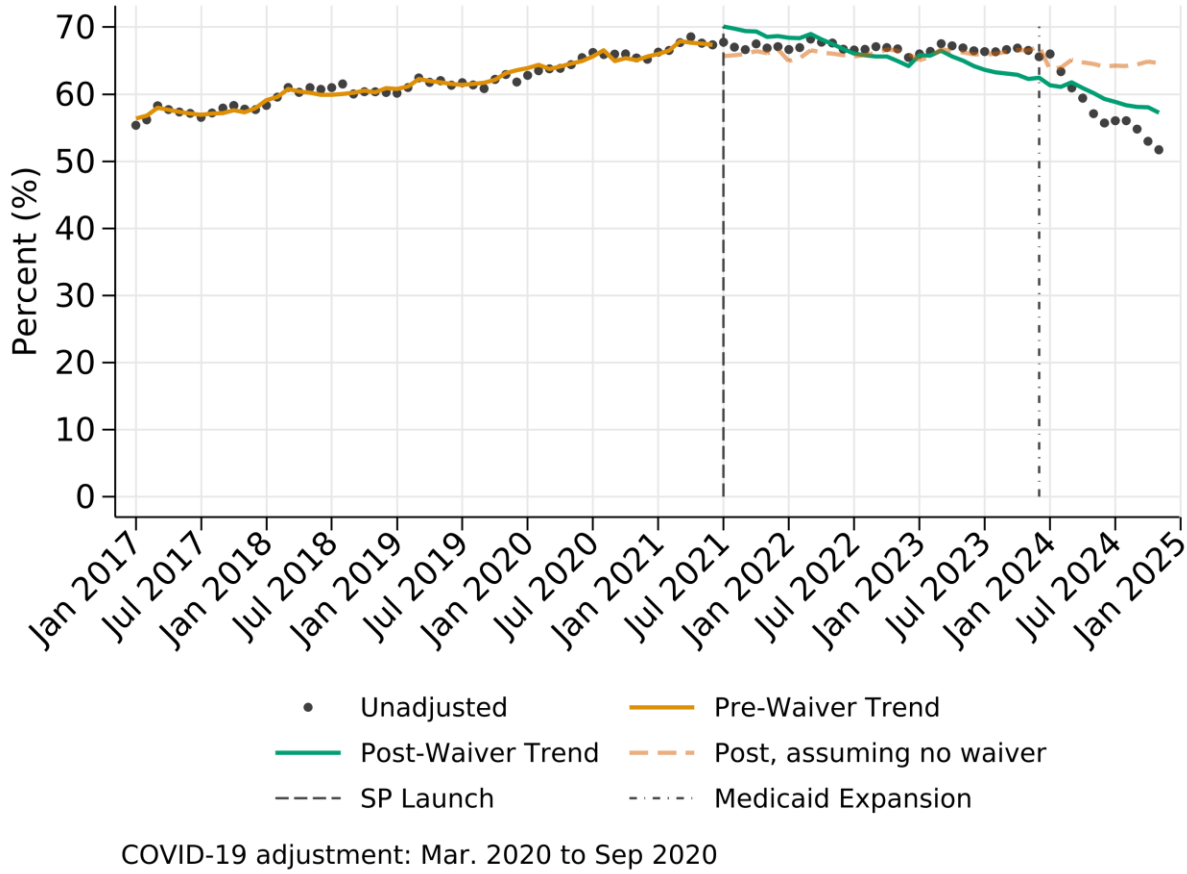


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Statin Therapy

Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC) (Figure)

Figure 56: Trends in Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged M 21-75; F 40-75) in the NC Medicaid population as determined in the metric specifications.

The Medicaid Expansion population has been excluded.

Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC) (Table)

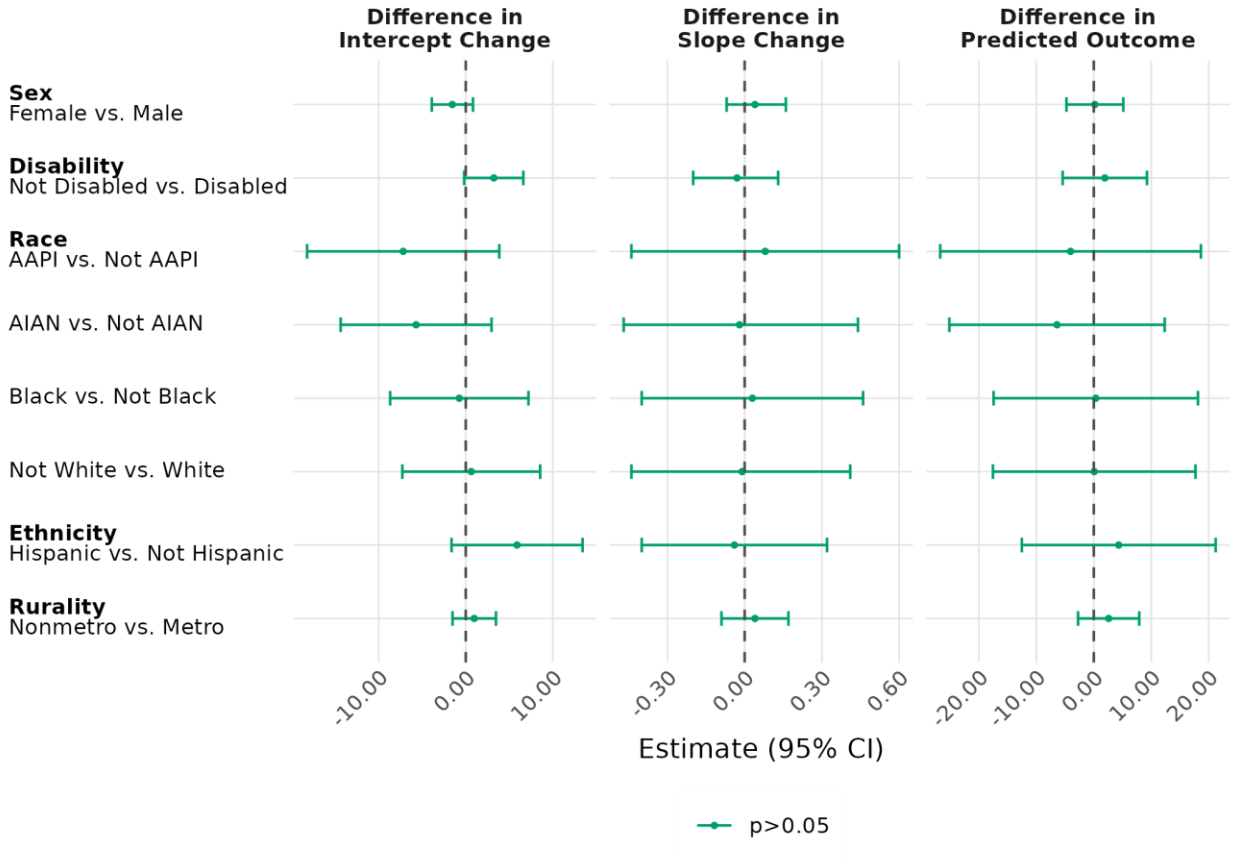
Table 23: Interrupted time series estimates of Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC)

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	67.65* (66.99, 68.32)	70.46* (69.41, 71.51)	2.81* (1.74, 3.87)
Monthly Change	0.22* (0.17, 0.28)	-0.28* (-0.37, -0.20)	-0.51* (-0.57, -0.44)
Predicted Average Outcome Nov 2024	76.59* (74.03, 79.16)	59.12* (56.17, 62.08)	-17.47* (-19.60, -15.33)
N			453,446

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged M 21-75; F 40-75) in the NC Medicaid population as determined in the metric specifications.*
The Medicaid Expansion population has been excluded.

Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC) (Contrast Plot)

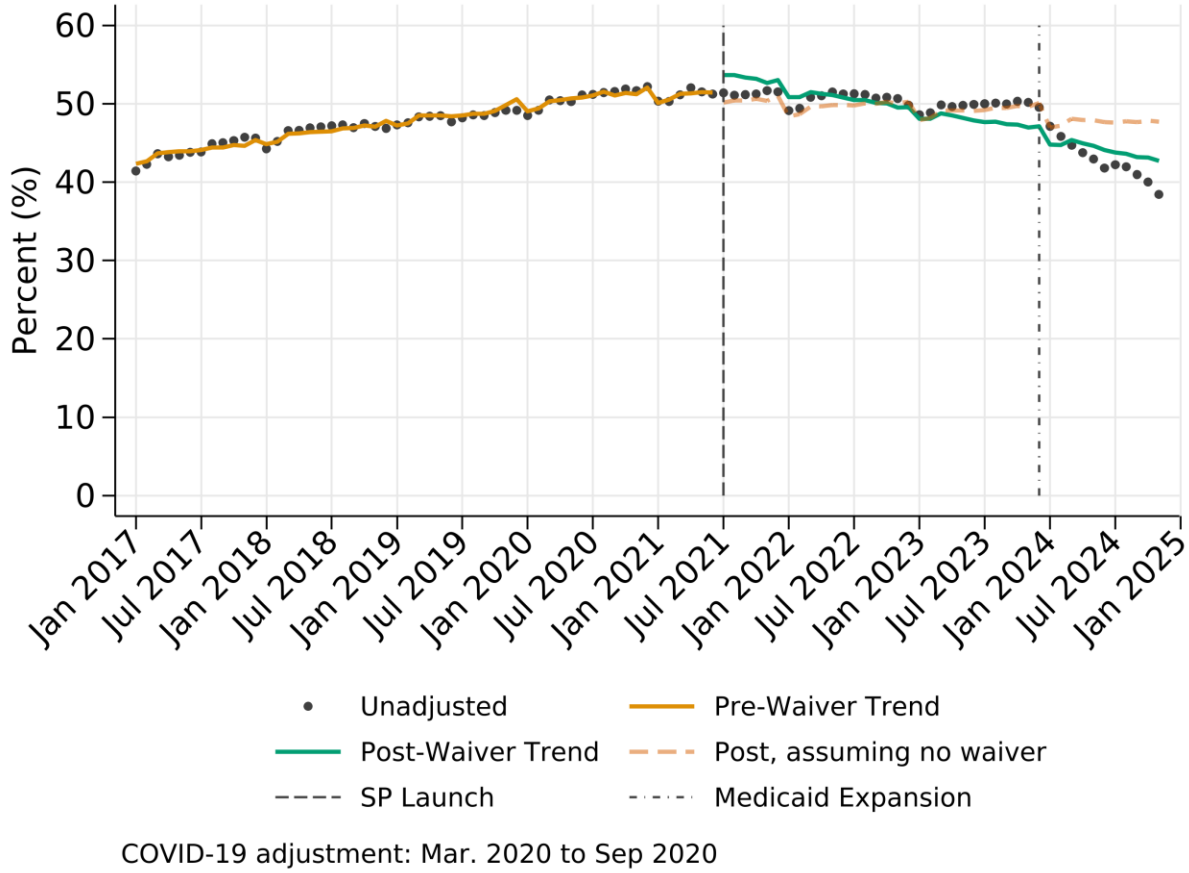
Figure 57: Comparison groups in Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC)



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

Statin Therapy: Statin Therapy for Patients with Diabetes (SPD) (Figure)

Figure 58: Trends in Statin Therapy: Statin Therapy for Patients with Diabetes (SPD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged M 21-75; F 40-75) in the NC Medicaid population as determined in the metric specifications.

The Medicaid Expansion population has been excluded.

Statin Therapy: Statin Therapy for Patients with Diabetes (SPD) (Table)

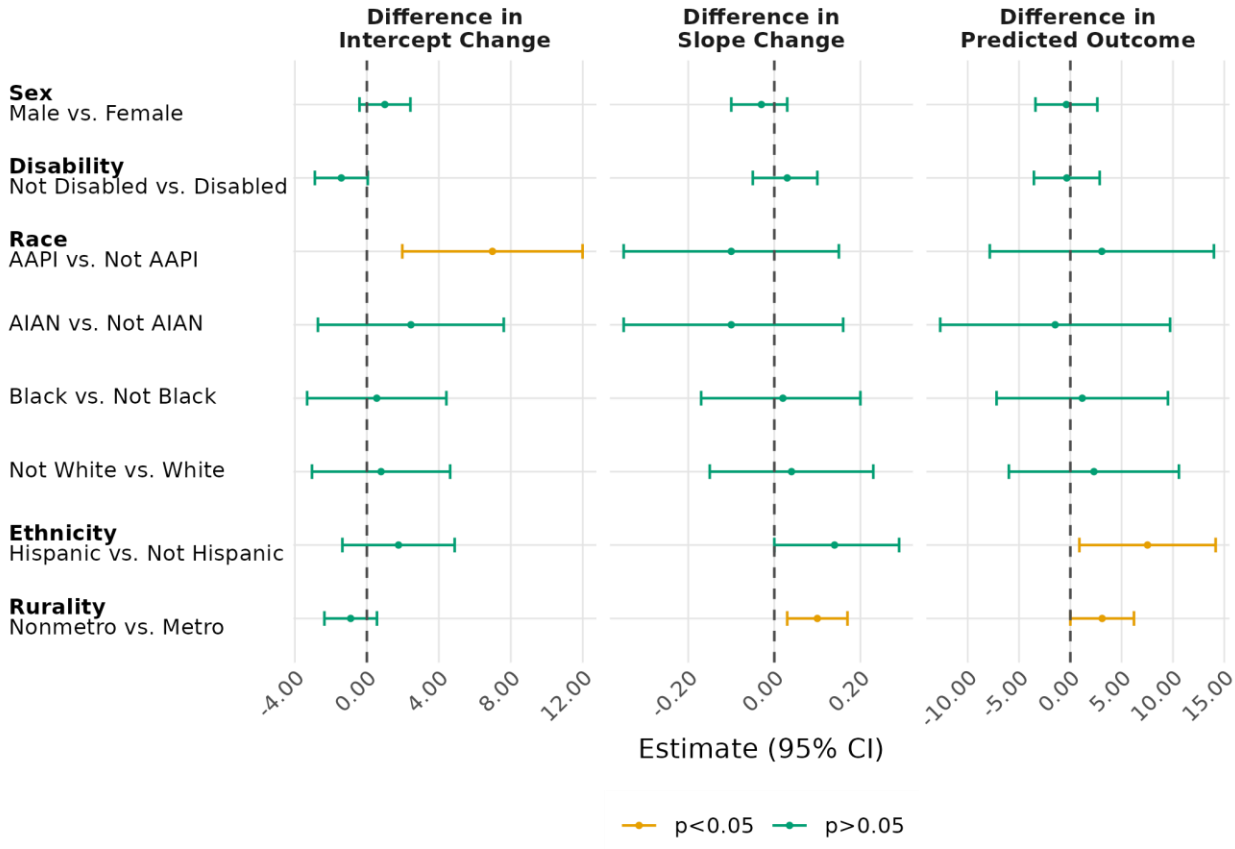
Table 24: Interrupted time series estimates of Statin Therapy: Statin Therapy for Patients with Diabetes (SPD)

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	51.38* (50.95, 51.81)	53.45* (52.99, 53.91)	2.07* (1.55, 2.58)
Monthly Change	0.26* (0.24, 0.28)	-0.063* (-0.10, -0.026)	-0.32* (-0.36, -0.29)
Predicted Average Outcome Nov 2024	61.67* (60.64, 62.71)	50.91* (49.69, 52.14)	-10.76* (-12.17, -9.35)
N			1,452,893

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged M 21-75; F 40-75) in the NC Medicaid population as determined in the metric specifications.*
The Medicaid Expansion population has been excluded.

Statin Therapy: Statin Therapy for Patients with Diabetes (SPD) (Contrast Plot)

Figure 59: Comparison groups in Statin Therapy: Statin Therapy for Patients with Diabetes (SPD)

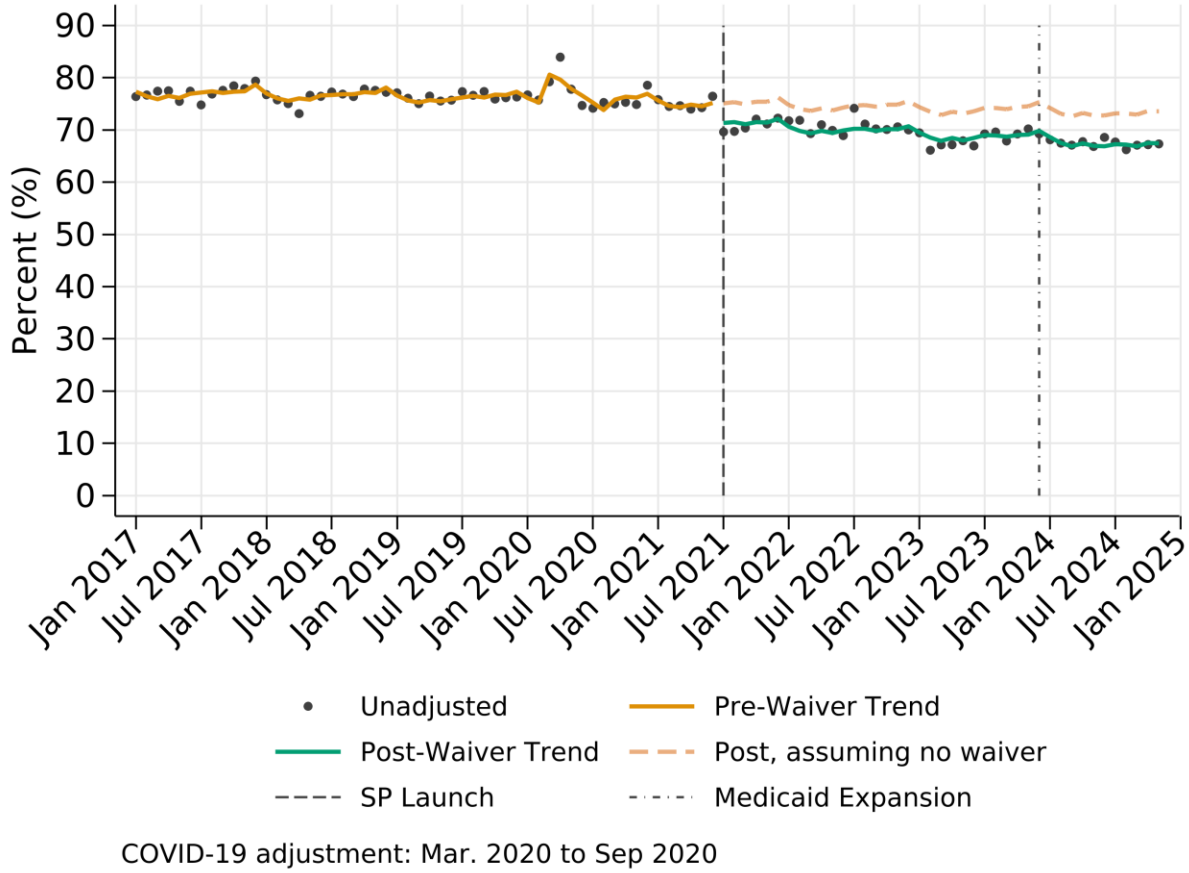


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP)

Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP) (Figure)

Figure 60: Trends in Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP) (Table)

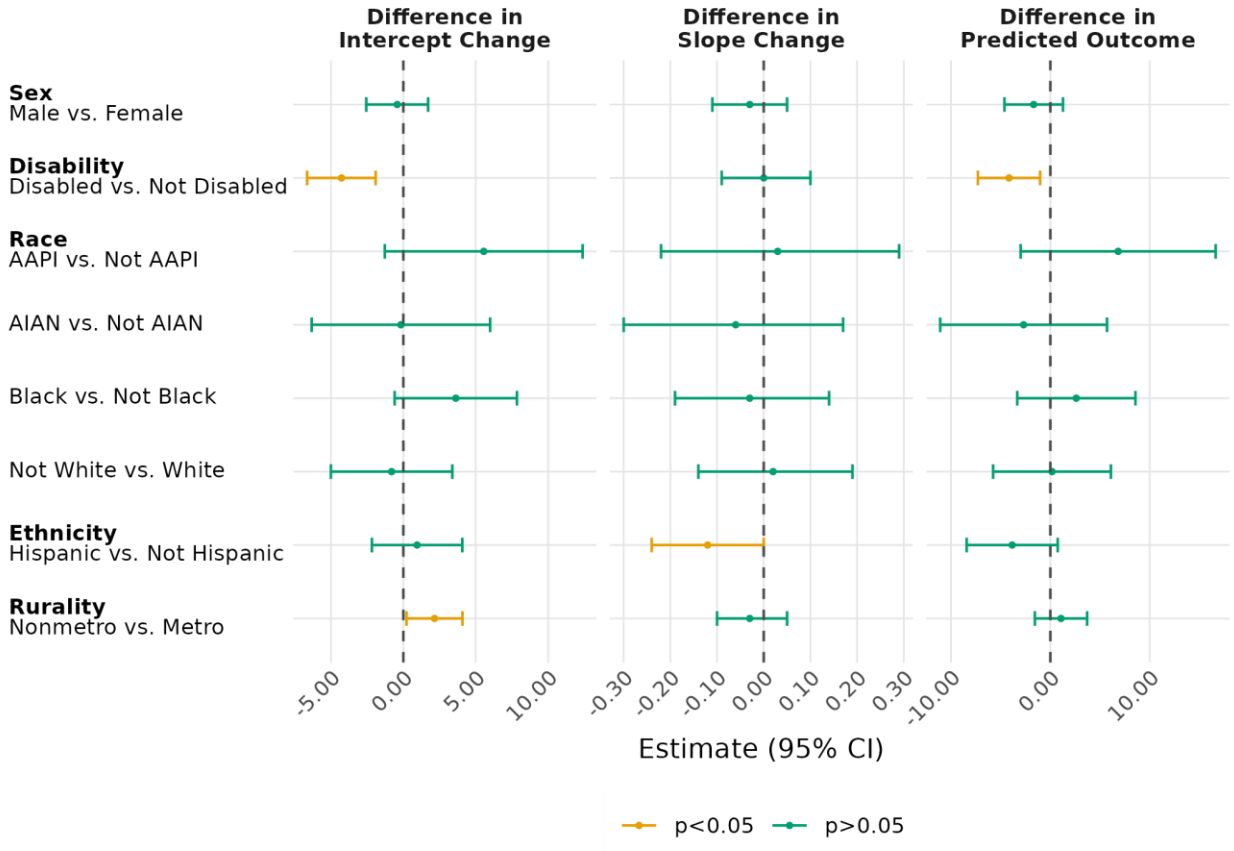
Table 25: Interrupted time series estimates of Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP)

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	75.10* (74.60, 75.61)	71.34* (70.59, 72.09)	-3.76* (-4.66, -2.86)
Monthly Change	-0.032* (-0.047, -0.018)	-0.093* (-0.12, -0.061)	-0.060* (-0.095, -0.025)
Predicted Average Outcome Nov 2024	73.80* (72.74, 74.86)	67.64* (66.93, 68.35)	-6.17* (-7.45, -4.88)
N			208,668

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP) (Contrast Plot)

Figure 61: Comparison groups in Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP)

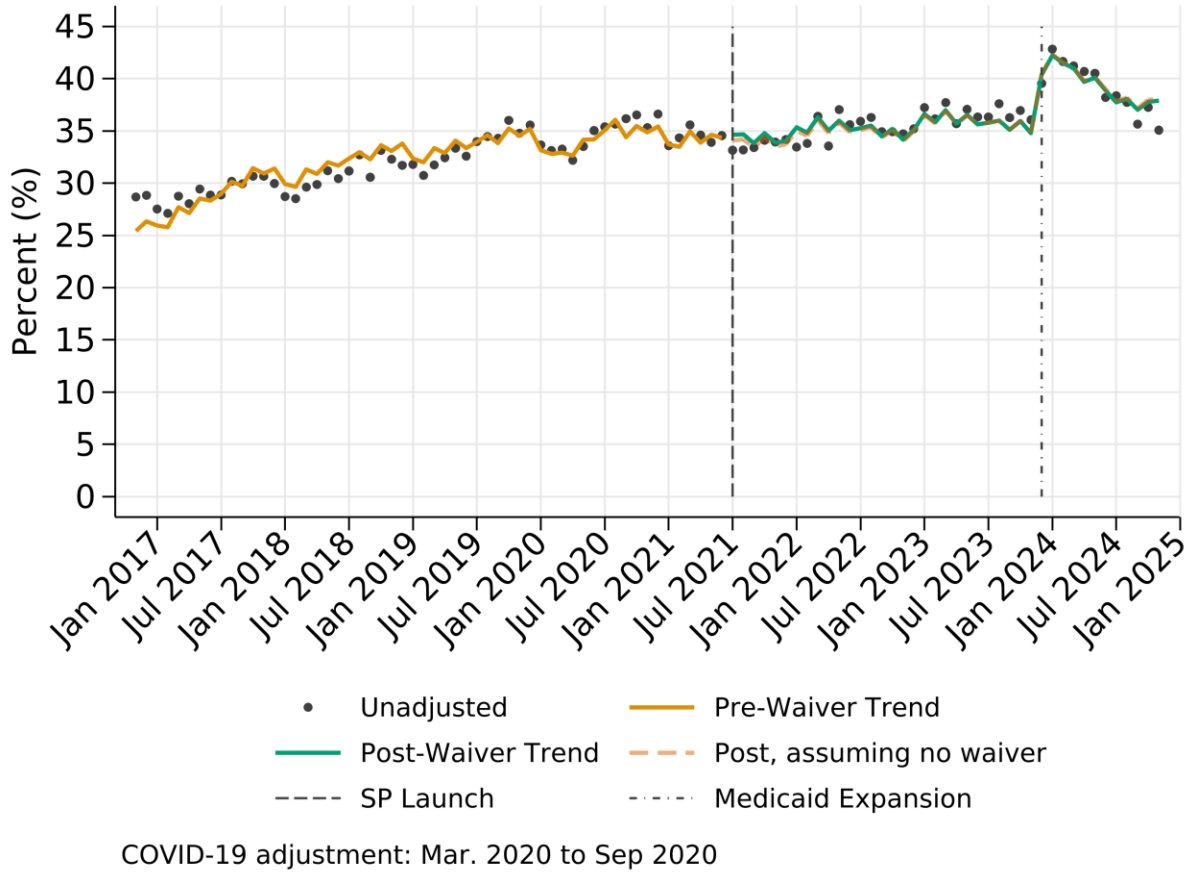


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Any SUD Treatment

Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service ‡ (Figure)

Figure 62: Trends in Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service ‡ (Table)

Table 26: Interrupted time series estimates of Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service

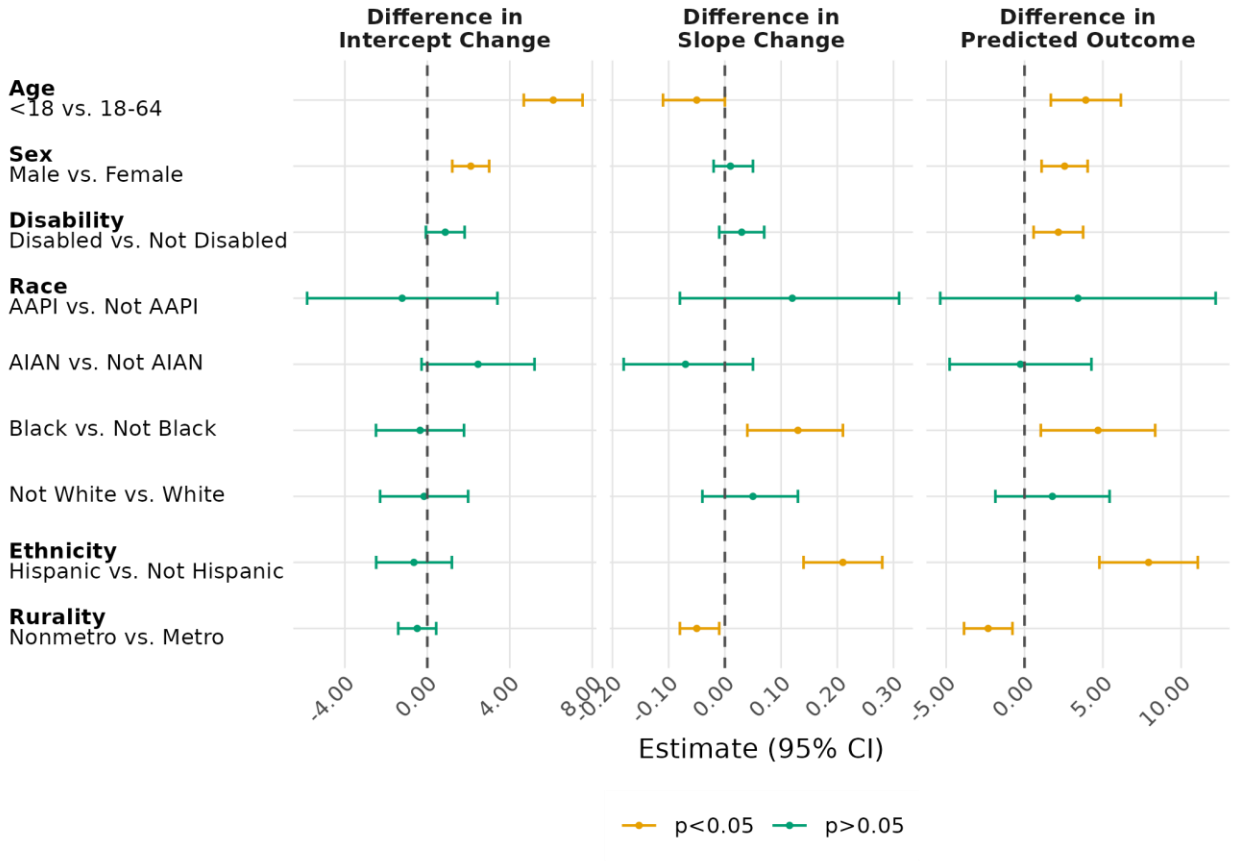
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	33.95* (33.22, 34.68)	34.78* (34.24, 35.32)	0.83 (-0.036, 1.69)
Monthly Change	-0.035* (-0.065, -0.0051)	-0.064* (-0.092, -0.037)	-0.029 (-0.066, 0.0082)
Predicted Average Outcome Nov 2024	32.54* (30.70, 34.38)	32.20* (31.33, 33.08)	-0.34 (-2.21, 1.54)
N			3,221,130

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service ‡ (Contrast Plot)

Figure 63: Comparison groups in Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service



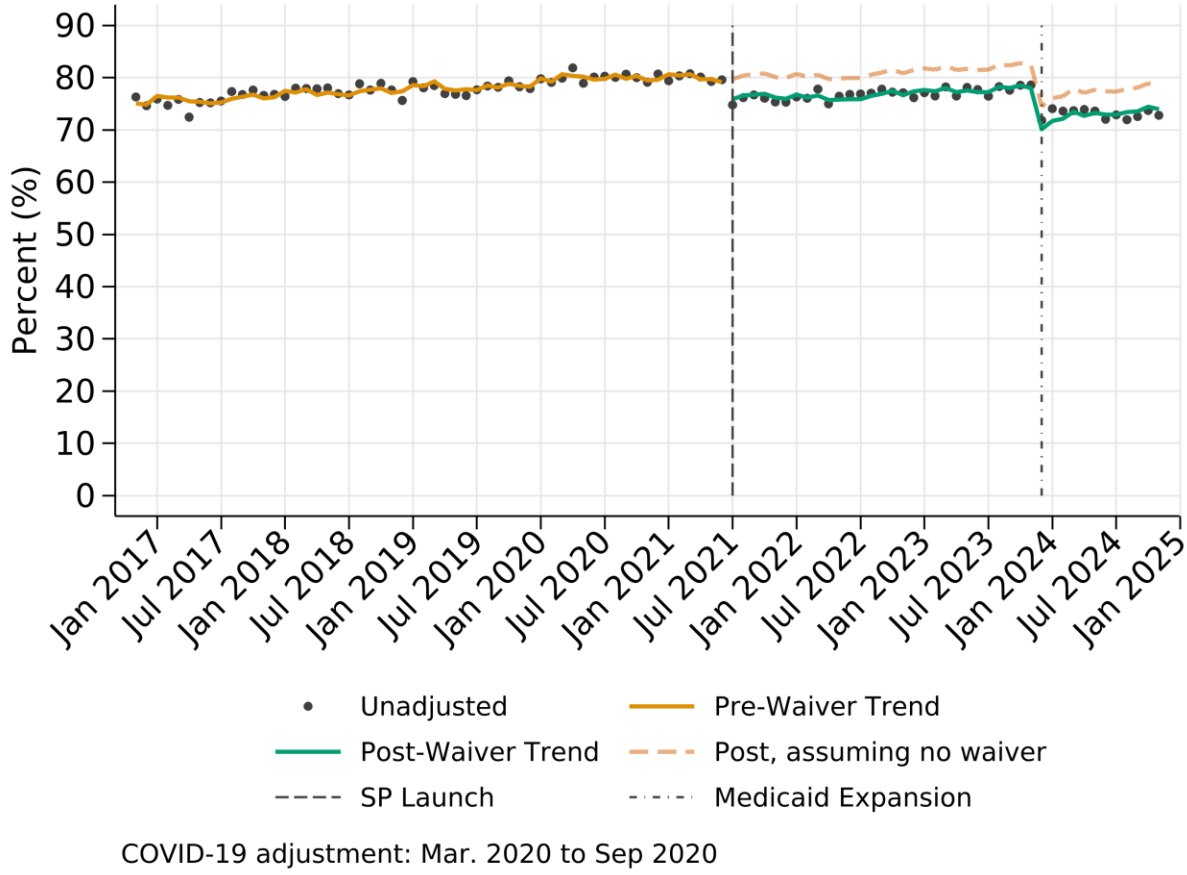
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD

Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD ‡ (Figure)

Figure 64: Trends in Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 20-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD ‡ (Table)

Table 27: Interrupted time series estimates of Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD

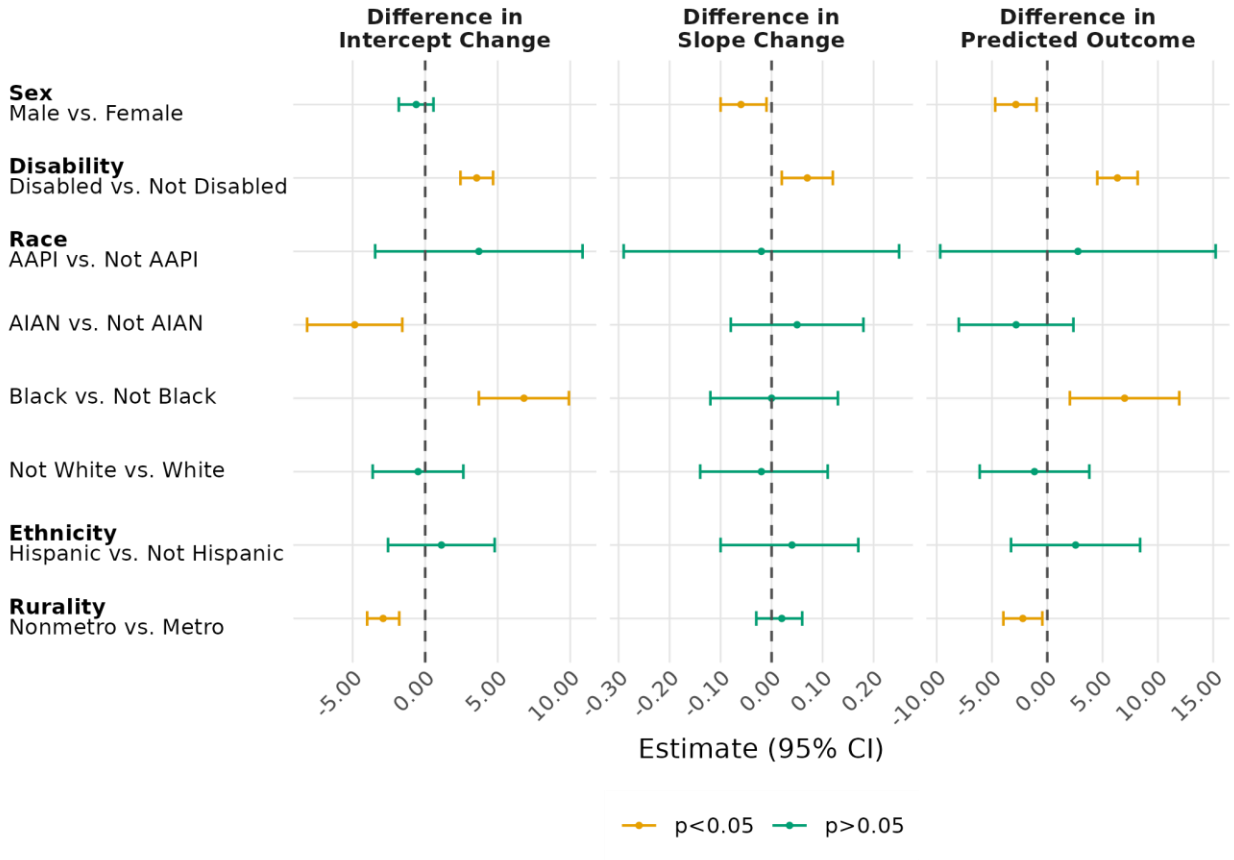
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	79.06* (78.69, 79.43)	75.21* (74.74, 75.68)	-3.85* (-4.37, -3.33)
Monthly Change	0.061* (0.051, 0.072)	0.045* (0.027, 0.063)	-0.017 (-0.038, 0.0048)
Predicted Average Outcome Nov 2024	81.52* (80.76, 82.27)	76.99* (76.58, 77.40)	-4.52* (-5.38, -3.67)
N			1,010,359

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 20-99) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD ‡ (Contrast Plot)

Figure 65: Comparison groups in Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD



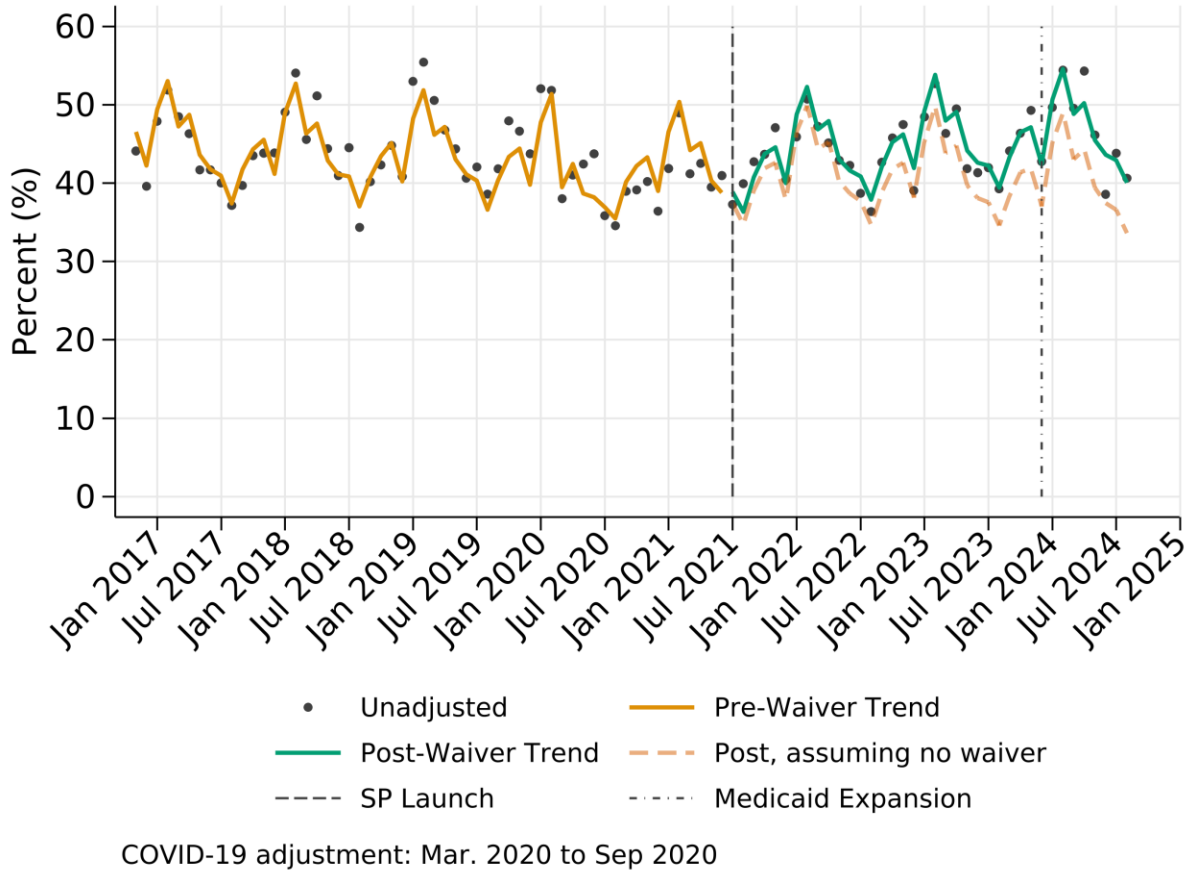
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up Care for Children Prescribed ADHD Medication (ADD)

Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation ‡ (Figure)

Figure 66: Trends in Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation ‡ (Table)

Table 28: Interrupted time series estimates of Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation

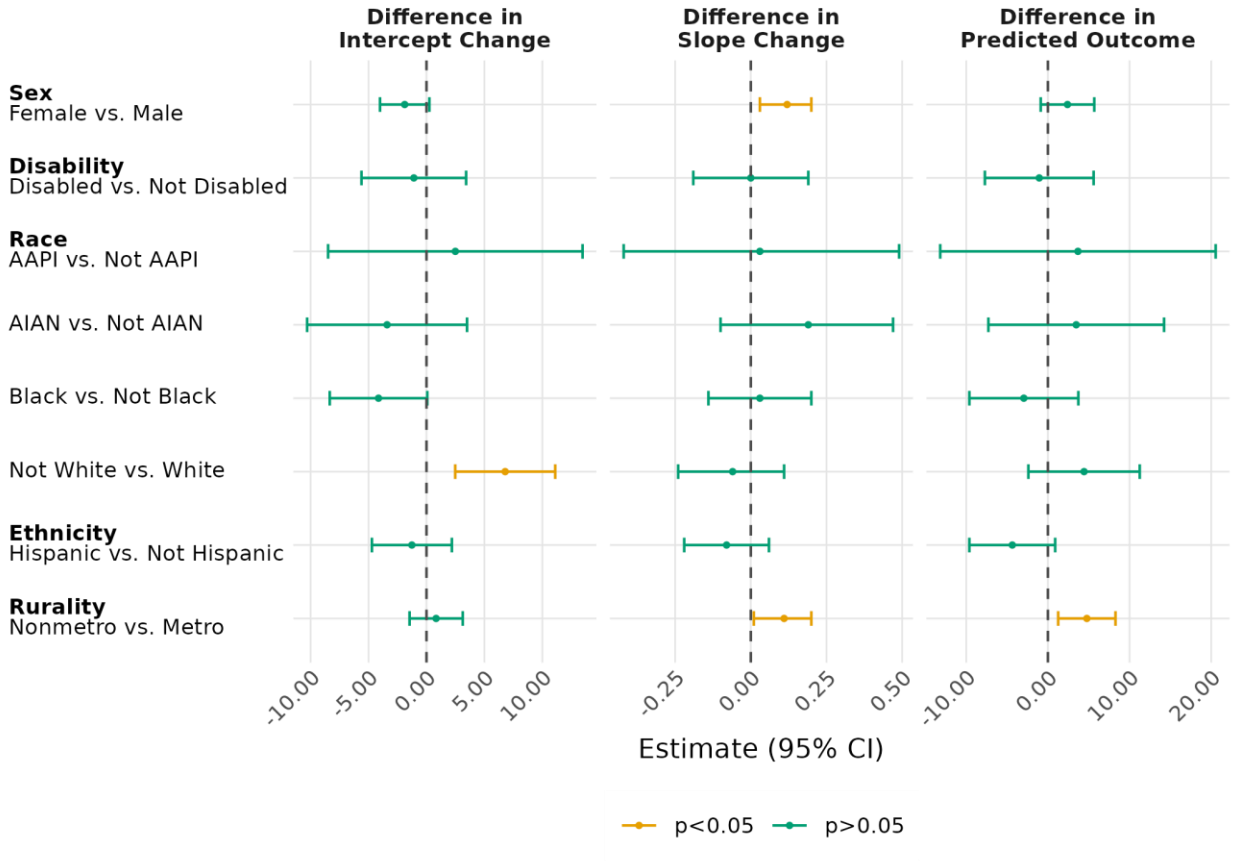
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	42.15* (41.42, 42.88)	43.59* (42.79, 44.38)	1.44* (0.38, 2.50)
Monthly Change	-0.055* (-0.076, -0.034)	0.080* (0.043, 0.12)	0.14* (0.092, 0.18)
Predicted Average Outcome Aug 2024	40.12* (38.66, 41.58)	46.56* (45.76, 47.35)	6.44* (4.77, 8.11)
N			147,884

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation ‡ (Contrast Plot)

Figure 67: Comparison groups in Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation

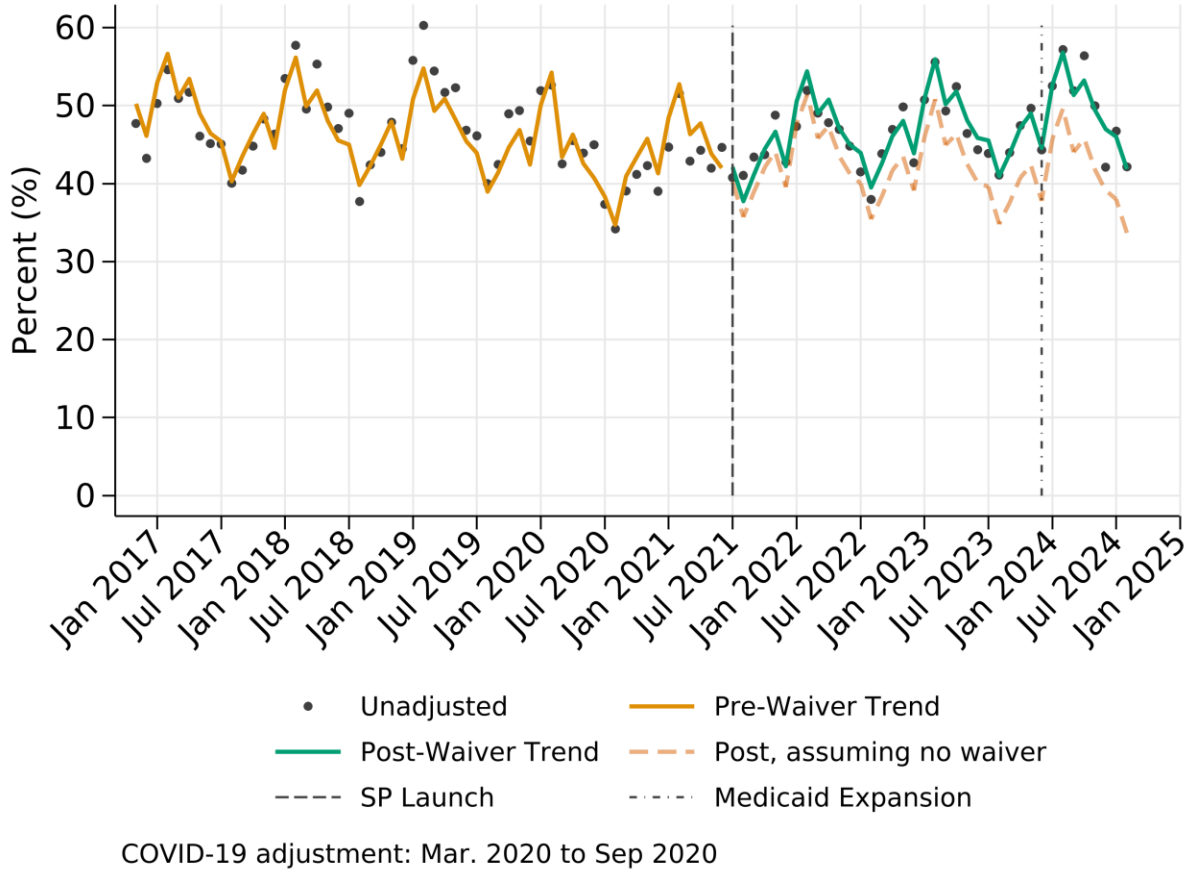


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation ‡ (Figure)

Figure 68: Trends in Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation ‡ (Table)

Table 29: Interrupted time series estimates of Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation

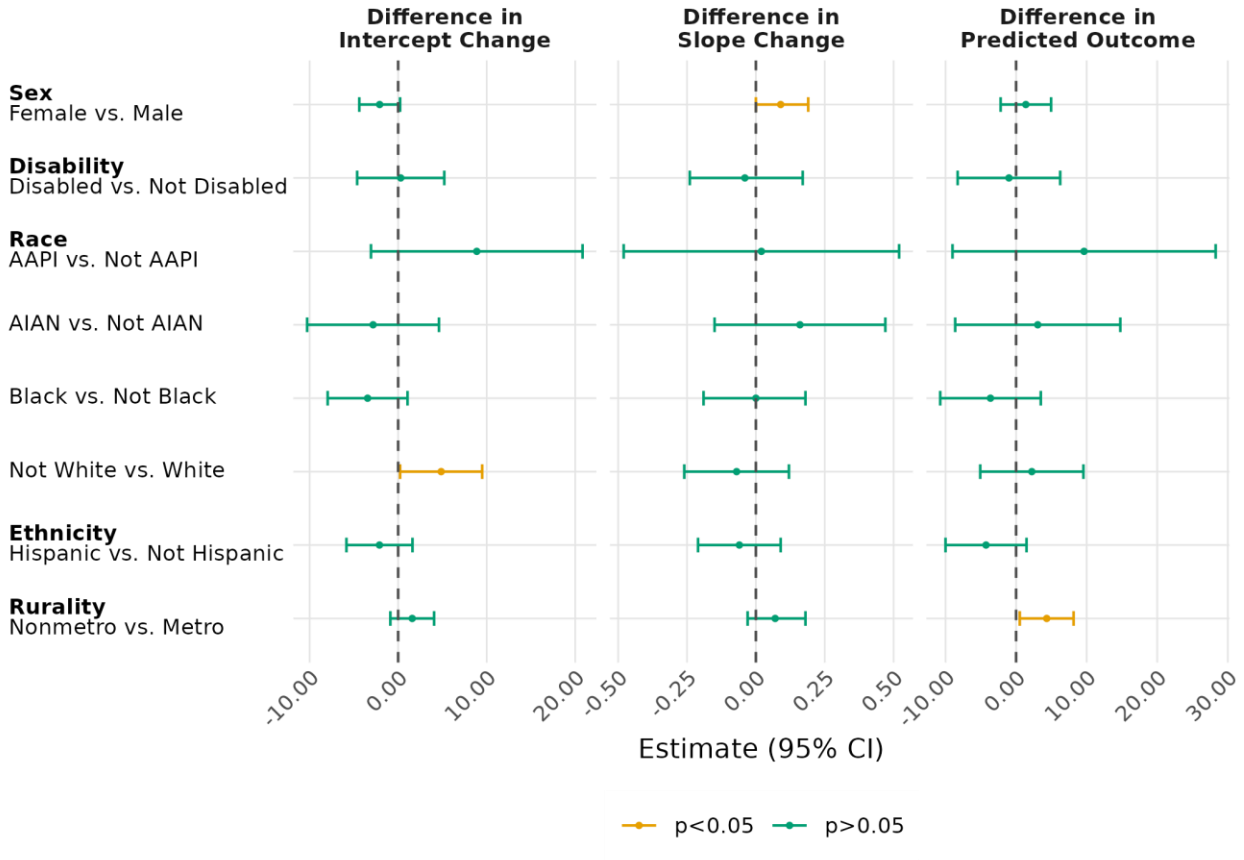
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	43.87* (43.07, 44.67)	45.74* (44.89, 46.58)	1.86* (0.72, 3.01)
Monthly Change	-0.091* (-0.11, -0.068)	0.079* (0.040, 0.12)	0.17* (0.12, 0.22)
Predicted Average Outcome Aug 2024	40.51* (38.91, 42.11)	48.65* (47.80, 49.50)	8.14* (6.33, 9.96)
N			127,289

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation ‡ (Contrast Plot)

Figure 69: Comparison groups in Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation



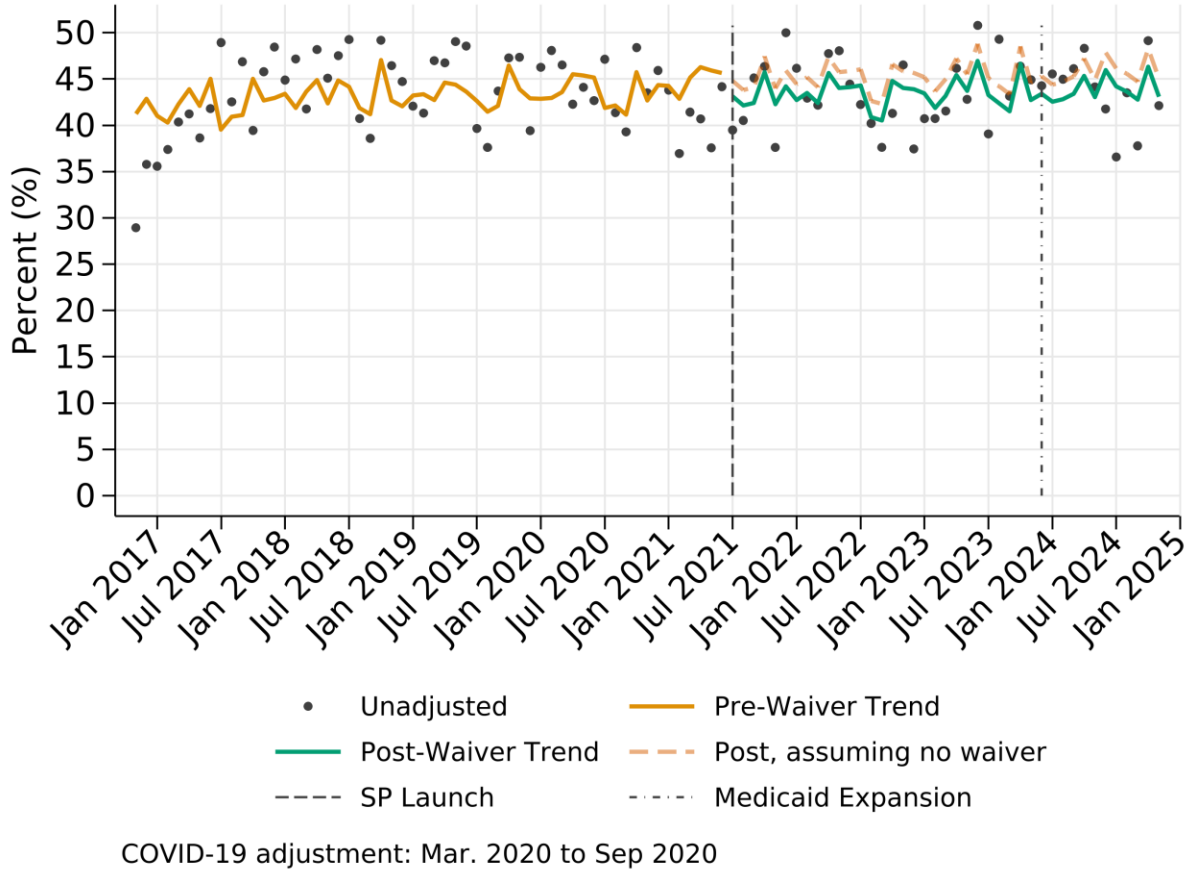
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)

Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP) ‡ (Figure)

Figure 70: Trends in Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 1-17) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP) ‡ (Table)

Table 30: Interrupted time series estimates of Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)

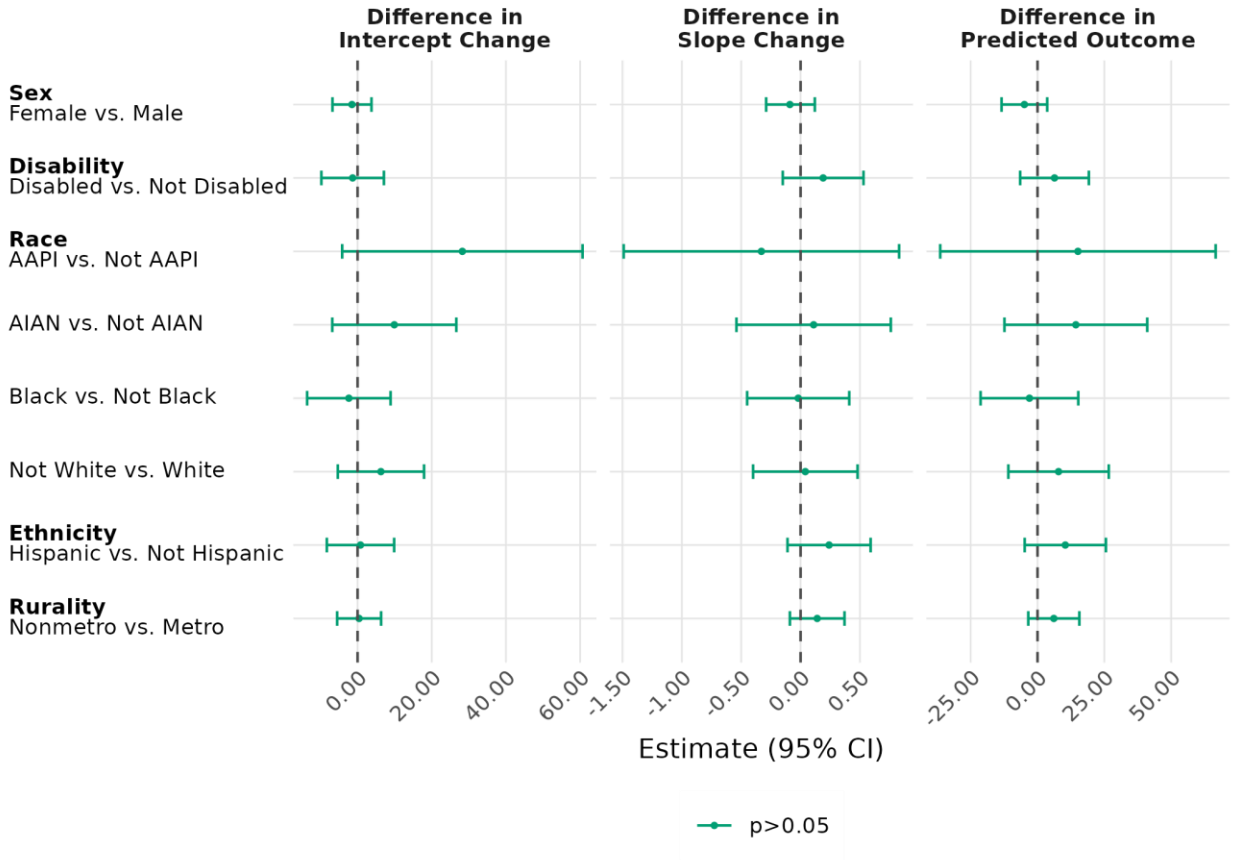
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	44.35* (42.47, 46.23)	42.68* (40.68, 44.68)	-1.67 (-4.37, 1.04)
Monthly Change	0.014 (-0.041, 0.068)	0.0068 (-0.079, 0.093)	-0.0069 (-0.11, 0.095)
Predicted Average Outcome Nov 2024	44.90* (40.96, 48.83)	42.95* (40.92, 44.99)	-1.94 (-6.35, 2.47)
N			22,117

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 1-17) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP) ‡ (Contrast Plot)

Figure 71: Comparison groups in Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)



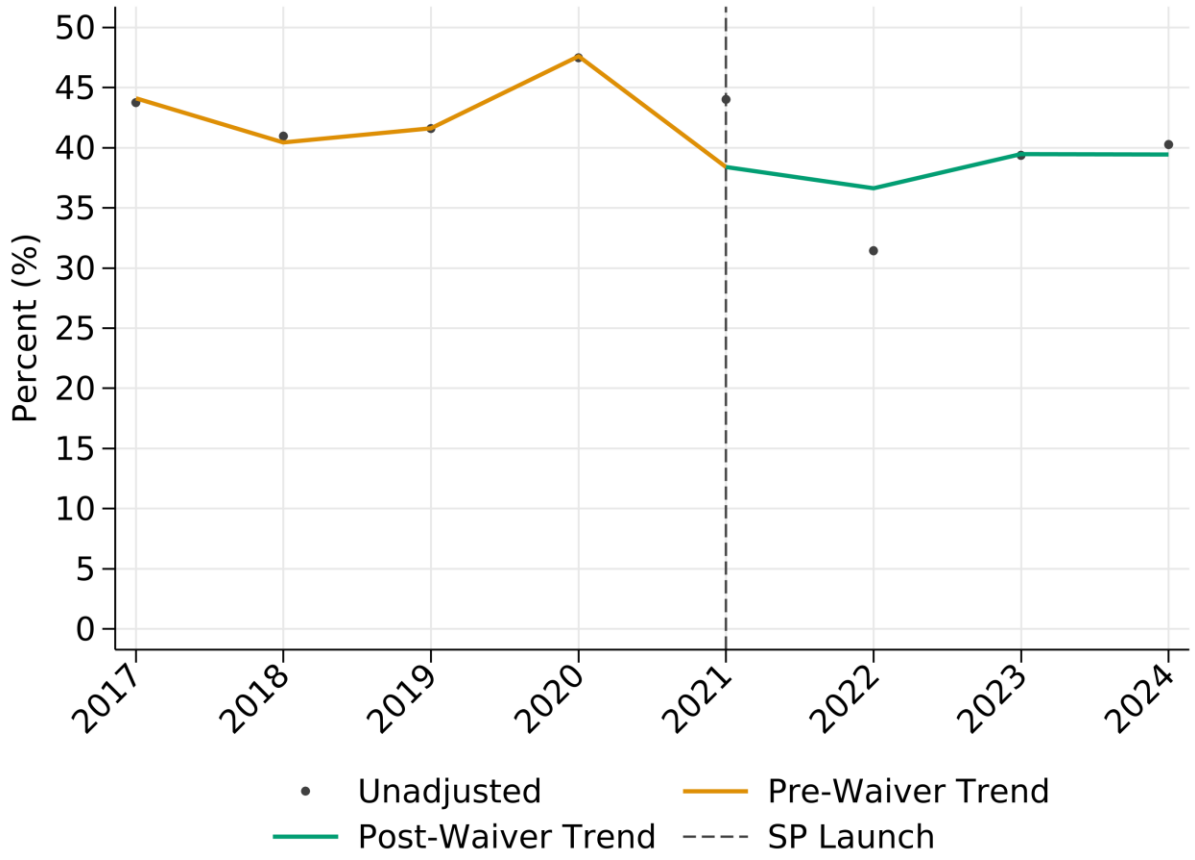
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Adherence to Antipsychotic Medications for Individuals with Schizophrenia (SAA)

Adherence to Antipsychotic Medications for Individuals with Schizophrenia (SAA) ‡ (Figure)

Figure 72: Trends in Adherence to Antipsychotic Medications for Individuals with Schizophrenia (SAA)



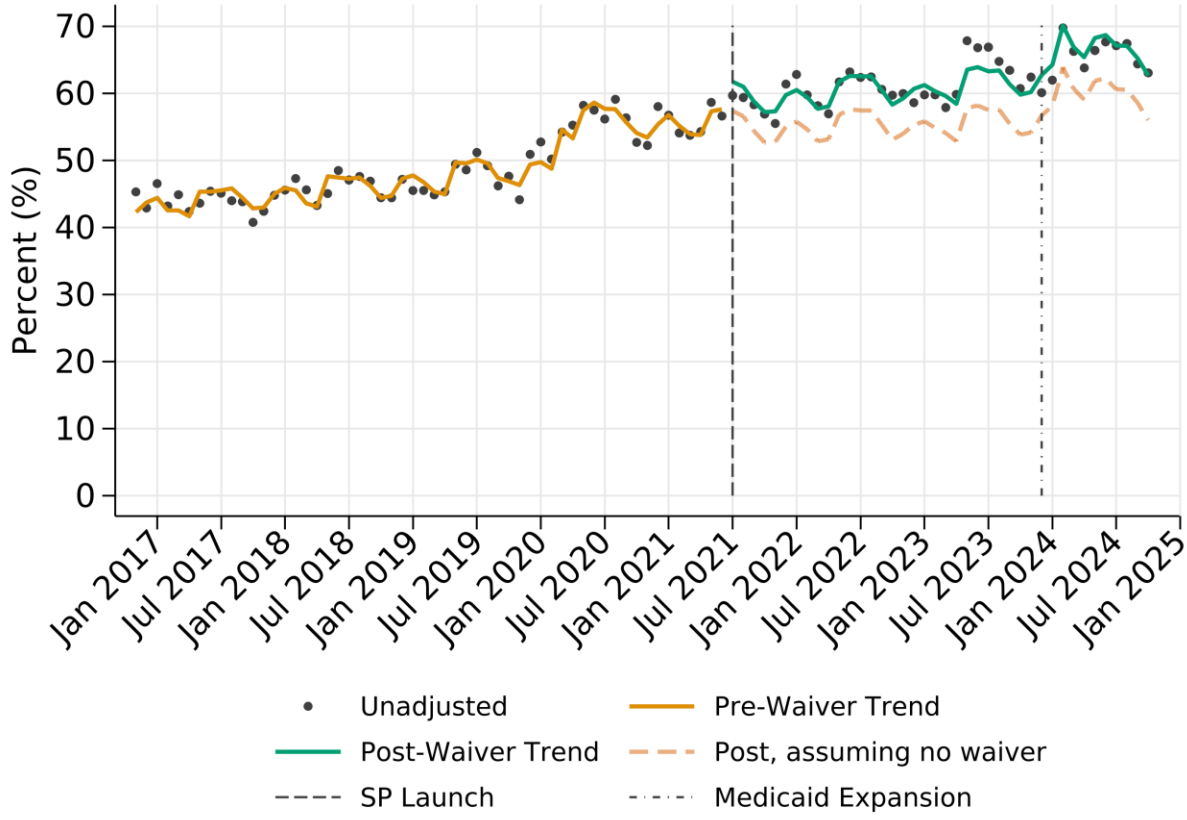
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Antidepressant Medication Management (AMM)

Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days ‡ (Figure)

Figure 73: Trends in Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days ‡ (Table)

Table 31: Interrupted time series estimates of Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days

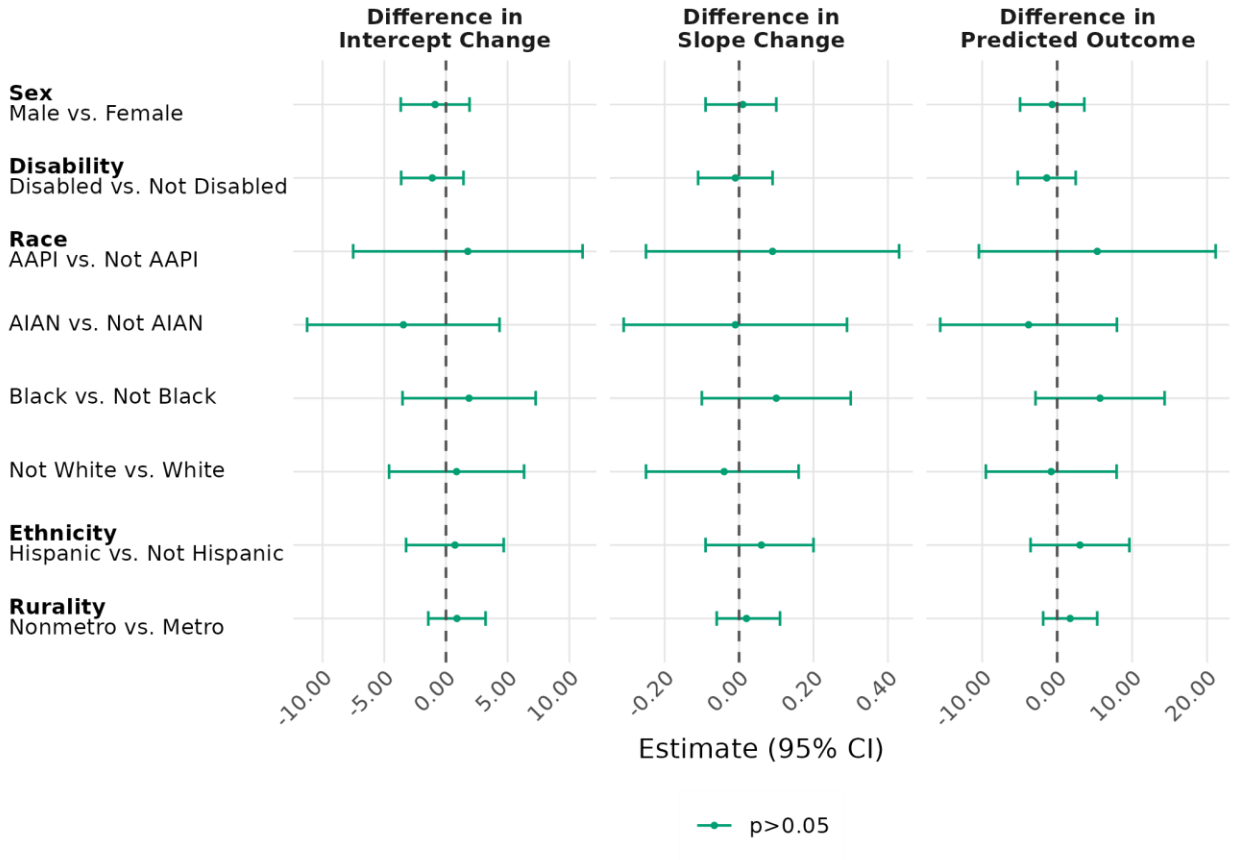
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	56.63* (55.40, 57.85)	60.97* (60.18, 61.76)	4.34* (2.89, 5.79)
Monthly Change	0.15* (0.11, 0.19)	0.21* (0.069, 0.35)	0.060 (-0.076, 0.20)
Predicted Average Outcome Oct 2024	58.43* (52.20, 64.65)	65.10* (64.38, 65.82)	6.67* (0.40, 12.94)
N			143,459

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days ‡ (Contrast Plot)

Figure 74: Comparison groups in Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days

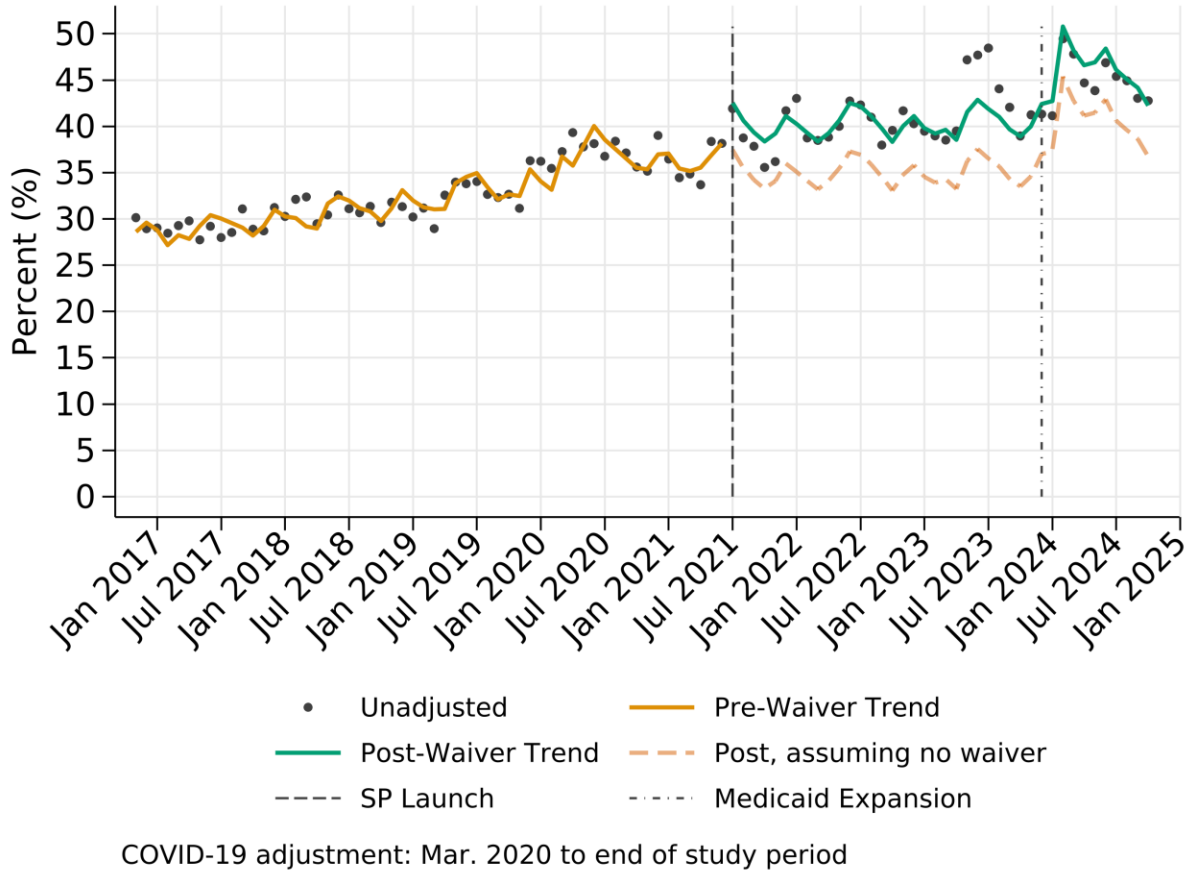


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days ‡ (Figure)

Figure 75: Trends in Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days ‡ (Table)

Table 32: Interrupted time series estimates of Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days

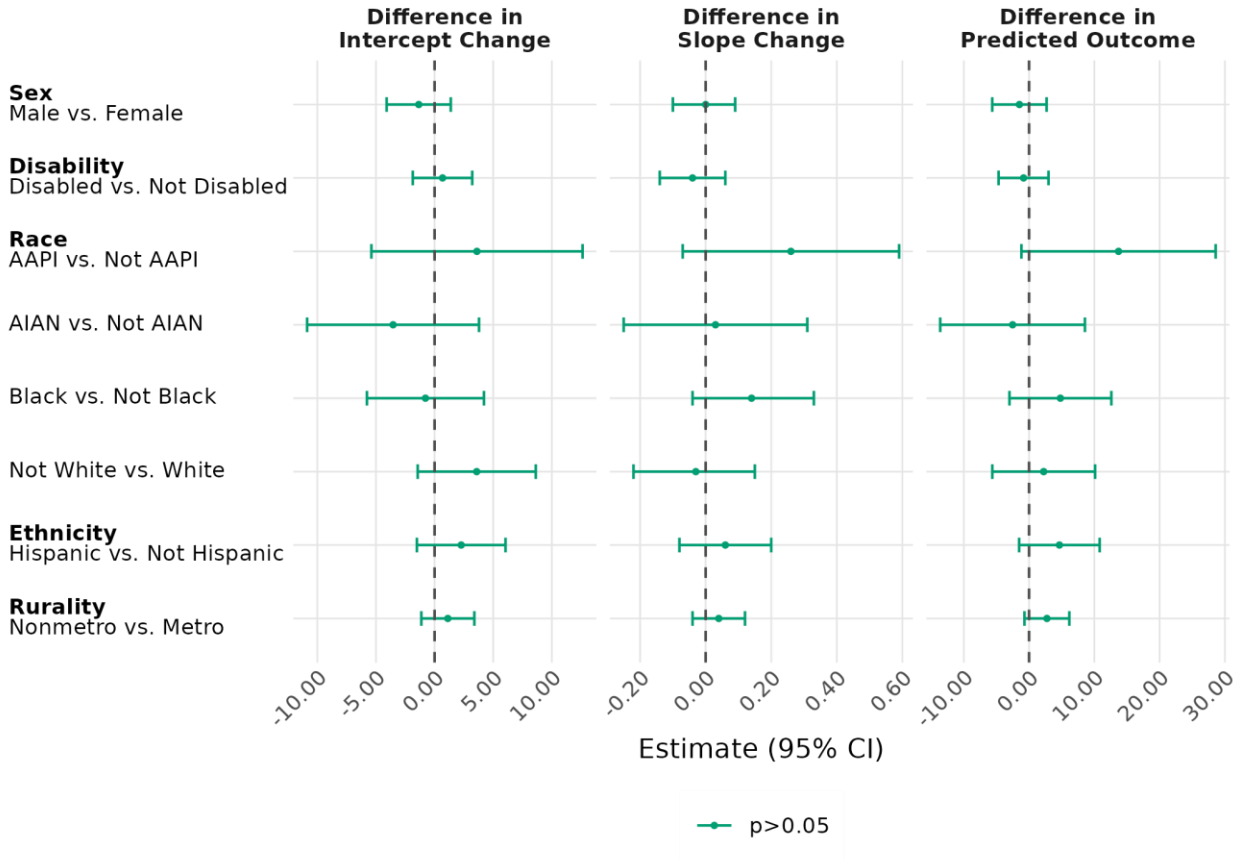
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	37.39* (36.21, 38.58)	42.48* (41.69, 43.26)	5.09* (3.68, 6.49)
Monthly Change	0.15* (0.11, 0.18)	0.16* (0.023, 0.29)	0.011 (-0.12, 0.14)
Predicted Average Outcome Oct 2024	37.87* (31.87, 43.88)	43.39* (42.67, 44.11)	5.51 (-0.54, 11.57)
N			143,459

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days ‡ (Contrast Plot)

Figure 76: Comparison groups in Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days



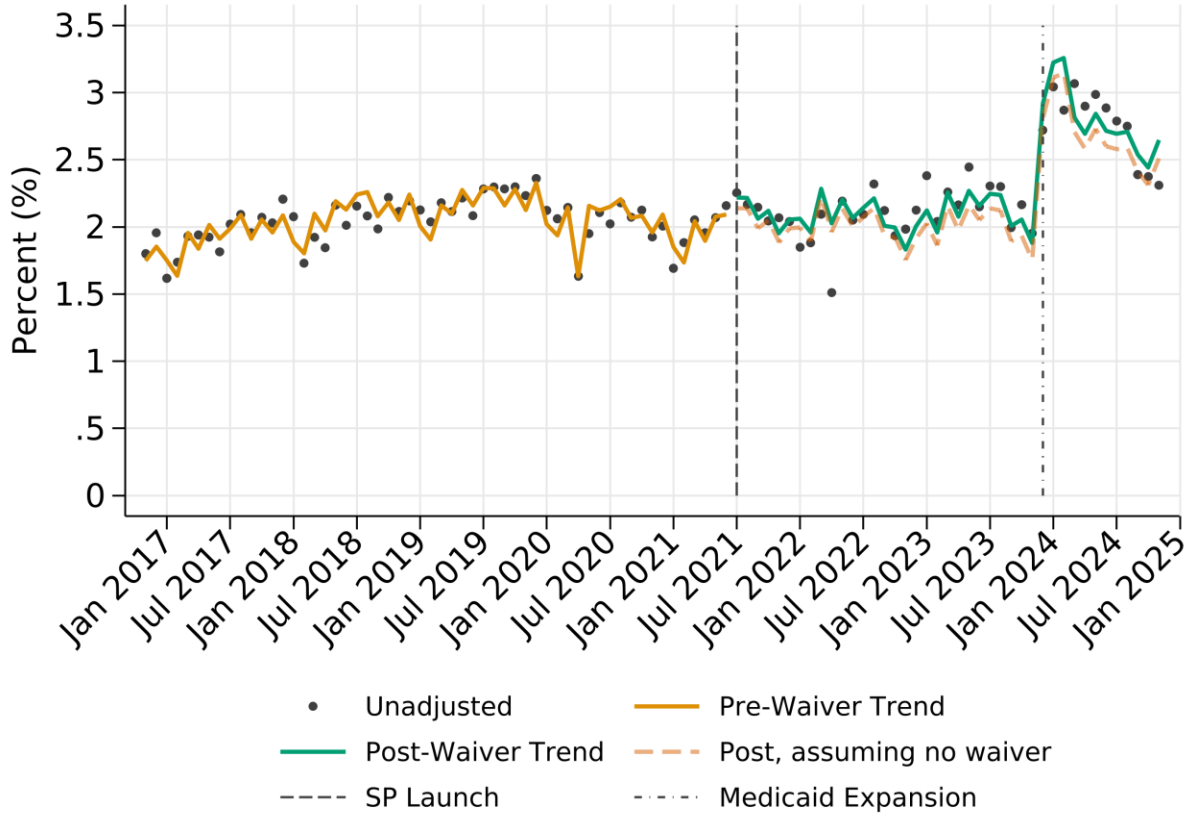
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Inpatient Admissions for SUD

Inpatient Admissions for SUD ‡ (Figure)

Figure 77: Trends in Inpatient Admissions for SUD



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Inpatient Admissions for SUD ‡ (Table)

Table 33: Interrupted time series estimates of Inpatient Admissions for SUD

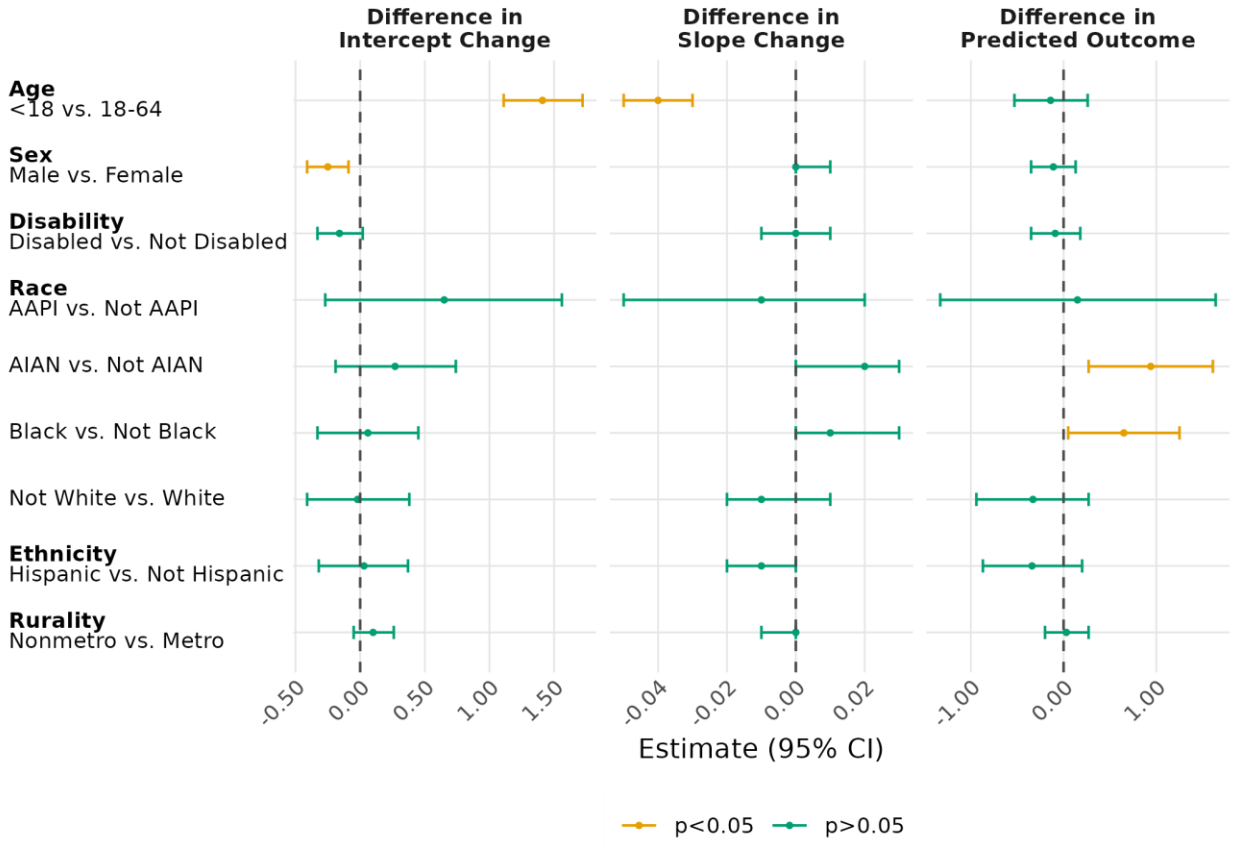
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	1.97* (1.89, 2.04)	2.27* (2.20, 2.35)	0.31* (0.22, 0.39)
Monthly Change	0.0037 (-0.0012, 0.0085)	0.014* (0.0080, 0.019)	0.010* (0.0050, 0.015)
Predicted Average Outcome Nov 2024	2.11* (1.87, 2.36)	2.82* (2.61, 3.03)	0.71* (0.49, 0.92)
N			3,221,130

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Inpatient Admissions for SUD ‡ (Contrast Plot)

Figure 78: Comparison groups in Inpatient Admissions for SUD

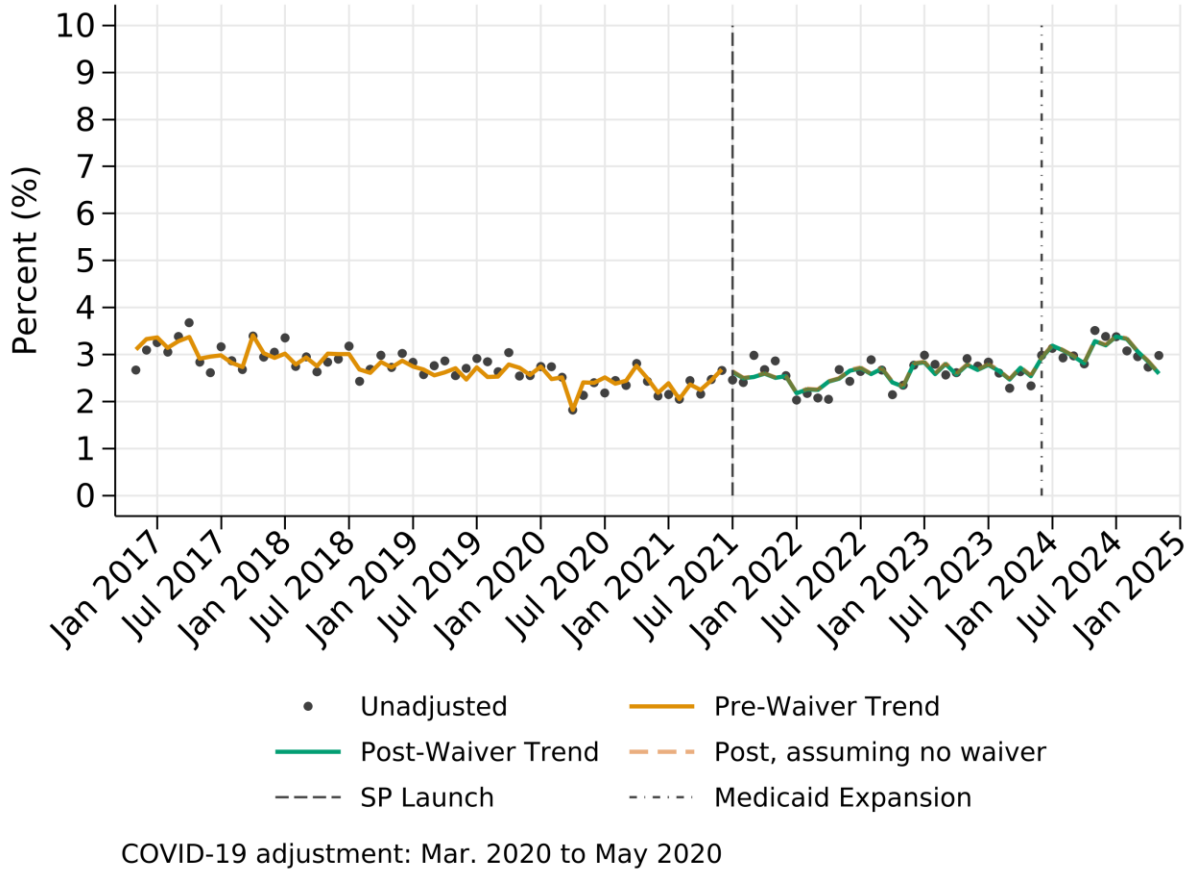


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Inpatient Admissions for SUD in the OUD population ‡ (Figure)

Figure 79: Trends in Inpatient Admissions for SUD in the OUD population



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Inpatient Admissions for SUD in the OUD population ‡ (Table)

Table 34: Interrupted time series estimates of Inpatient Admissions for SUD in the OUD population

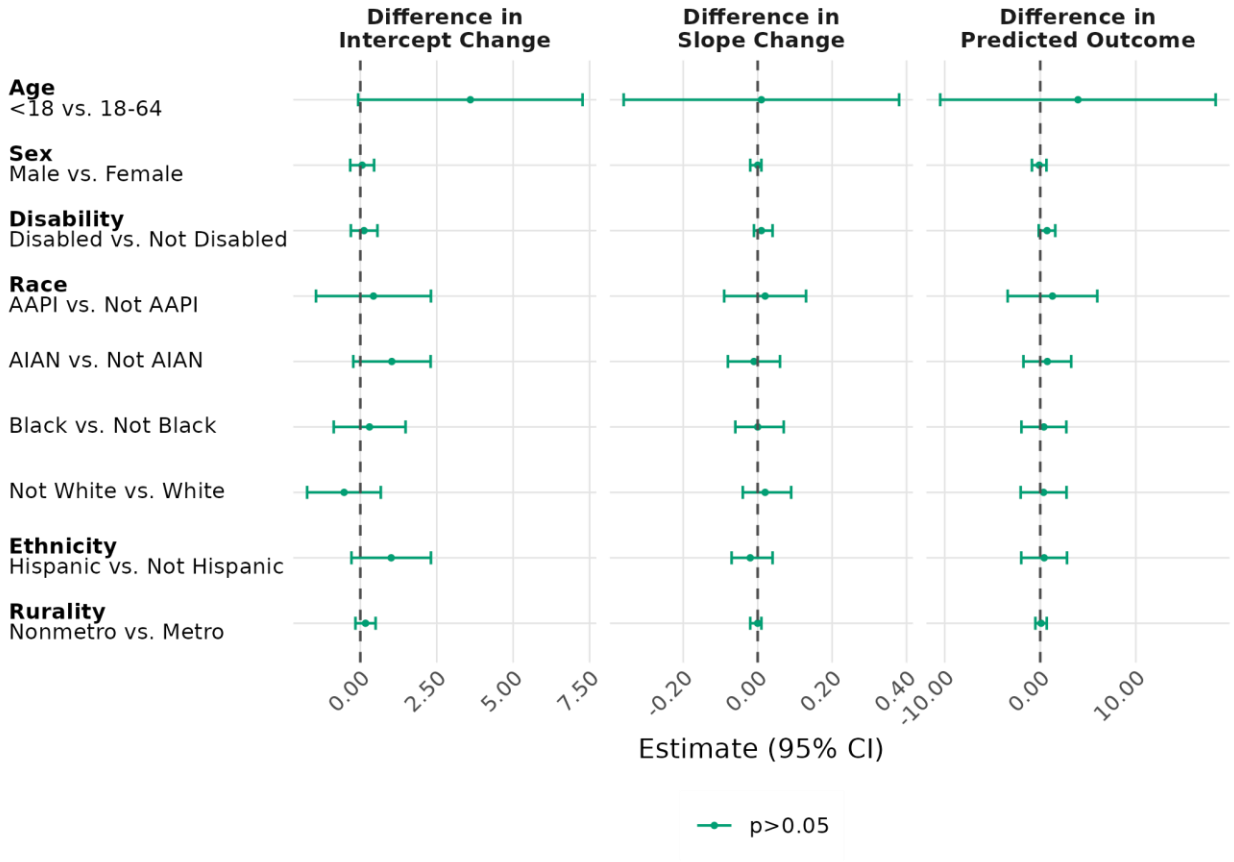
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	2.79* (2.66, 2.92)	2.75* (2.61, 2.90)	-0.040 (-0.21, 0.13)
Monthly Change	0.0088 (-0.0015, 0.019)	0.0082 (-0.0034, 0.020)	-0.0006 (-0.0093, 0.0081)
Predicted Average Outcome Nov 2024	3.15* (2.64, 3.65)	3.08* (2.66, 3.50)	-0.066 (-0.41, 0.28)
N			606,236

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Inpatient Admissions for SUD in the OUD population ‡ (Contrast Plot)

Figure 80: Comparison groups in Inpatient Admissions for SUD in the OUD population



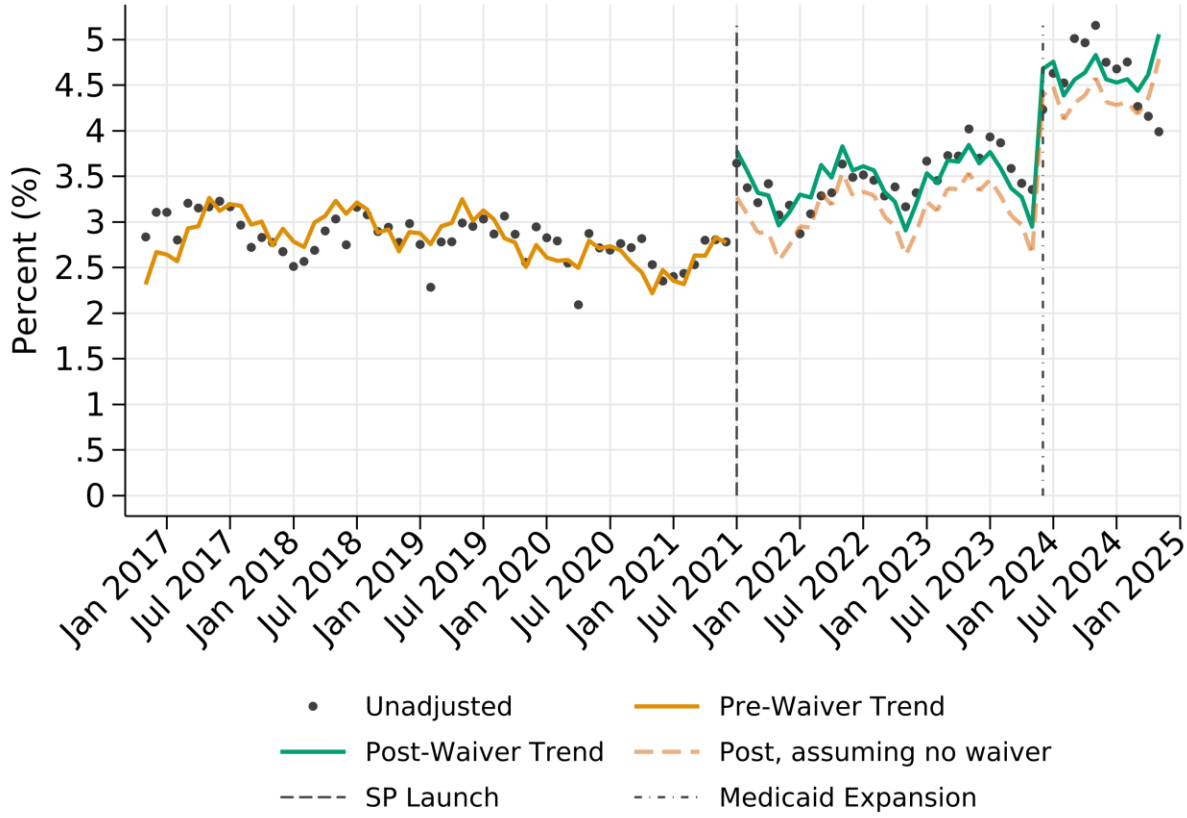
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Emergency Department Visits for SUD

Emergency Department Visits for SUD ‡ (Figure)

Figure 81: Trends in Emergency Department Visits for SUD



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Emergency Department Visits for SUD ‡ (Table)

Table 35: Interrupted time series estimates of Emergency Department Visits for SUD

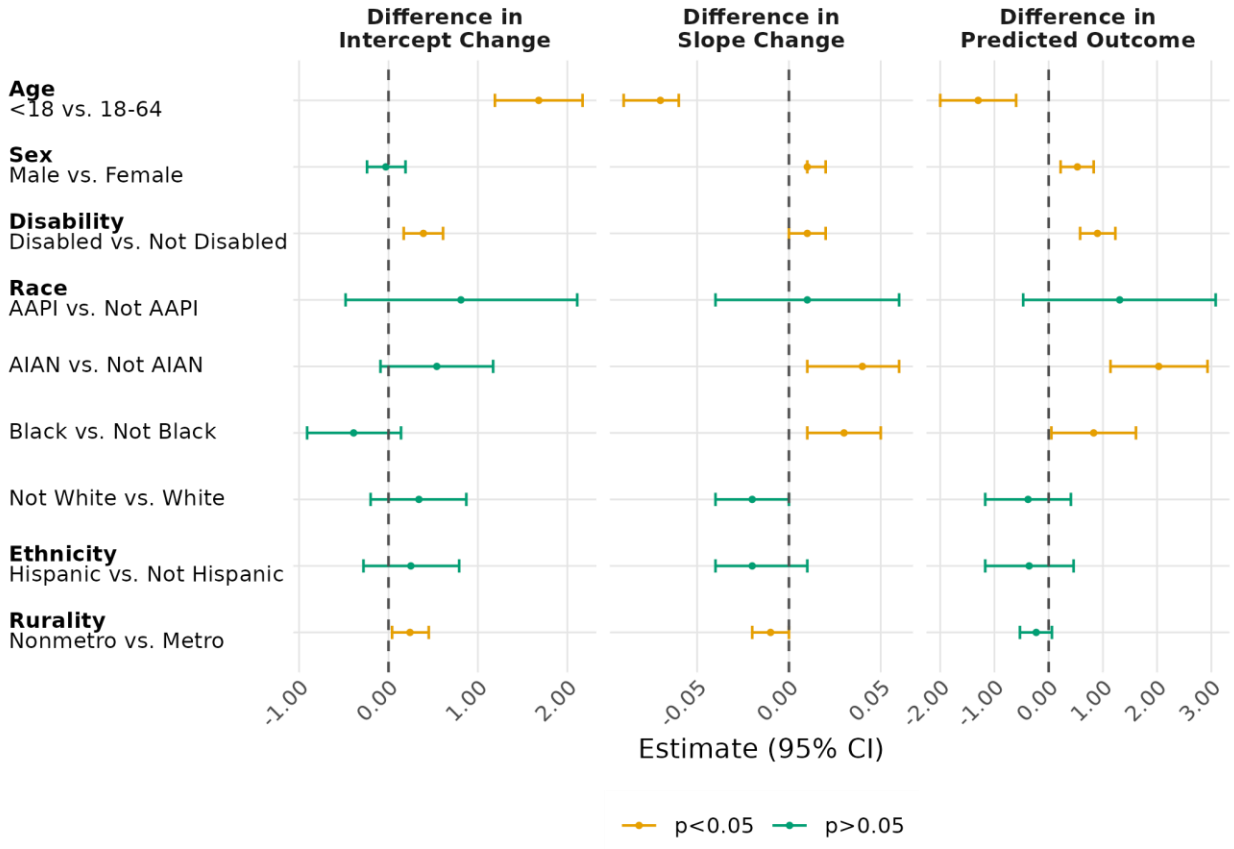
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	2.51* (2.35, 2.67)	3.78* (3.54, 4.03)	1.27* (0.94, 1.60)
Monthly Change	-0.017* (-0.025, -0.0089)	-0.0057 (-0.018, 0.0061)	0.011 (-0.0013, 0.024)
Predicted Average Outcome Nov 2024	1.83* (1.31, 2.36)	3.55* (3.26, 3.85)	1.72* (1.19, 2.25)
N			3,221,130

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Emergency Department Visits for SUD ‡ (Contrast Plot)

Figure 82: Comparison groups in Emergency Department Visits for SUD

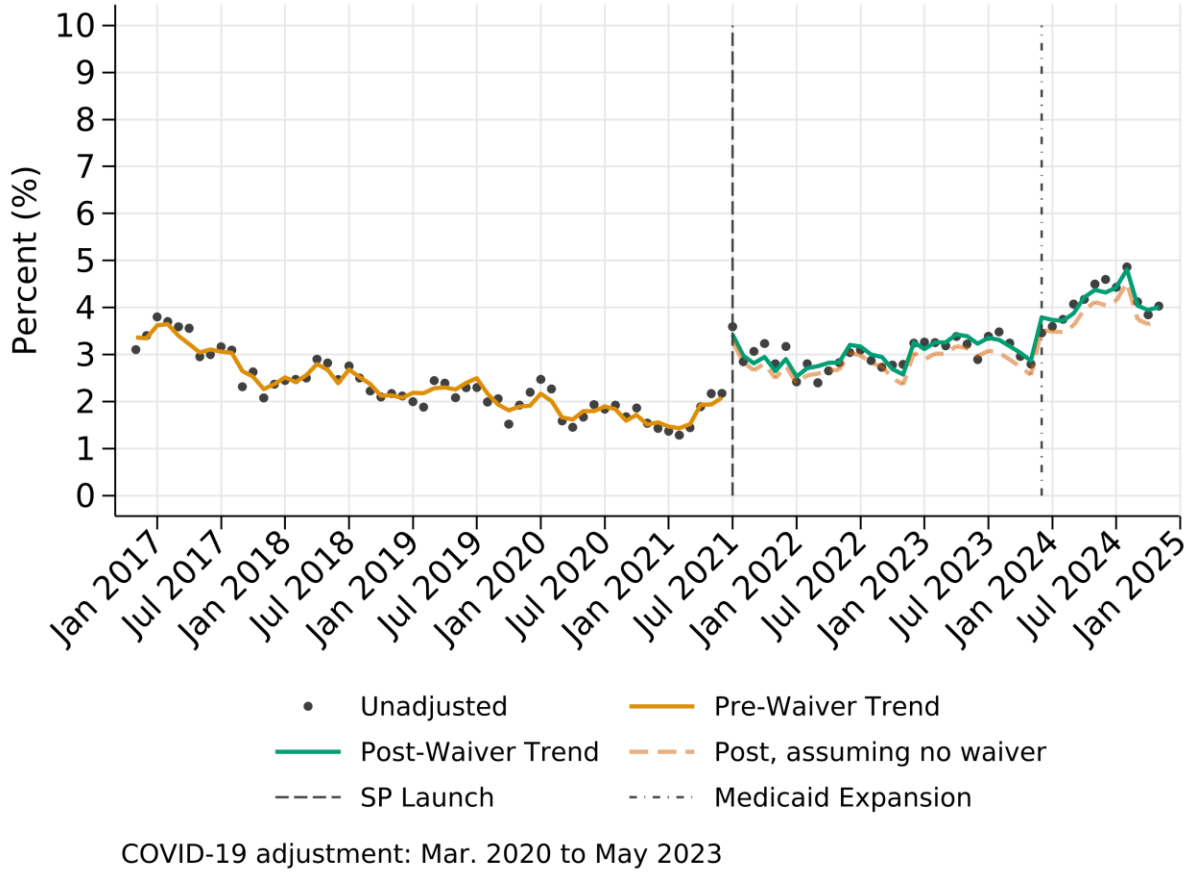


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Emergency Department Visits for SUD in the OUD population ‡ (Figure)

Figure 83: Trends in Emergency Department Visits for SUD in the OUD population



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Emergency Department Visits for SUD in the OUD population ‡ (Table)

Table 36: Interrupted time series estimates of Emergency Department Visits for SUD in the OUD population

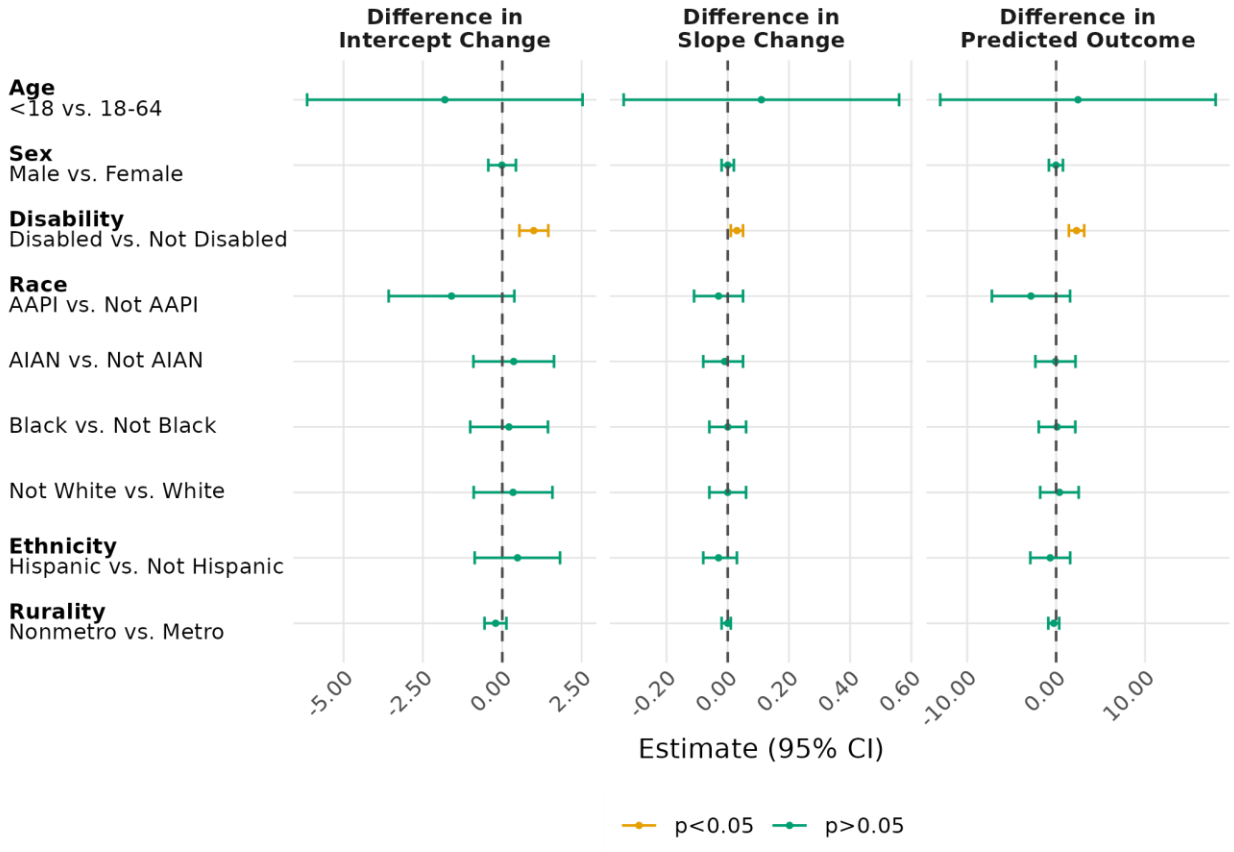
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	2.36* (2.19, 2.53)	2.92* (2.76, 3.08)	0.57* (0.38, 0.75)
Monthly Change	0.0036 (-0.010, 0.017)	0.020* (0.0074, 0.032)	0.016* (0.0034, 0.029)
Predicted Average Outcome Nov 2024	2.55* (1.81, 3.29)	3.76* (3.30, 4.23)	1.22* (0.68, 1.76)
N			606,236

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Emergency Department Visits for SUD in the OUD population ‡ (Contrast Plot)

Figure 84: Comparison groups in Emergency Department Visits for SUD in the OUD population



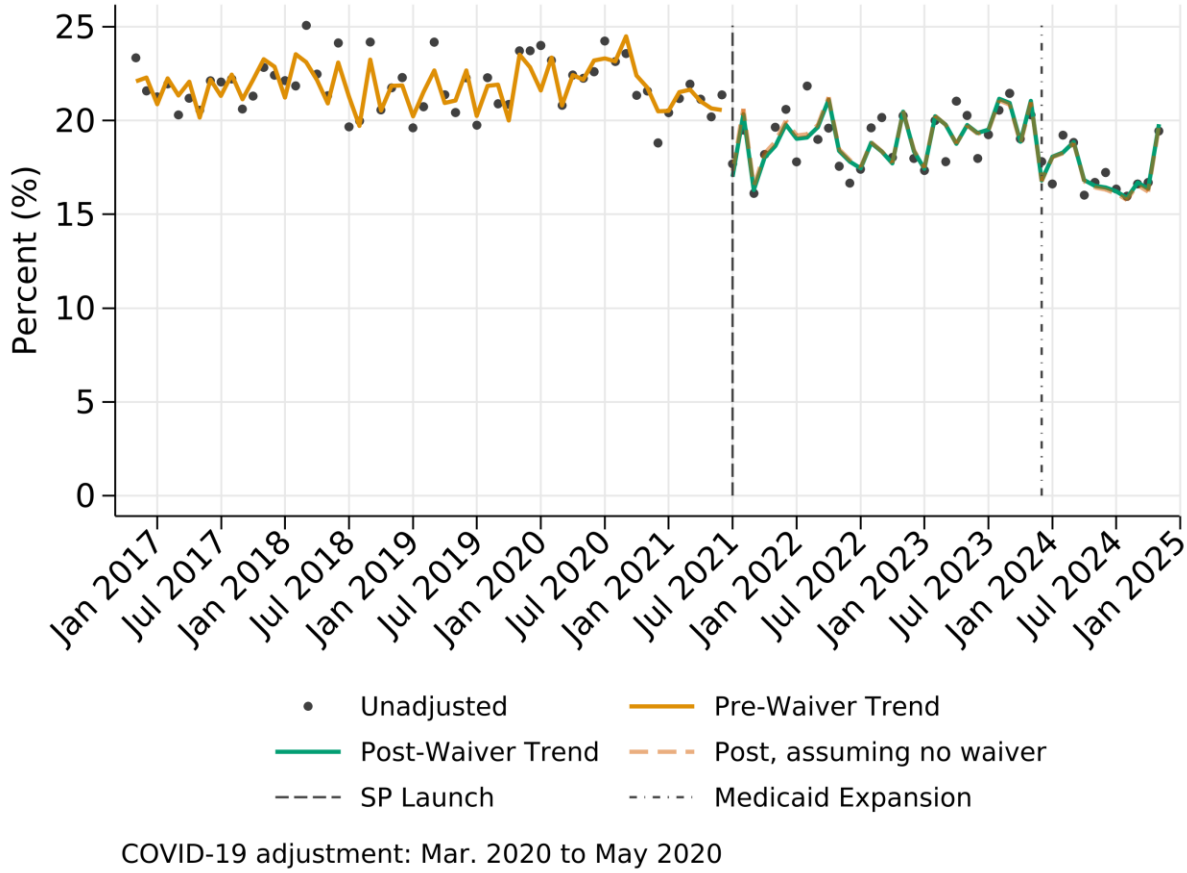
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

30-day Hospital Readmissions Among Beneficiaries with SUD (M25)

30-day Hospital Readmissions Among Beneficiaries with SUD (M25) ‡ (Figure)

Figure 85: Trends in 30-day Hospital Readmissions Among Beneficiaries with SUD (M25)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

30-day Hospital Readmissions Among Beneficiaries with SUD (M25) ‡ (Table)

Table 37: Interrupted time series estimates of 30-day Hospital Readmissions Among Beneficiaries with SUD (M25)

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	21.05* (19.61, 22.49)	20.23* (18.47, 21.98)	-0.82 (-3.00, 1.36)
Monthly Change	0.18* (0.050, 0.31)	0.23* (0.081, 0.38)	0.052 (-0.036, 0.14)
Predicted Average Outcome Nov 2024	28.20* (22.04, 34.36)	29.45* (23.91, 34.99)	1.25 (-2.07, 4.57)
N			97,387

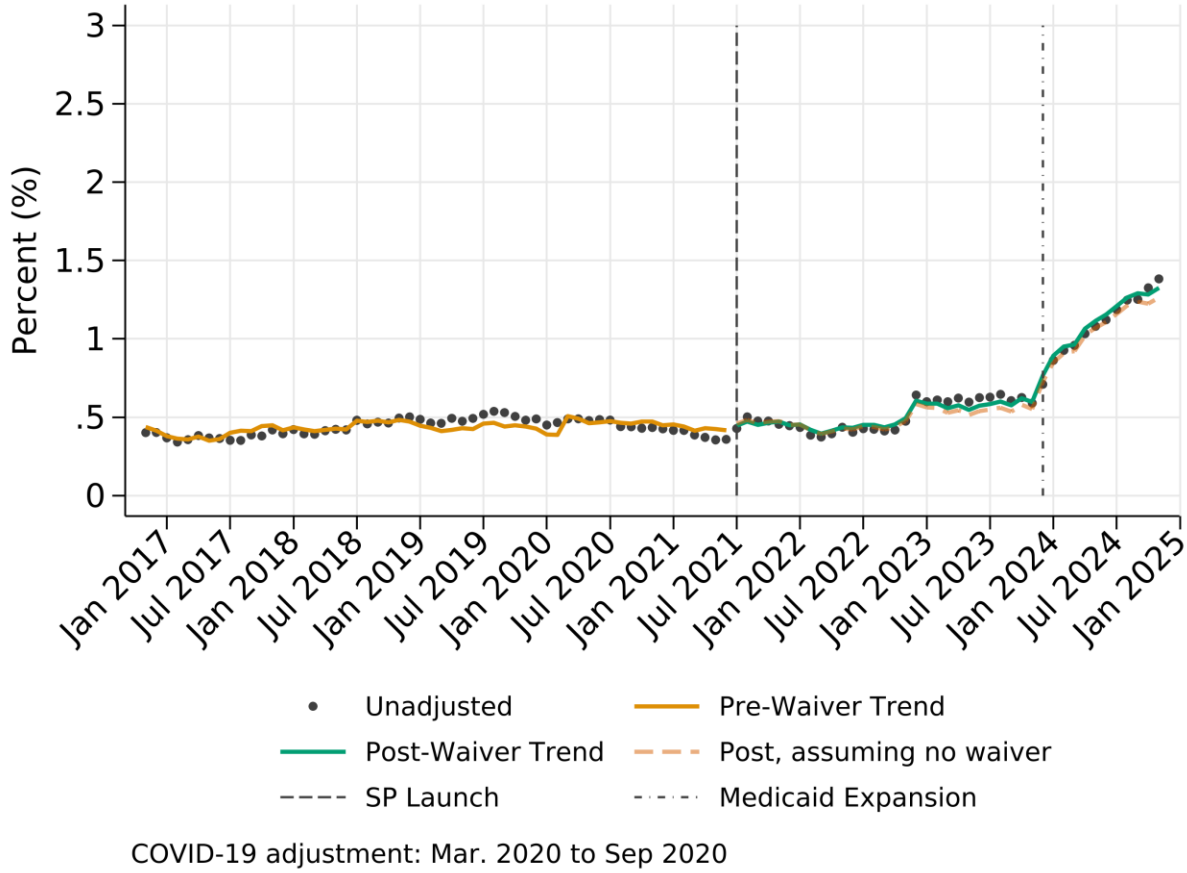
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Incarceration of Adults with Drug Related Charges

Incarceration of Adults with Drug Related Charges ‡ (Figure)

Figure 86: Trends in Incarceration of Adults with Drug Related Charges



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Incarceration of Adults with Drug Related Charges ‡ (Table)

Table 38: Interrupted time series estimates of Incarceration of Adults with Drug Related Charges

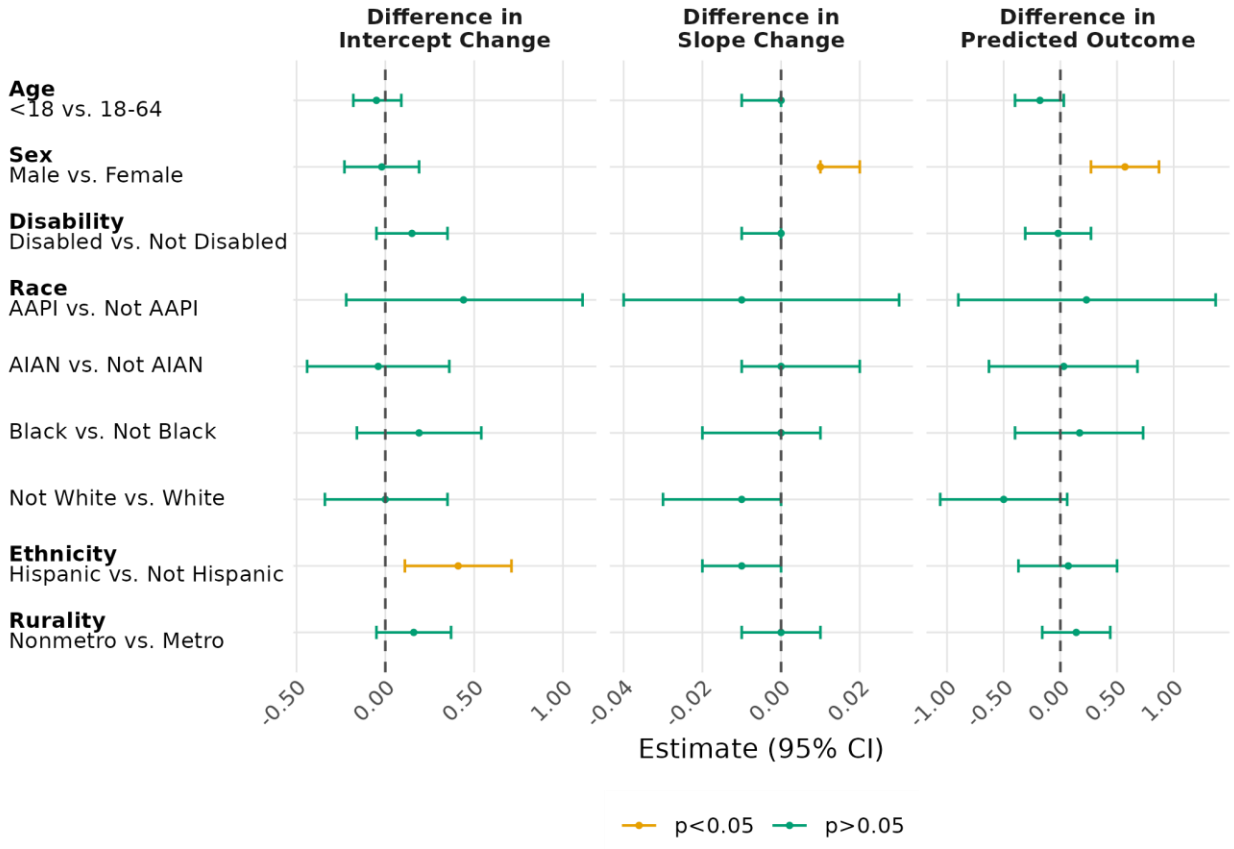
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	0.52* (0.45, 0.59)	0.56* (0.48, 0.65)	0.043 (-0.048, 0.13)
Monthly Change	0.0050* (0.0018, 0.0081)	0.011* (0.0068, 0.014)	0.0056* (0.0008, 0.010)
Predicted Average Outcome Nov 2024	0.72* (0.54, 0.90)	0.99* (0.87, 1.10)	0.27* (0.074, 0.46)
N			3,221,130

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Incarceration of Adults with Drug Related Charges ‡ (Contrast Plot)

Figure 87: Comparison groups in Incarceration of Adults with Drug Related Charges



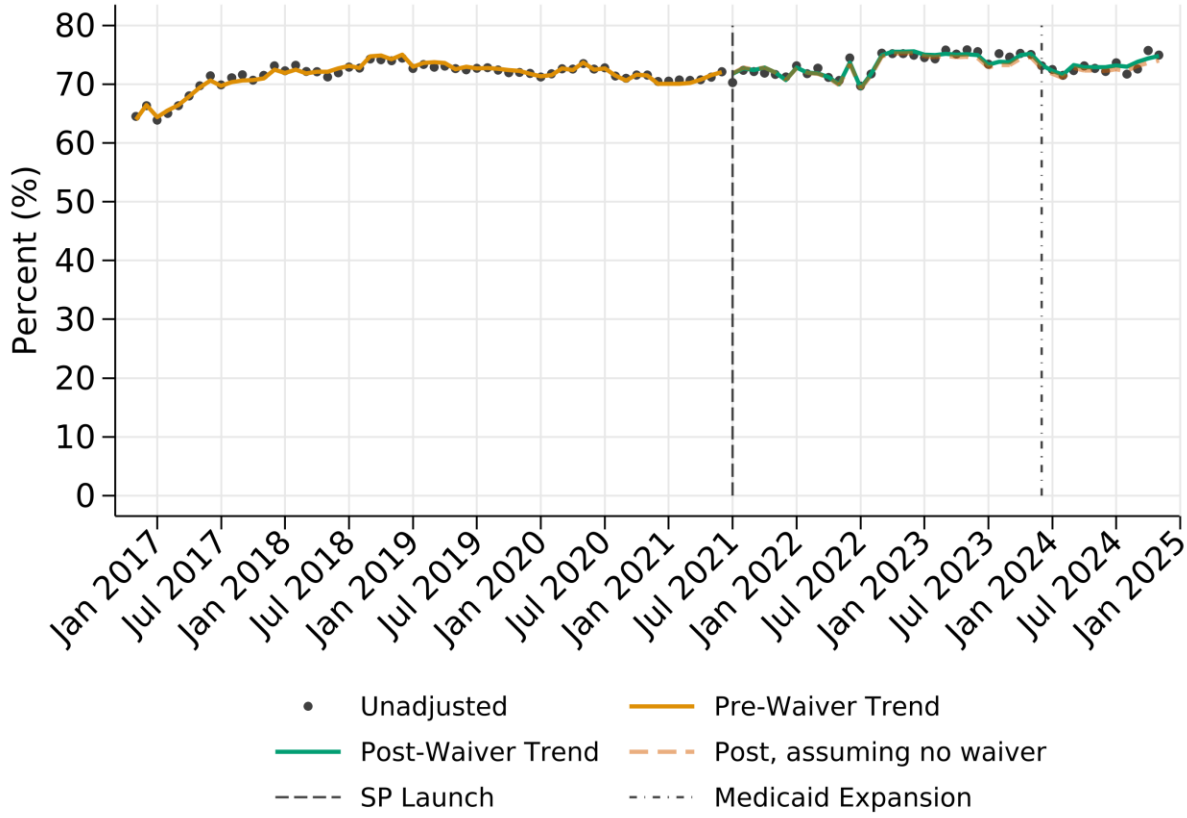
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Medication Assisted Treatment

Medication Assisted Treatment: OUD population ‡ (Figure)

Figure 88: Trends in Medication Assisted Treatment: OUD population



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Medication Assisted Treatment: OUD population ‡ (Table)

Table 39: Interrupted time series estimates of Medication Assisted Treatment: OUD population

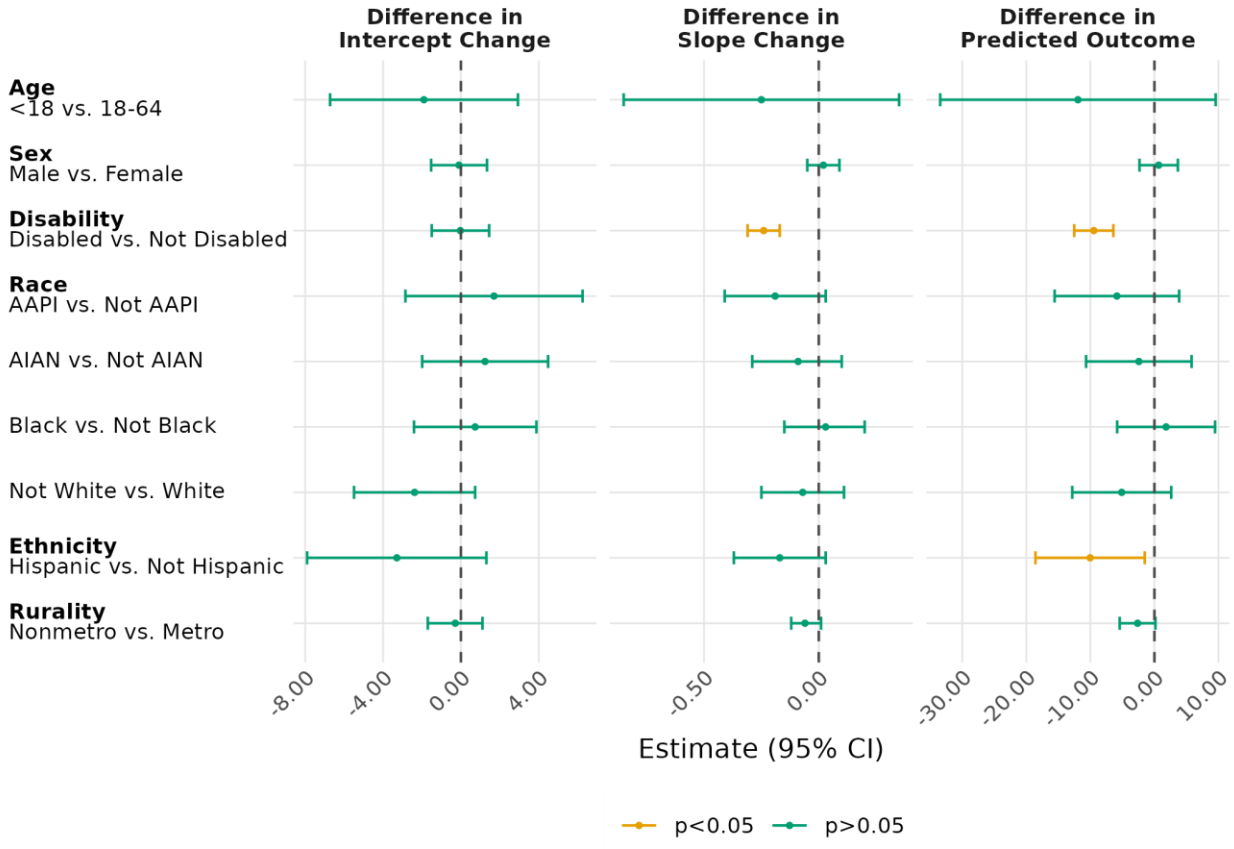
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	71.36* (70.58, 72.15)	71.89* (71.18, 72.60)	0.53 (-0.30, 1.35)
Monthly Change	-0.044* (-0.078, -0.010)	0.0072 (-0.036, 0.050)	0.051 (-0.0025, 0.10)
Predicted Average Outcome Nov 2024	69.61* (67.60, 71.61)	72.18* (70.93, 73.42)	2.57* (0.26, 4.88)
N			606,236

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Medication Assisted Treatment: OUD population ‡ (Contrast Plot)

Figure 89: Comparison groups in Medication Assisted Treatment: OUD population



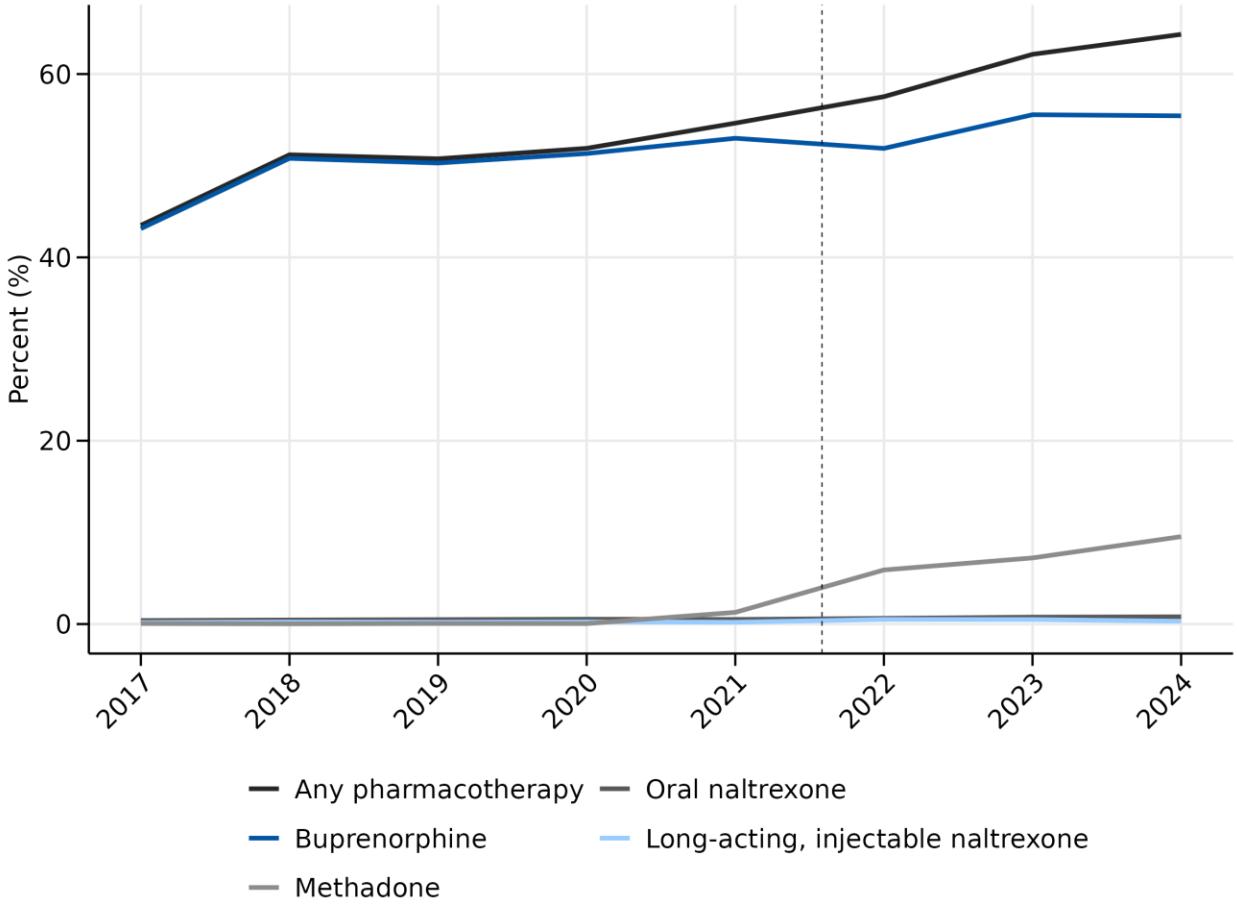
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Use of Pharmacotherapy for Opioid Use Disorder (OUD)

Use of Pharmacotherapy for Opioid Use Disorder (OUD): All ‡ (Figure)

Figure 90: Trends in Use of Pharmacotherapy for Opioid Use Disorder (OUD): All



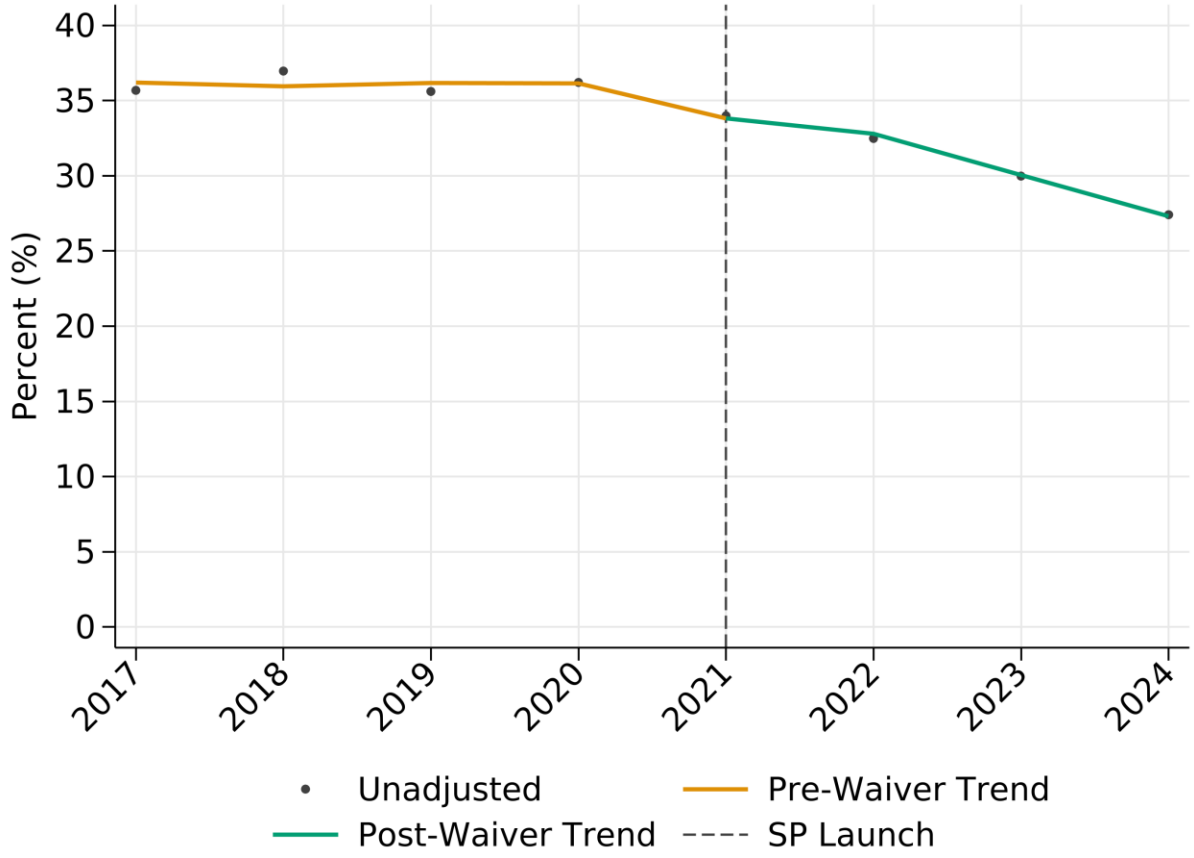
Notes: This figure plots unadjusted rates from the metric population. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Continuity of Pharmacotherapy for OUD for 180 days or more (SUD22)

Continuity of Pharmacotherapy for OUD for 180 days or more (SUD22) ‡ (Figure)

Figure 91: Trends in Continuity of Pharmacotherapy for OUD for 180 days or more (SUD22)



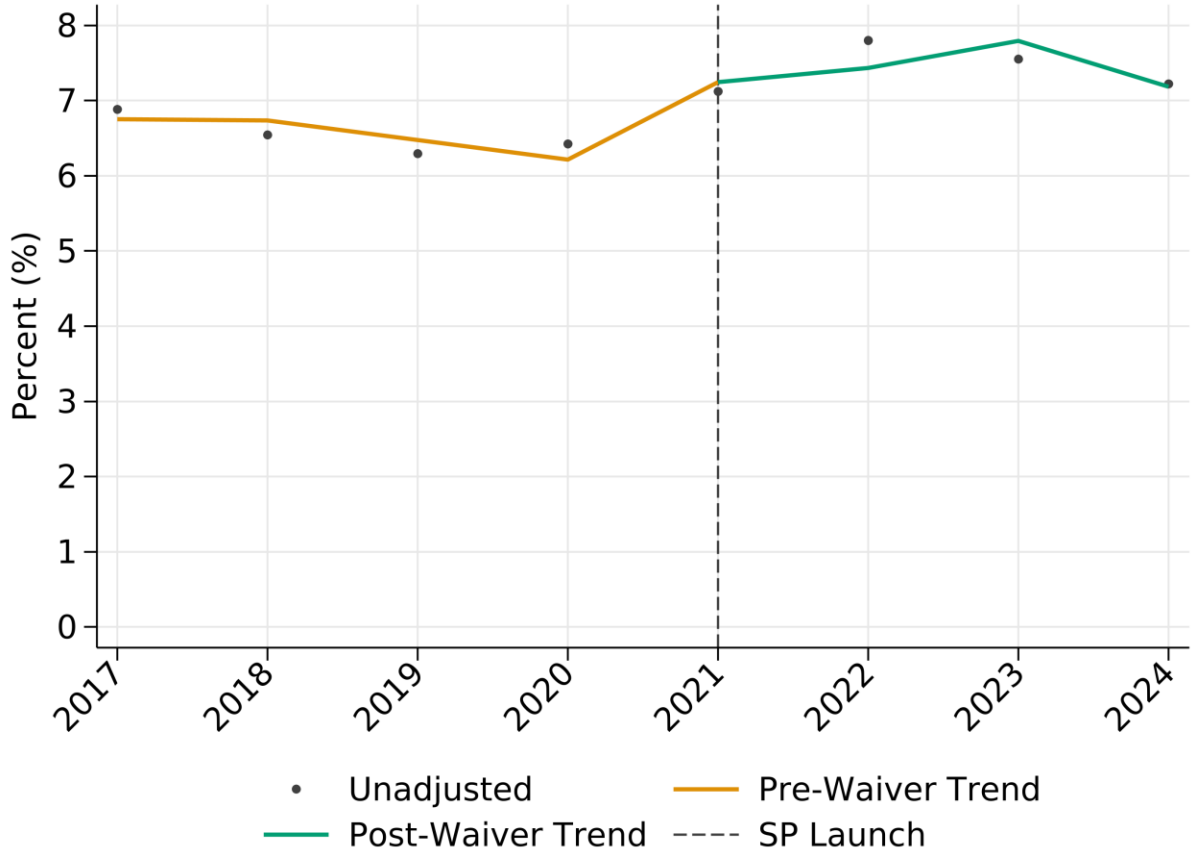
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Use of Opioids at High Dosage in Persons Without Cancer (OHD-AD)

Use of Opioids at High Dosage in Persons Without Cancer (OHD-AD) ‡ (Figure)

Figure 92: Trends in Use of Opioids at High Dosage in Persons Without Cancer (OHD-AD)



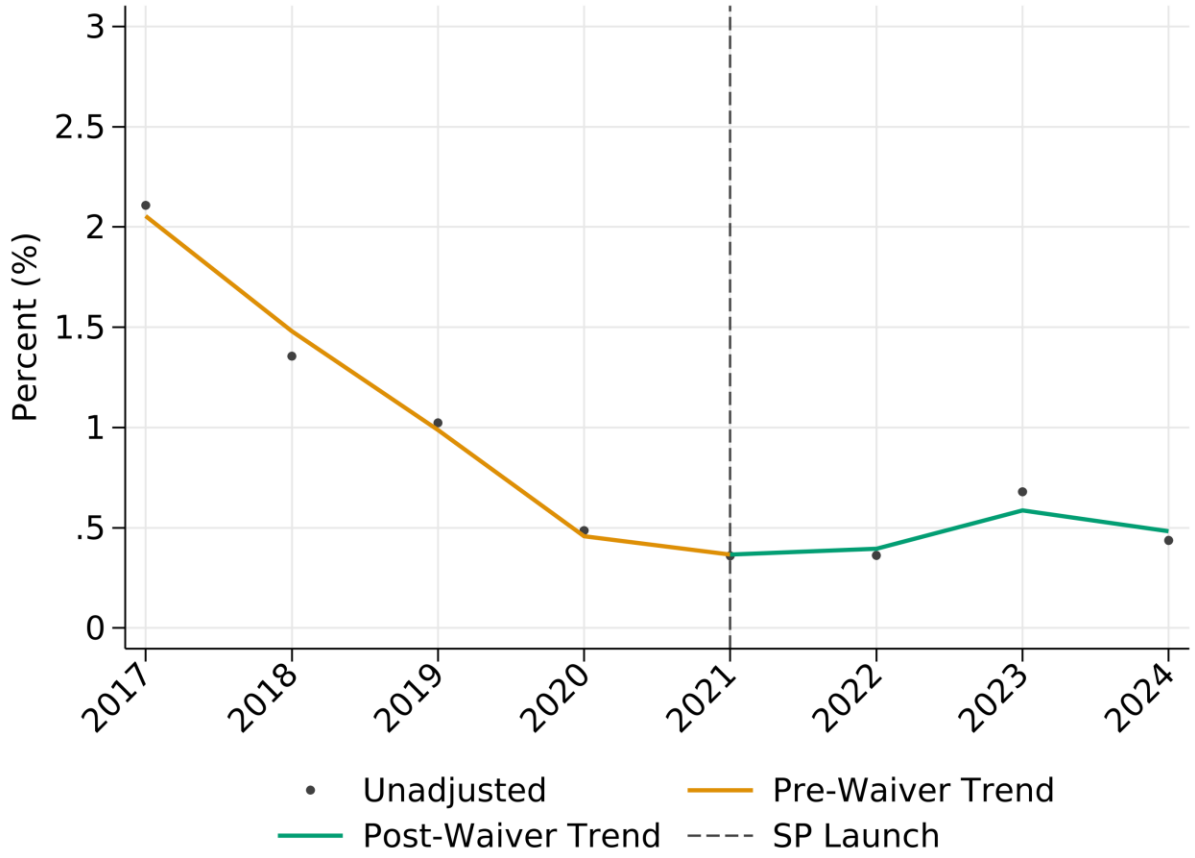
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Use of Opioids from Multiple Providers in Persons Without Cancer (OMP)

Use of Opioids from Multiple Providers in Persons Without Cancer (OMP) ‡ (Figure)

Figure 93: Trends in Use of Opioids from Multiple Providers in Persons Without Cancer (OMP)



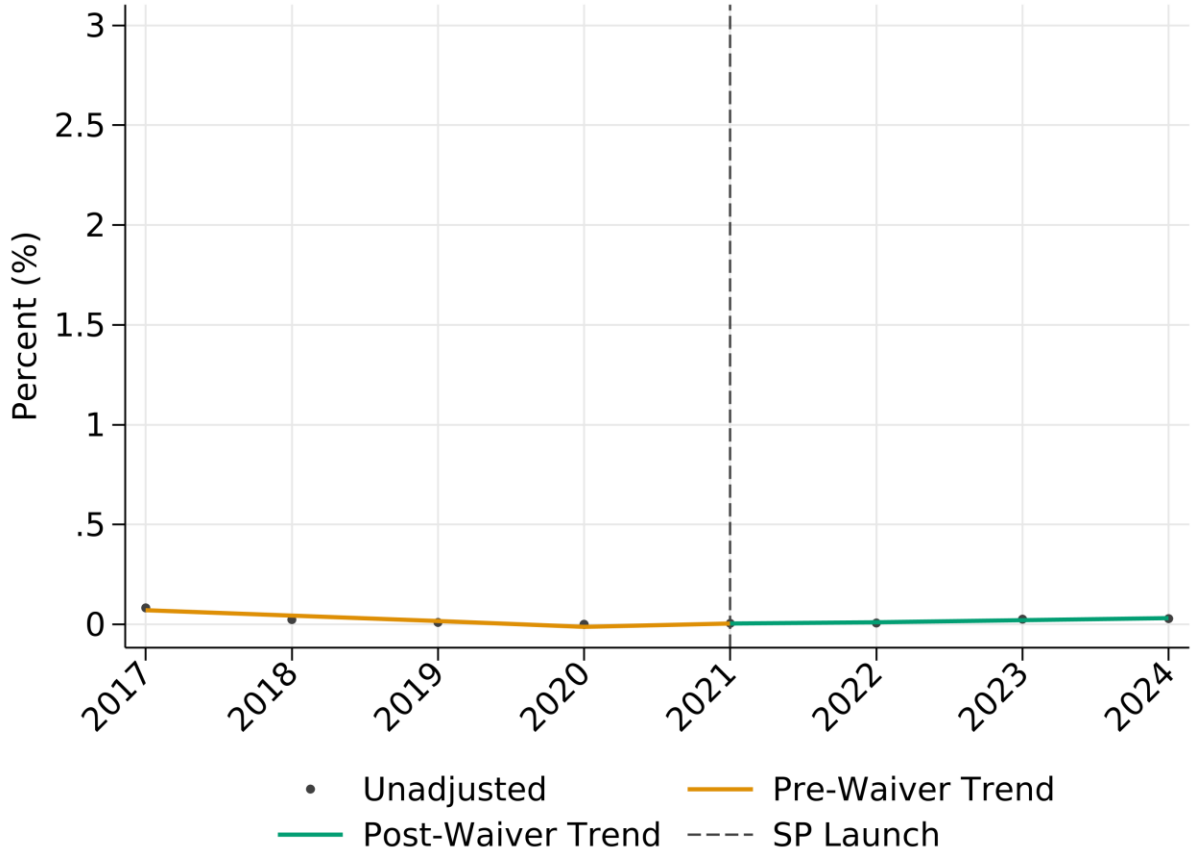
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Use of Opioids at High Dosage and from Multiple Providers in Persons without Cancer (OHDMP)

Use of Opioids at High Dosage and from Multiple Providers in Persons without Cancer (OHDMP) ‡ (Figure)

Figure 94: Trends in Use of Opioids at High Dosage and from Multiple Providers in Persons without Cancer (OHDMP)



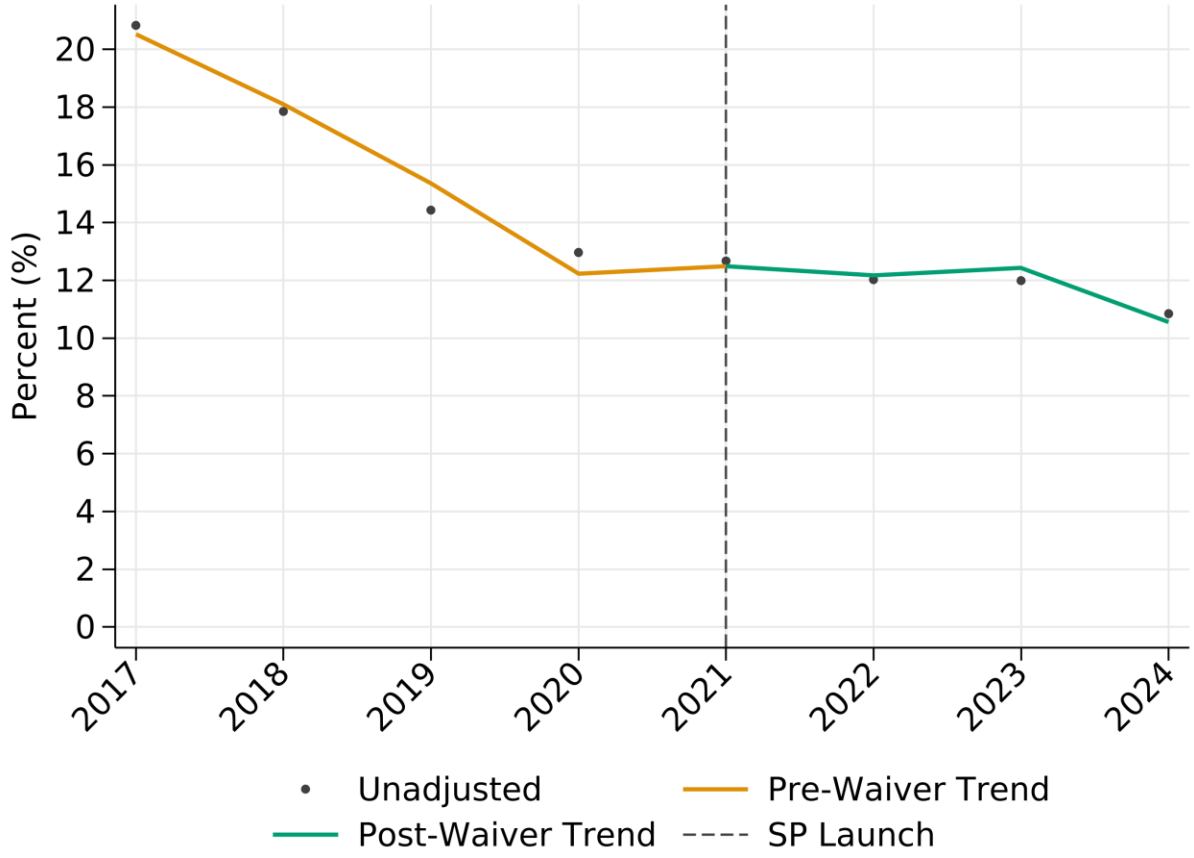
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Concurrent Use of Opioids and Benzodiazepines (COB-AD)

Concurrent Use of Opioids and Benzodiazepines (COB-AD) ‡ (Figure)

Figure 95: Trends in Concurrent Use of Opioids and Benzodiazepines (COB-AD)



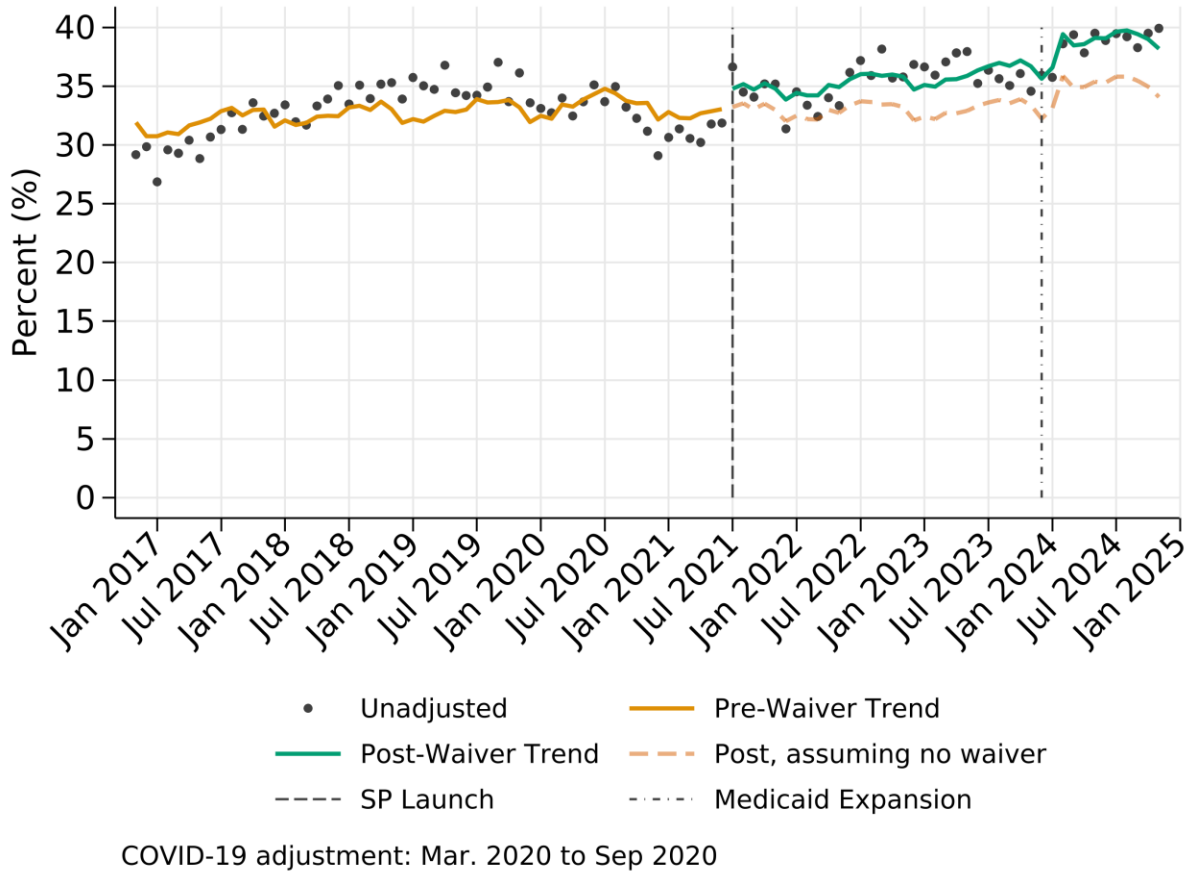
Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD) ‡ (Figure)

Figure 96: Trends in Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD) ‡ (Table)

Table 40: Interrupted time series estimates of Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

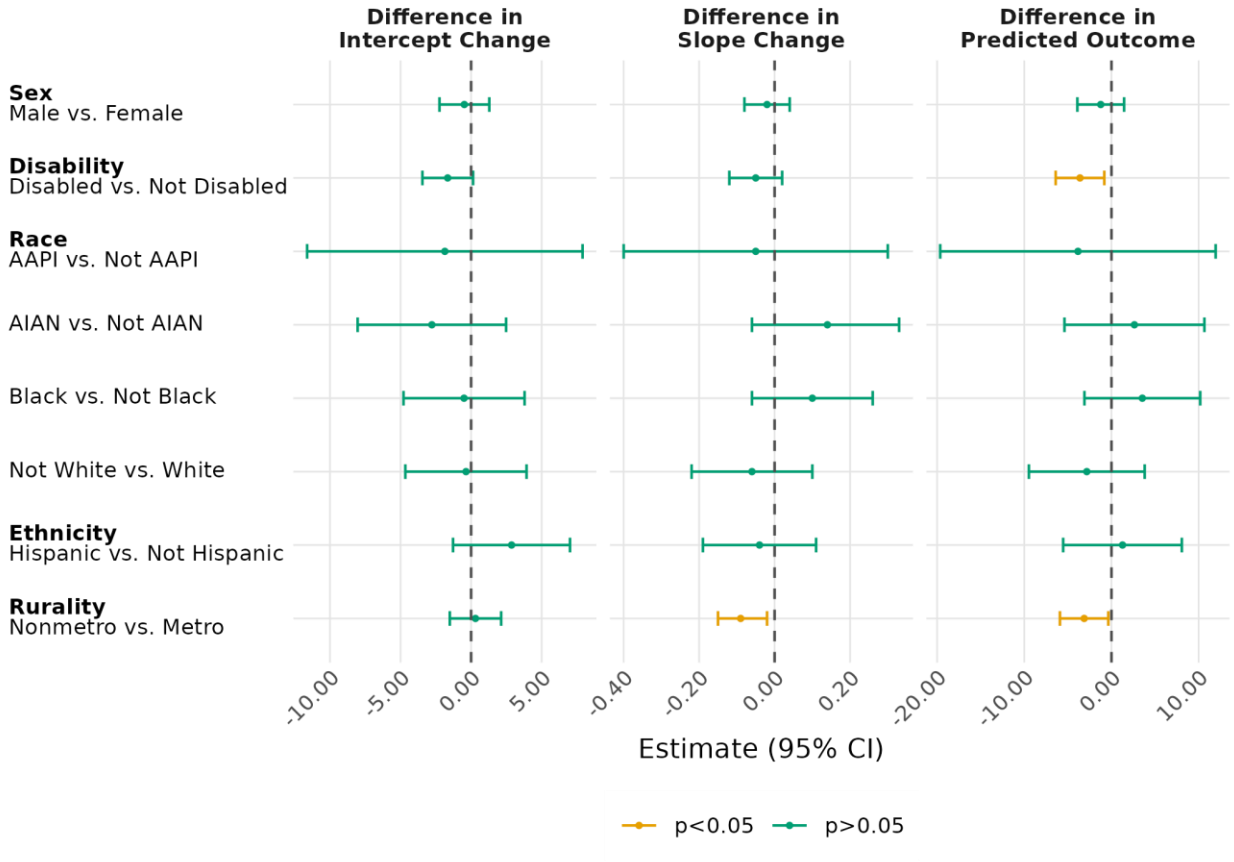
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	33.25* (32.67, 33.83)	34.80* (34.13, 35.48)	1.55* (0.71, 2.40)
Monthly Change	0.013 (-0.0033, 0.030)	0.077* (0.049, 0.10)	0.064* (0.031, 0.096)
Predicted Average Outcome Nov 2024	33.78* (32.59, 34.97)	37.88* (37.25, 38.50)	4.09* (2.74, 5.45)
N			239,614

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD) ‡ (Contrast Plot)

Figure 97: Comparison groups in Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

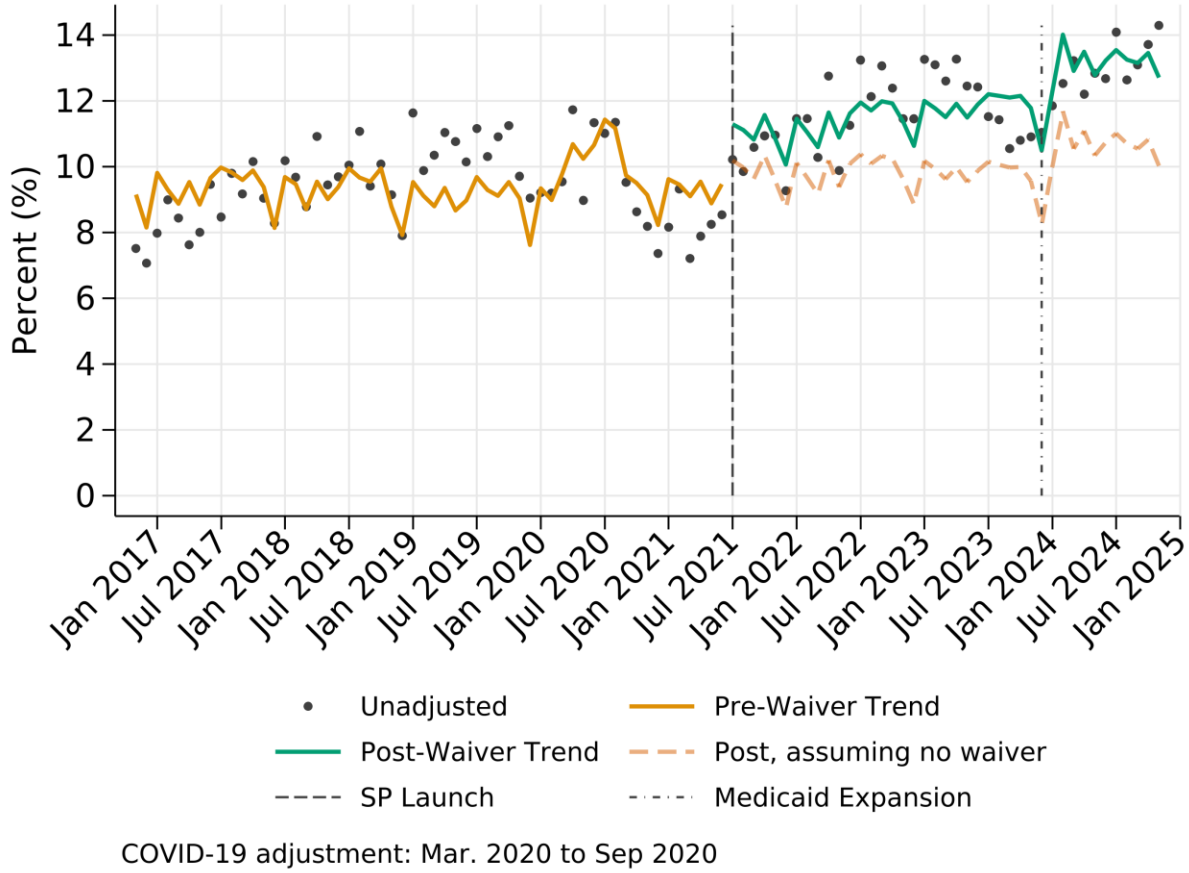


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD) ‡ (Figure)

Figure 98: Trends in Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD) ‡ (Table)

Table 41: Interrupted time series estimates of Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

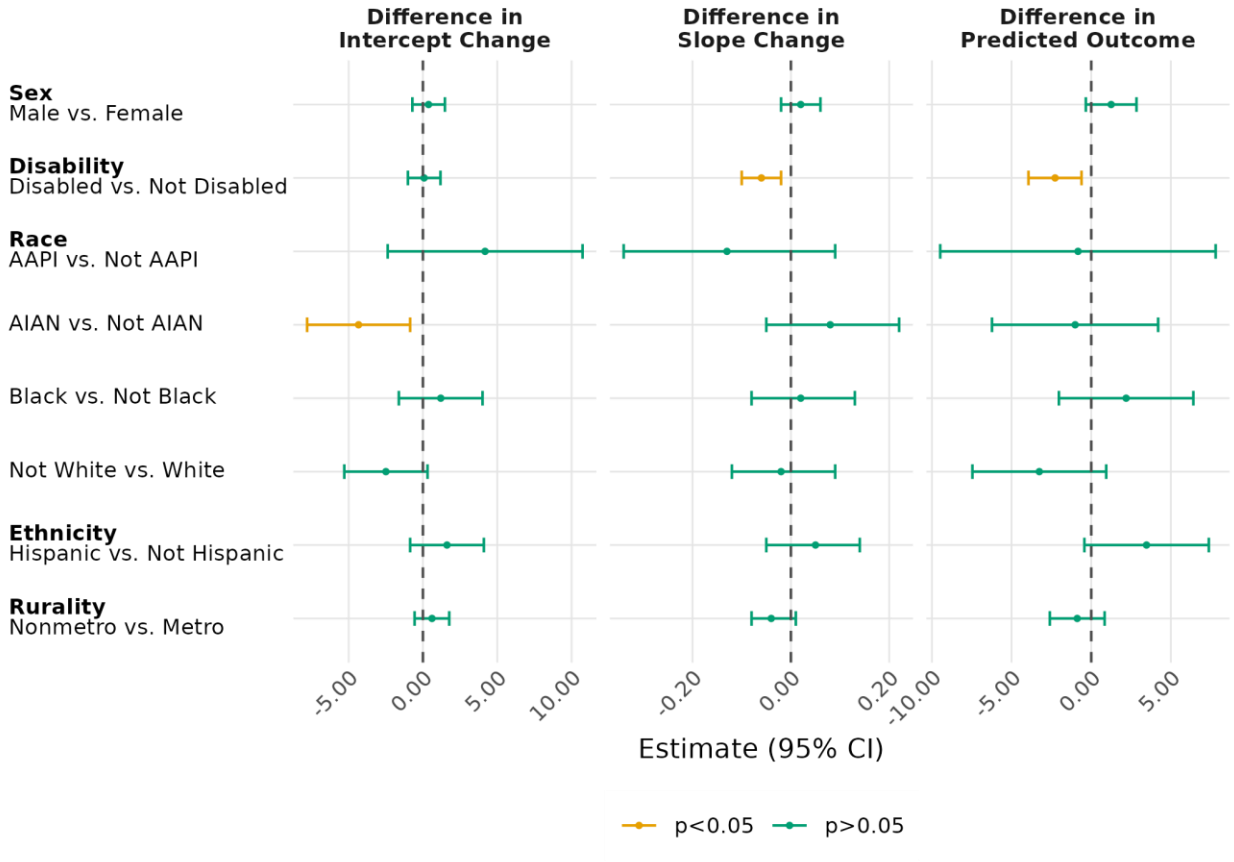
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	9.65* (9.31, 10.00)	10.76* (10.32, 11.19)	1.11* (0.57, 1.64)
Monthly Change	-0.0046 (-0.014, 0.0053)	0.035* (0.017, 0.053)	0.039* (0.019, 0.060)
Predicted Average Outcome Nov 2024	9.47* (8.76, 10.18)	12.15* (11.75, 12.54)	2.68* (1.86, 3.50)
N			239,614

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD) ‡ (Contrast Plot)

Figure 99: Comparison groups in Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

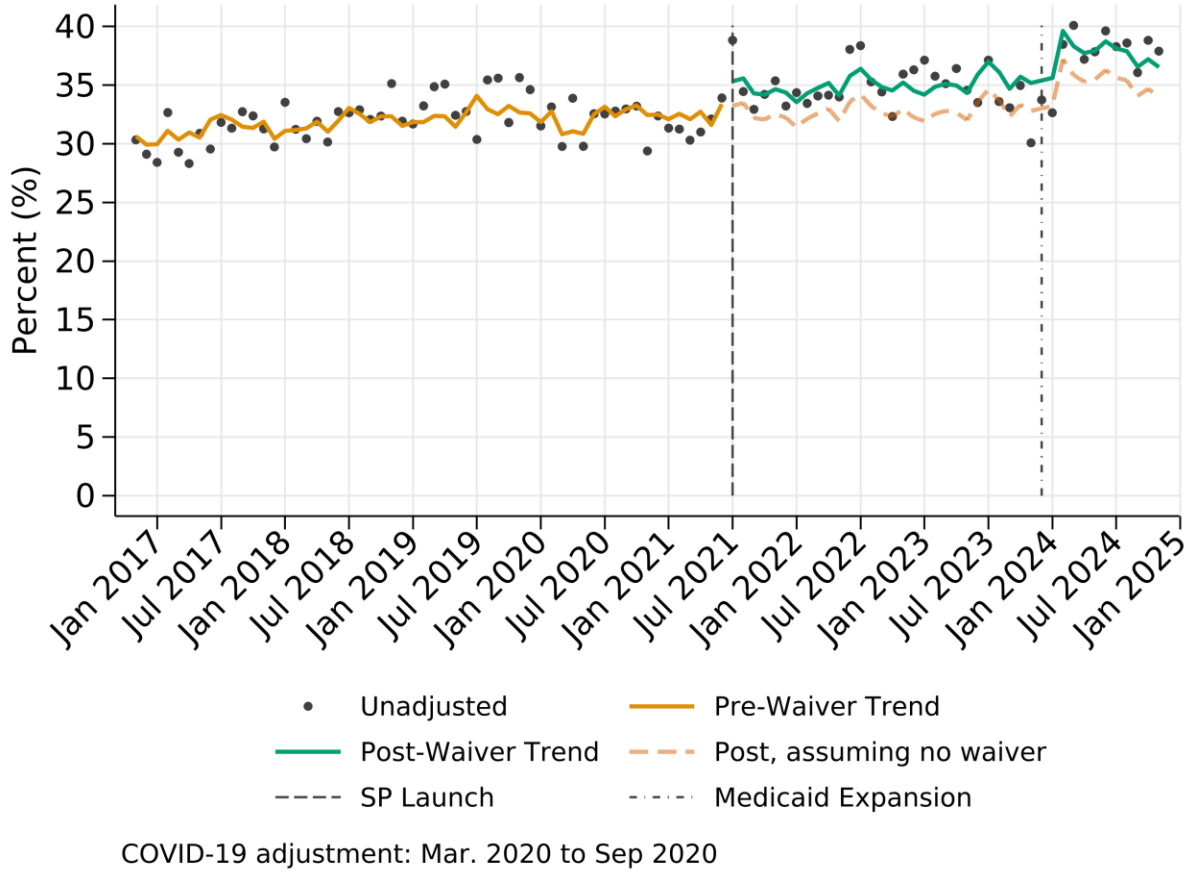


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Initiation of Alcohol Abuse or Dependence Treatment (IET-AD) ‡ (Figure)

Figure 100: Trends in Initiation of Alcohol Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Initiation of Alcohol Abuse or Dependence Treatment (IET-AD) ‡ (Table)

Table 42: Interrupted time series estimates of Initiation of Alcohol Abuse or Dependence Treatment (IET-AD)

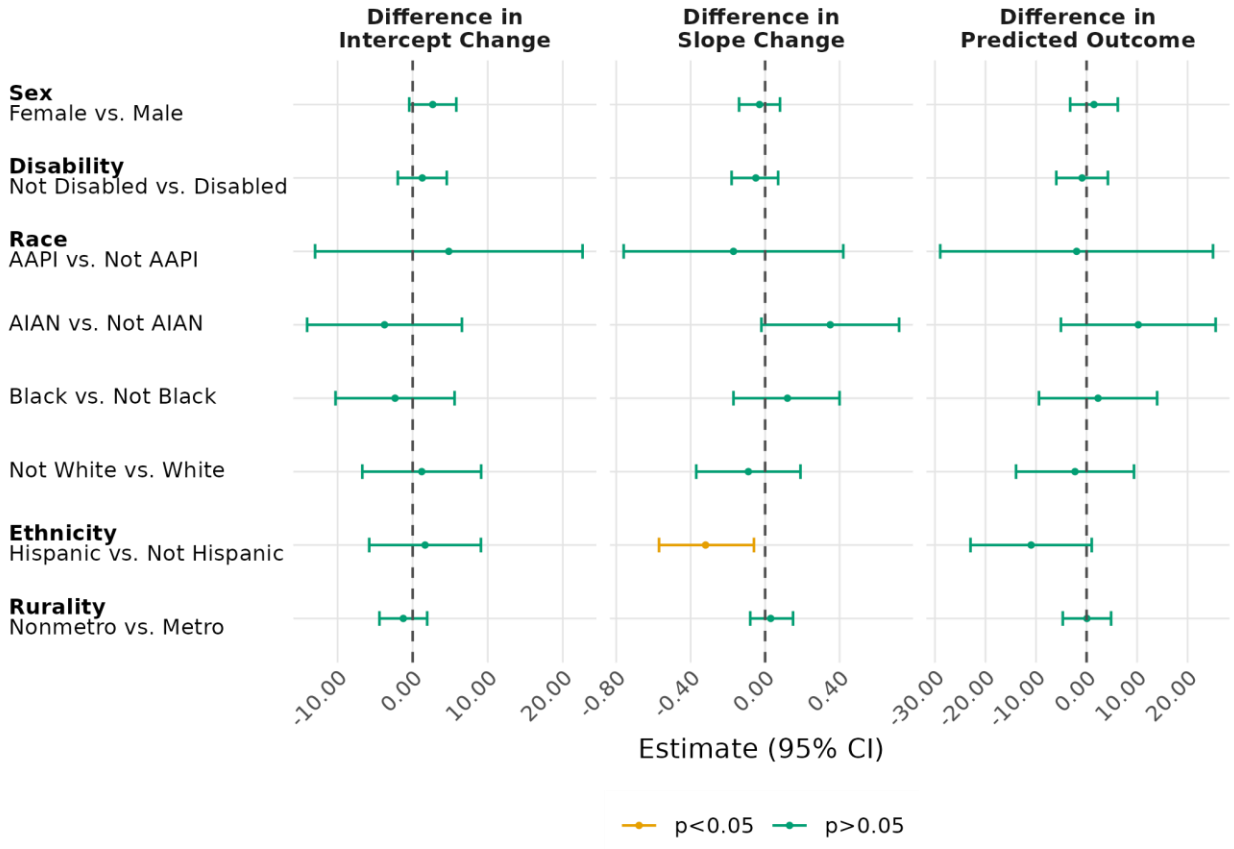
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	33.05* (32.03, 34.08)	35.13* (33.94, 36.32)	2.08* (0.58, 3.58)
Monthly Change	0.034* (0.0045, 0.063)	0.045 (-0.0034, 0.093)	0.011 (-0.046, 0.068)
Predicted Average Outcome Nov 2024	34.41* (32.30, 36.52)	36.93* (35.89, 37.96)	2.52* (0.13, 4.90)
N			79,245

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Initiation of Alcohol Abuse or Dependence Treatment (IET-AD) ‡ (Contrast Plot)

Figure 101: Comparison groups in Initiation of Alcohol Abuse or Dependence Treatment (IET-AD)

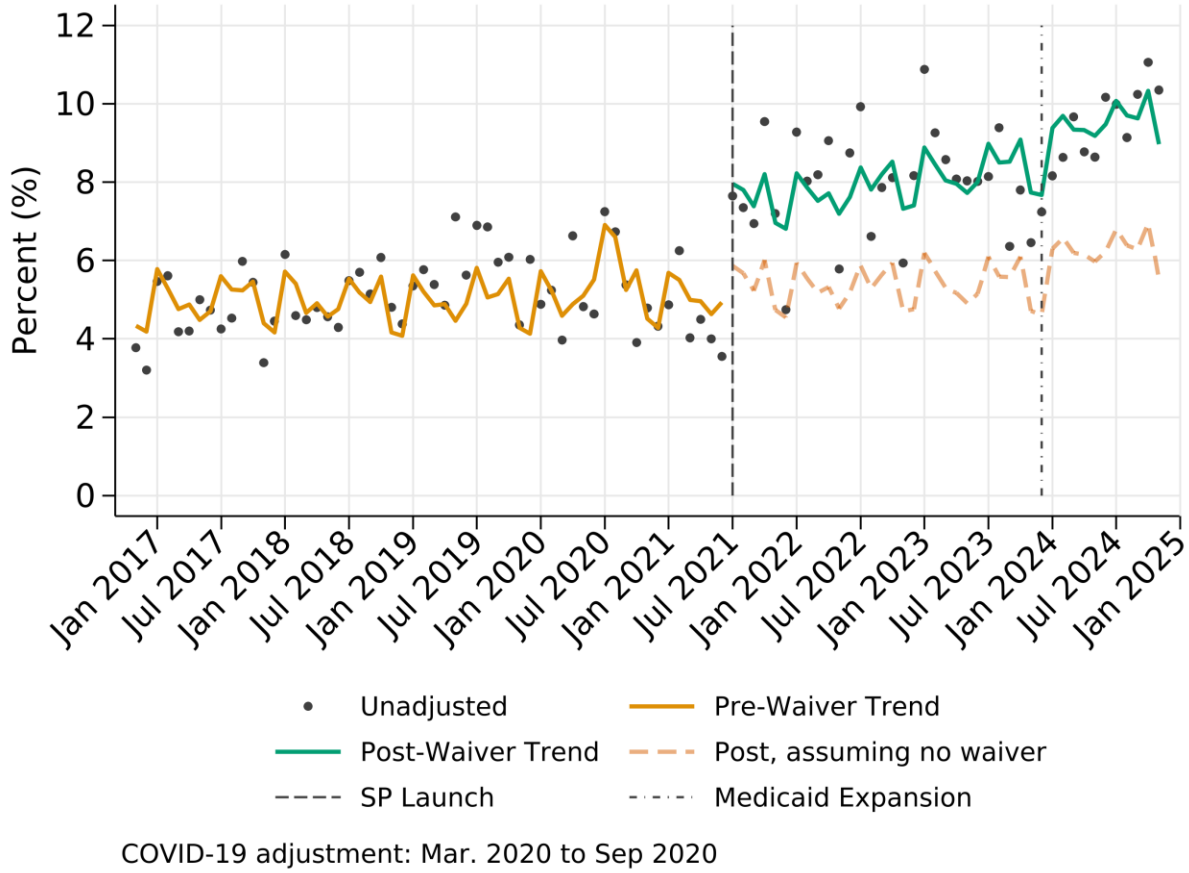


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Engagement of Alcohol Abuse or Dependence Treatment (IET-AD) ‡ (Figure)

Figure 102: Trends in Engagement of Alcohol Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Engagement of Alcohol Abuse or Dependence Treatment (IET-AD) ‡ (Table)

Table 43: Interrupted time series estimates of Engagement of Alcohol Abuse or Dependence Treatment (IET-AD)

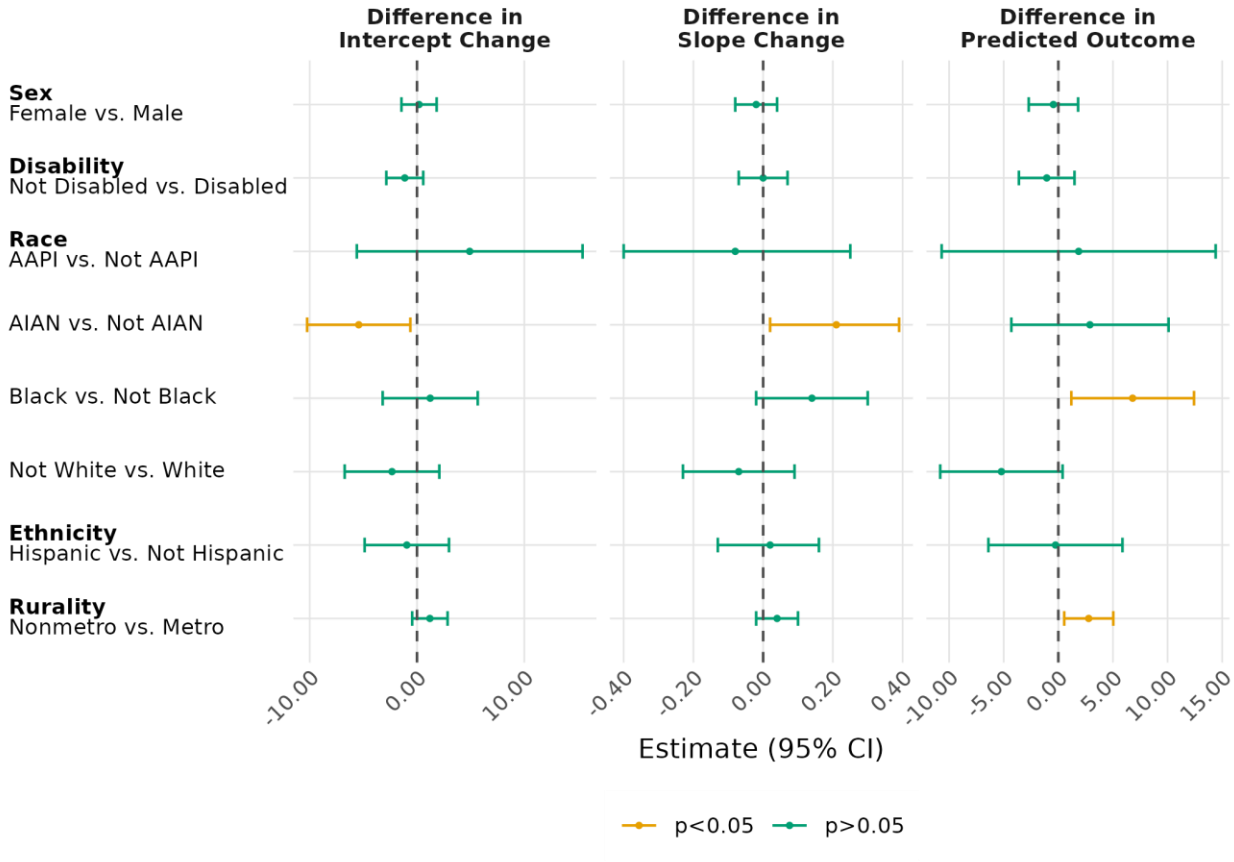
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	5.38* (4.92, 5.85)	7.47* (6.82, 8.13)	2.09* (1.31, 2.87)
Monthly Change	-0.0014 (-0.015, 0.012)	0.032* (0.0044, 0.059)	0.033* (0.0028, 0.063)
Predicted Average Outcome Nov 2024	5.33* (4.37, 6.28)	8.74* (8.15, 9.32)	3.41* (2.27, 4.55)
N			79,245

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Engagement of Alcohol Abuse or Dependence Treatment (IET-AD) ‡ (Contrast Plot)

Figure 103: Comparison groups in Engagement of Alcohol Abuse or Dependence Treatment (IET-AD)

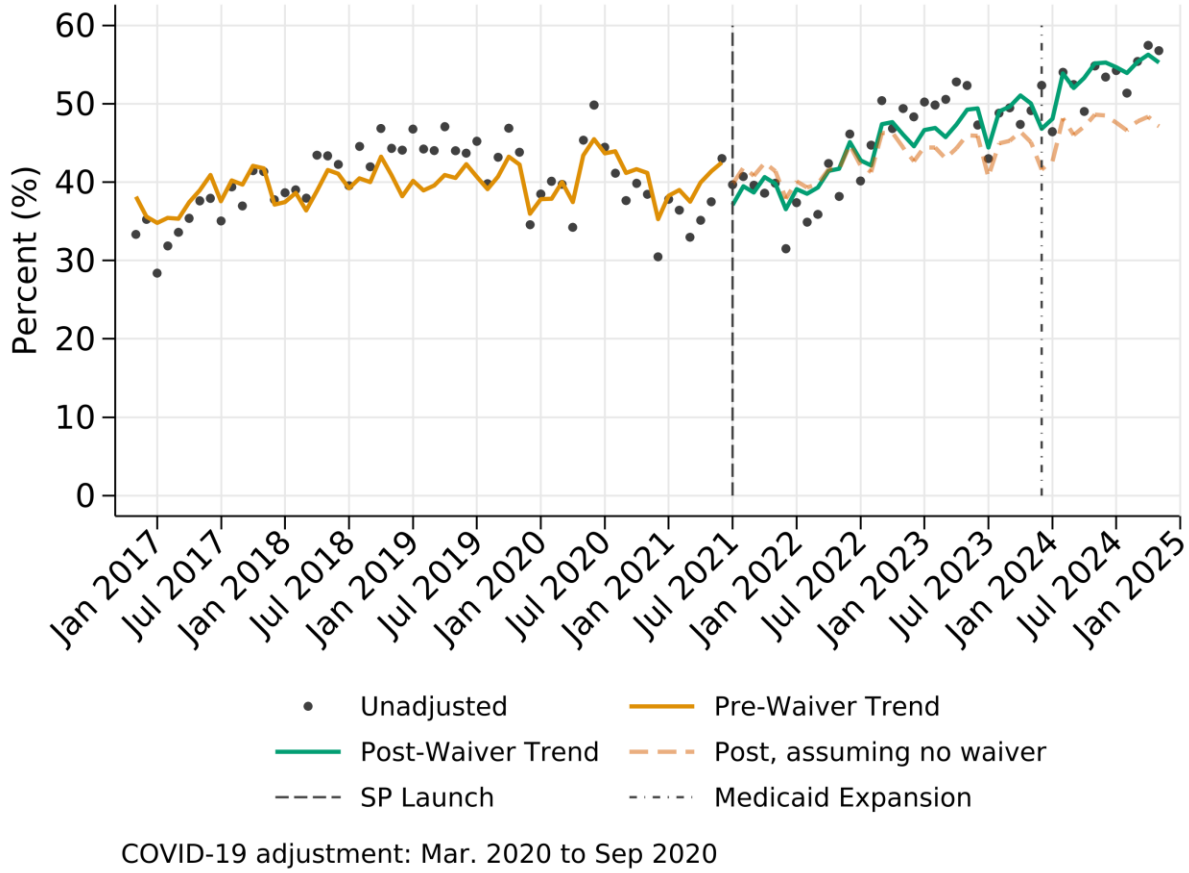


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Initiation of Opioid Abuse or Dependence Treatment (IET-AD) ‡ (Figure)

Figure 104: Trends in Initiation of Opioid Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Initiation of Opioid Abuse or Dependence Treatment (IET-AD) ‡ (Table)

Table 44: Interrupted time series estimates of Initiation of Opioid Abuse or Dependence Treatment (IET-AD)

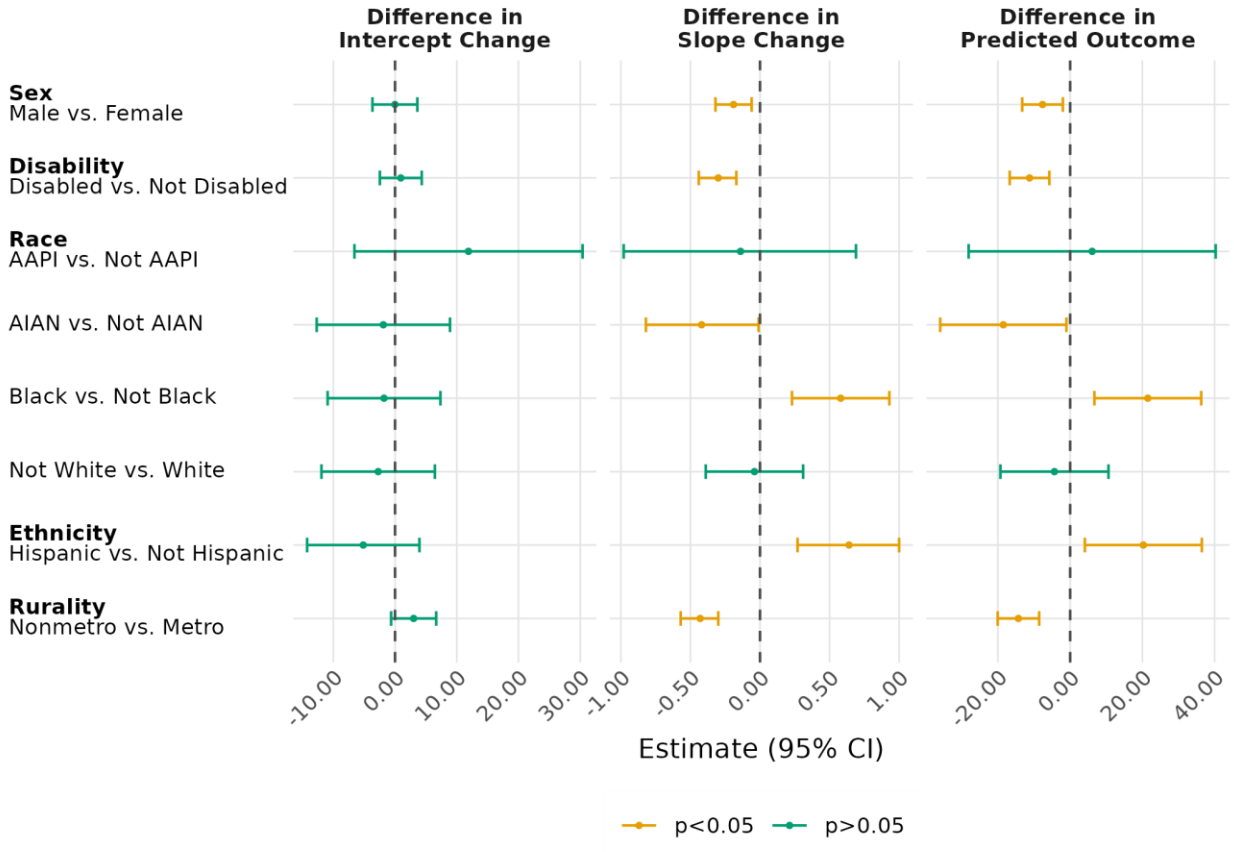
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	41.94* (40.78, 43.10)	39.27* (37.94, 40.59)	-2.67* (-4.32, -1.03)
Monthly Change	0.053* (0.020, 0.085)	0.32* (0.27, 0.38)	0.27* (0.20, 0.34)
Predicted Average Outcome Nov 2024	44.05* (41.68, 46.42)	52.19* (50.83, 53.56)	8.15* (5.39, 10.90)
N			61,986

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Initiation of Opioid Abuse or Dependence Treatment (IET-AD) ‡ (Contrast Plot)

Figure 105: Comparison groups in Initiation of Opioid Abuse or Dependence Treatment (IET-AD)

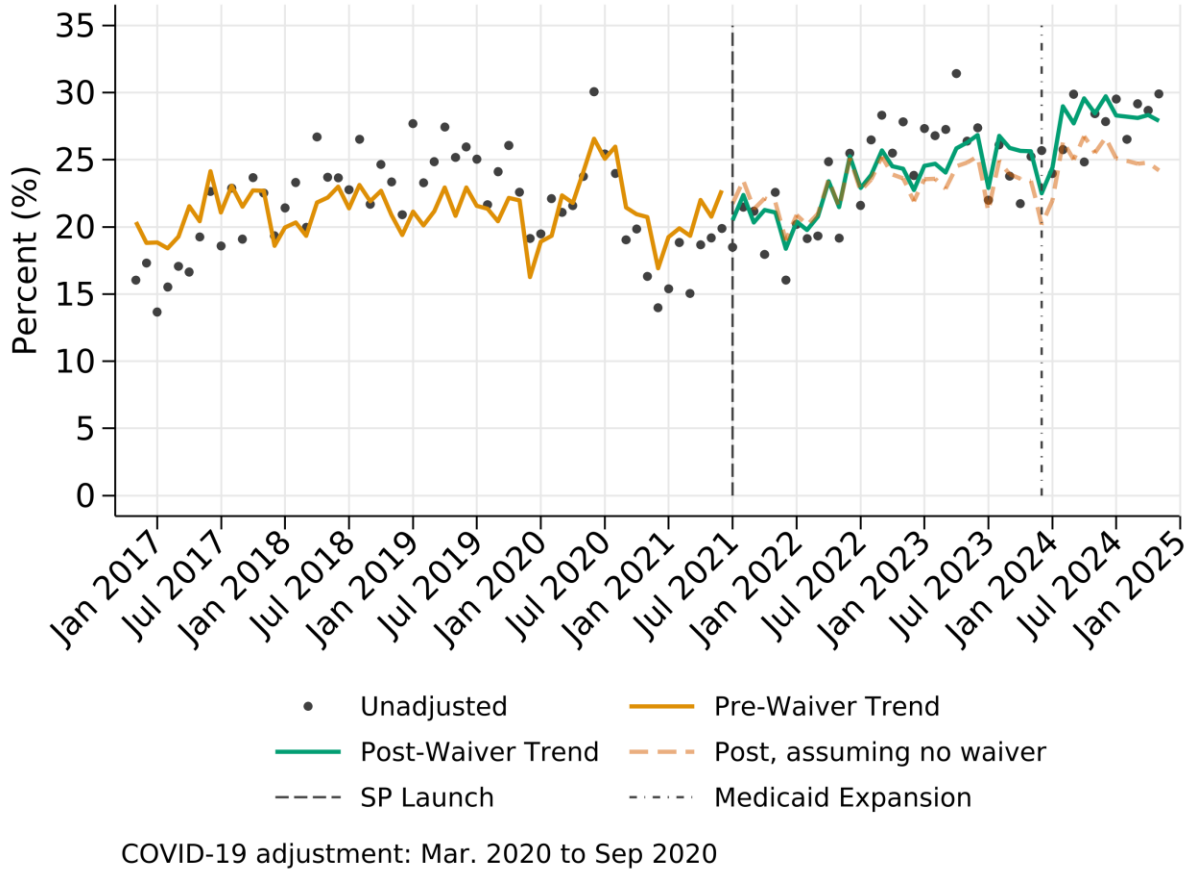


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Engagement of Opioid Abuse or Dependence Treatment (IET-AD) ‡ (Figure)

Figure 106: Trends in Engagement of Opioid Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Engagement of Opioid Abuse or Dependence Treatment (IET-AD) ‡ (Table)

Table 45: Interrupted time series estimates of Engagement of Opioid Abuse or Dependence Treatment (IET-AD)

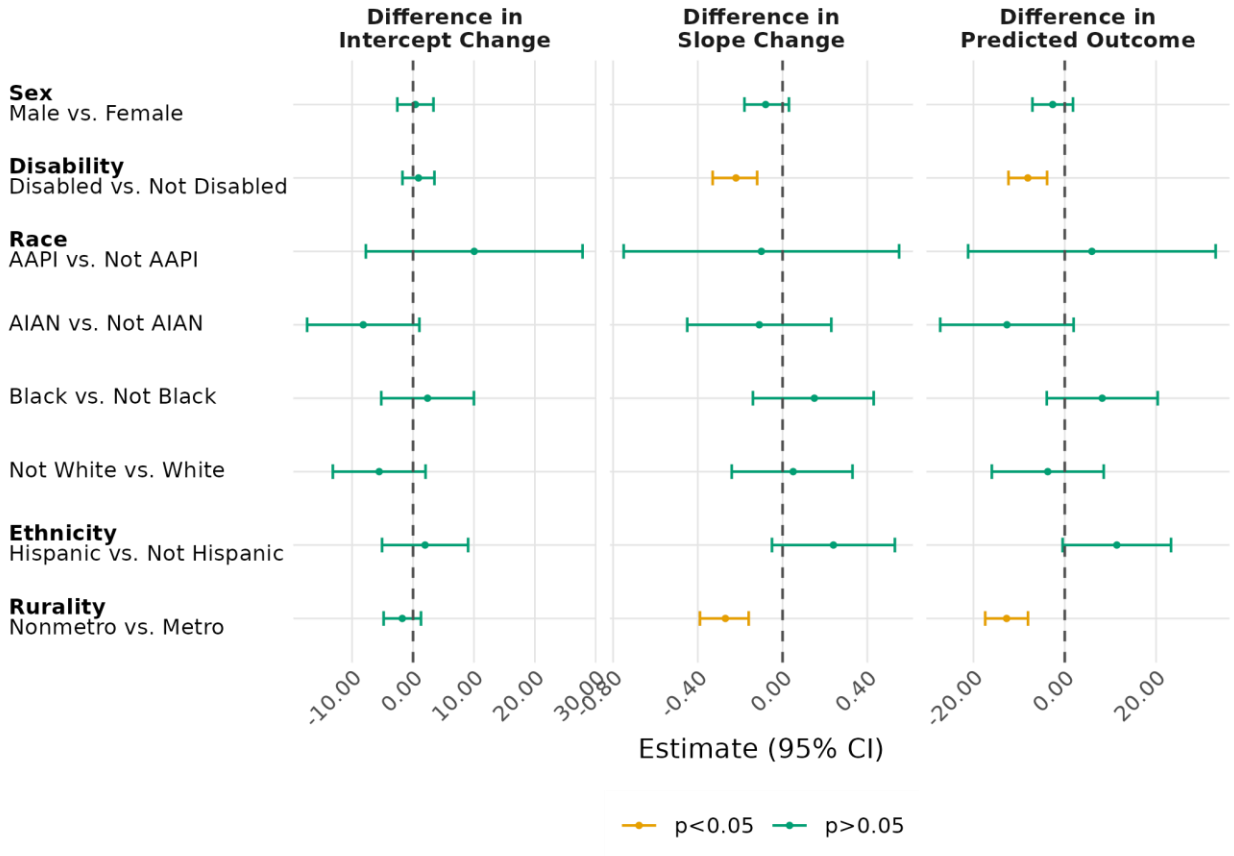
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	22.12* (21.19, 23.04)	20.89* (19.79, 21.98)	-1.23 (-2.58, 0.12)
Monthly Change	0.0032 (-0.023, 0.029)	0.13* (0.078, 0.17)	0.12* (0.068, 0.18)
Predicted Average Outcome Nov 2024	22.24* (20.37, 24.12)	25.92* (24.81, 27.04)	3.68* (1.47, 5.89)
N			61,986

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Engagement of Opioid Abuse or Dependence Treatment (IET-AD) ‡ (Contrast Plot)

Figure 107: Comparison groups in Engagement of Opioid Abuse or Dependence Treatment (IET-AD)

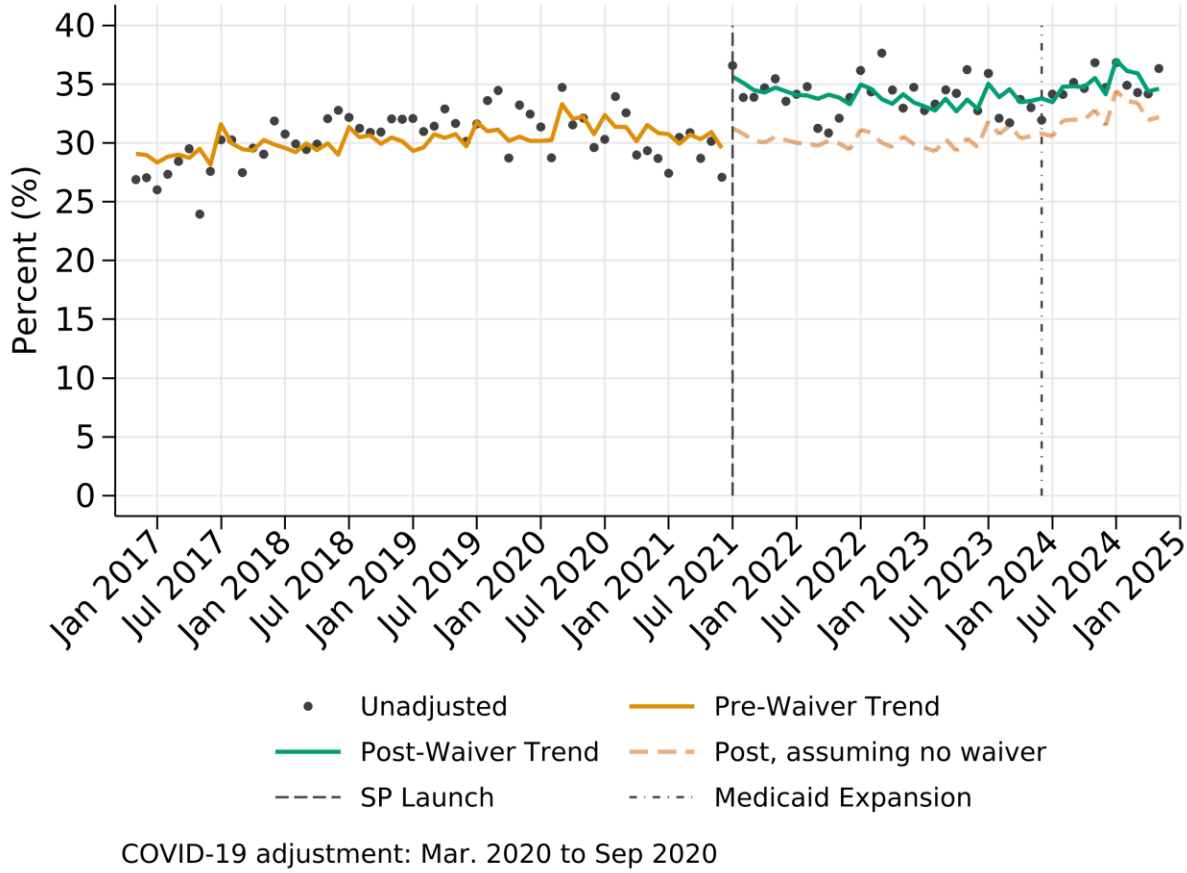


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Initiation of Other Drug Abuse or Dependence Treatment (IET-AD) ‡ (Figure)

Figure 108: Trends in Initiation of Other Drug Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Initiation of Other Drug Abuse or Dependence Treatment (IET-AD) ‡ (Table)

Table 46: Interrupted time series estimates of Initiation of Other Drug Abuse or Dependence Treatment (IET-AD)

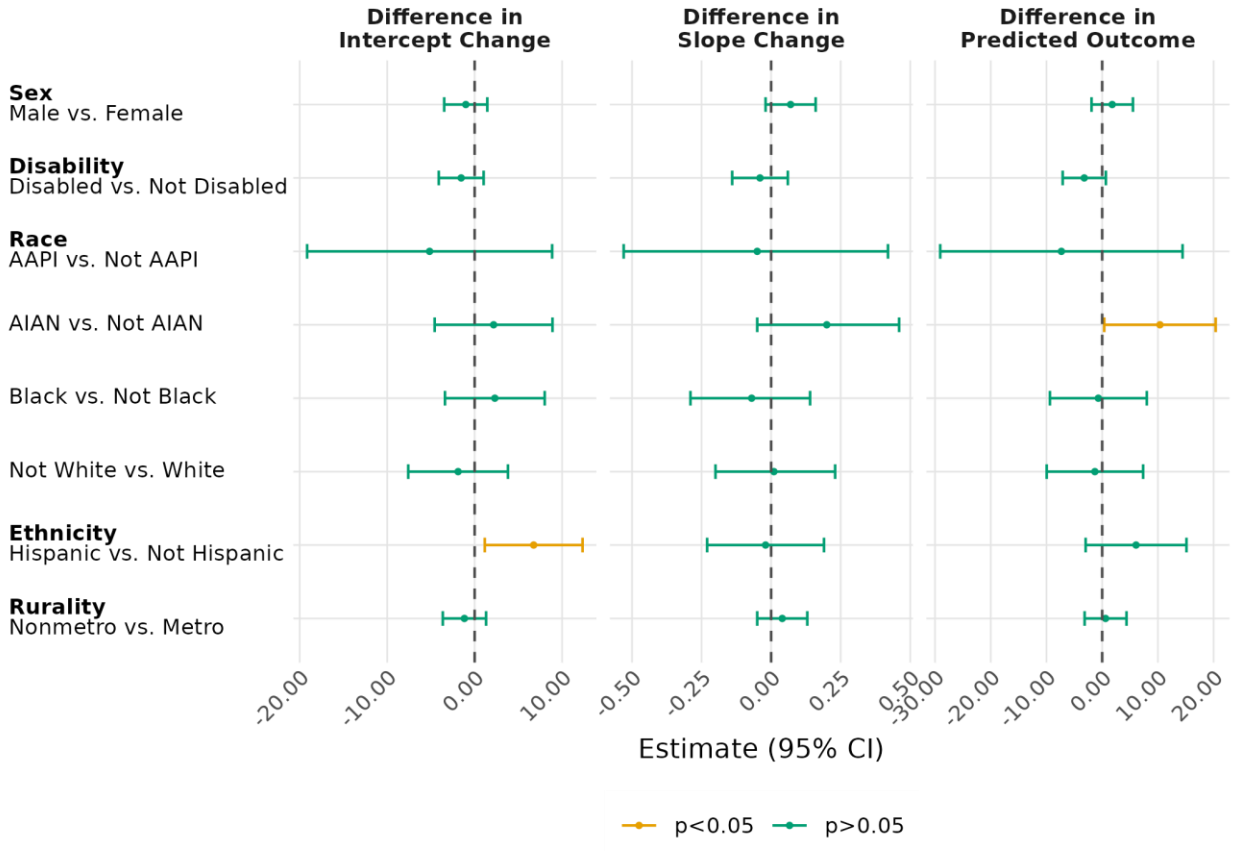
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	30.68* (29.89, 31.48)	35.08* (34.14, 36.01)	4.39* (3.21, 5.57)
Monthly Change	0.019 (-0.0036, 0.042)	-0.030 (-0.068, 0.0082)	-0.049* (-0.094, -0.0046)
Predicted Average Outcome Nov 2024	31.45* (29.81, 33.09)	33.87* (33.05, 34.70)	2.42* (0.56, 4.28)
N			118,893

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Initiation of Other Drug Abuse or Dependence Treatment (IET-AD) ‡ (Contrast Plot)

Figure 109: Comparison groups in Initiation of Other Drug Abuse or Dependence Treatment (IET-AD)

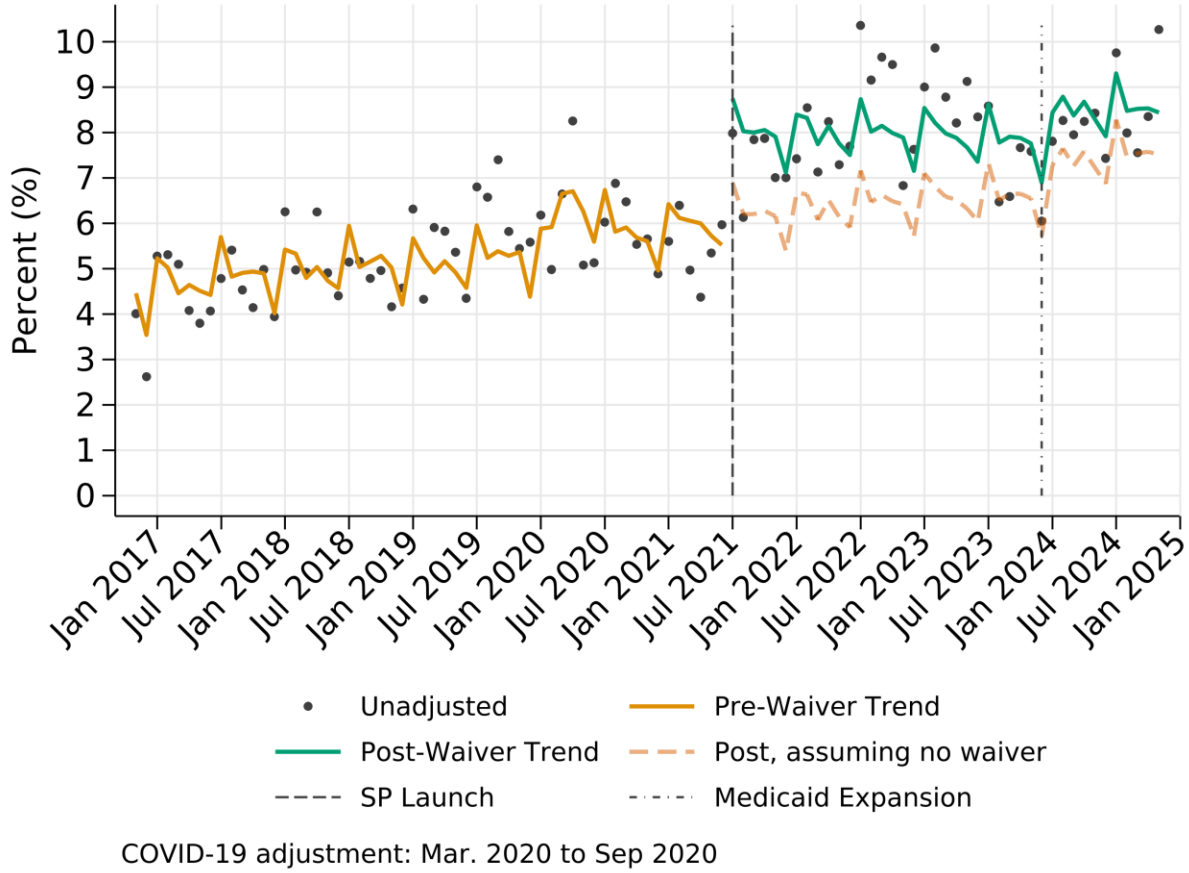


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Engagement of Other Drug Abuse or Dependence Treatment (IET-AD) ‡ (Figure)

Figure 110: Trends in Engagement of Other Drug Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Engagement of Other Drug Abuse or Dependence Treatment (IET-AD) ‡ (Table)

Table 47: Interrupted time series estimates of Engagement of Other Drug Abuse or Dependence Treatment (IET-AD)

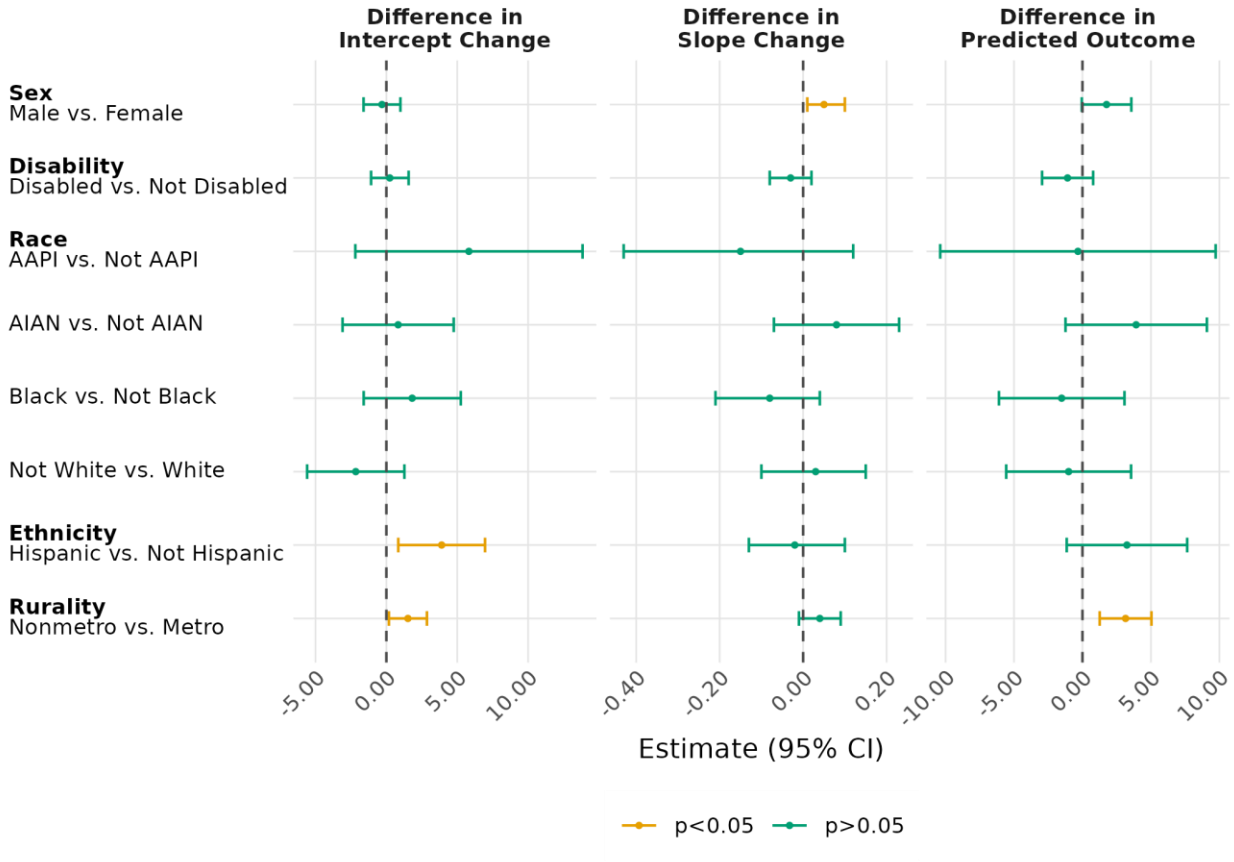
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	6.08* (5.68, 6.47)	7.93* (7.41, 8.45)	1.85* (1.21, 2.49)
Monthly Change	0.020* (0.0092, 0.031)	-0.0027 (-0.024, 0.019)	-0.023 (-0.047, 0.0011)
Predicted Average Outcome Nov 2024	6.89* (6.08, 7.70)	7.82* (7.37, 8.27)	0.93 (-0.013, 1.87)
N			118,893

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Engagement of Other Drug Abuse or Dependence Treatment (IET-AD) ‡ (Contrast Plot)

Figure 111: Comparison groups in Engagement of Other Drug Abuse or Dependence Treatment (IET-AD)



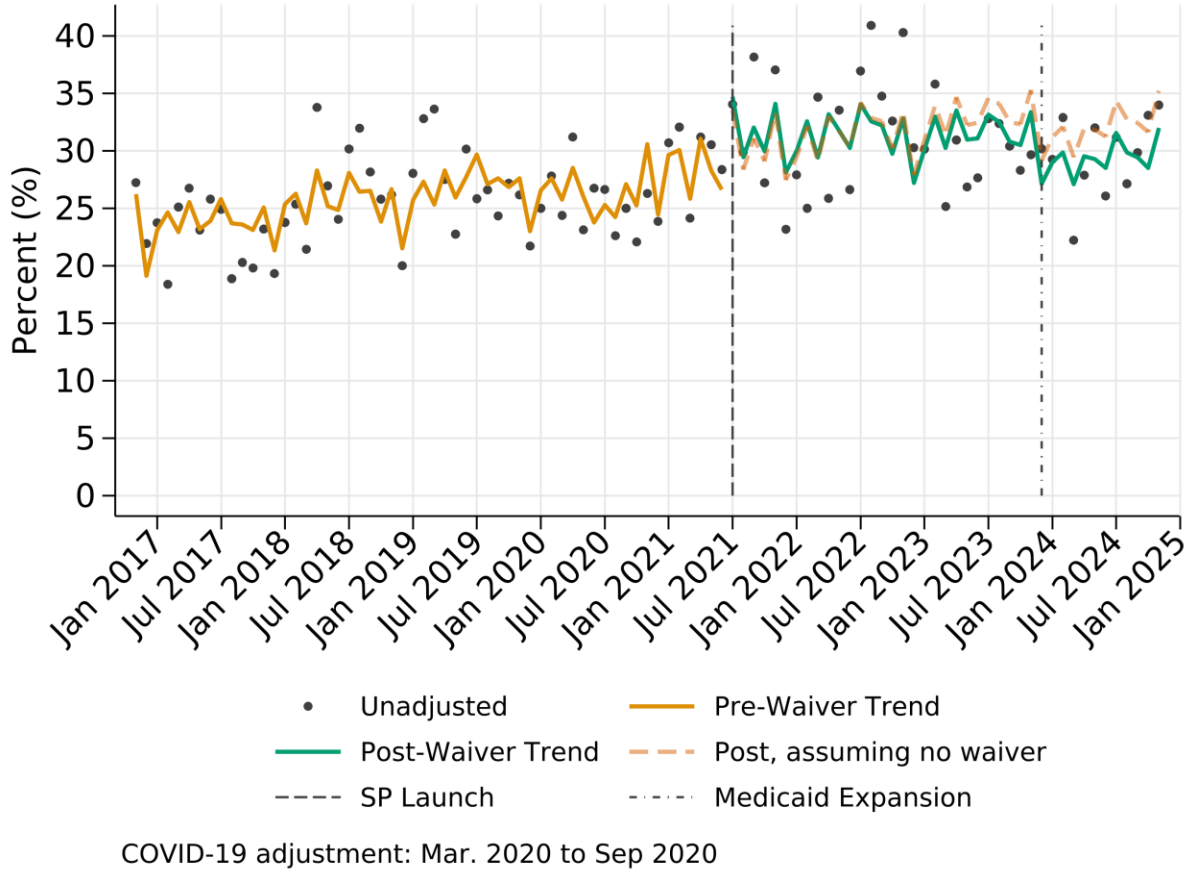
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD)

Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 7 Days of ED Visit ‡ (Figure)

Figure 112: Trends in Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 7 Days of ED Visit



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 7 Days of ED Visit ‡ (Table)

Table 48: Interrupted time series estimates of Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 7 Days of ED Visit

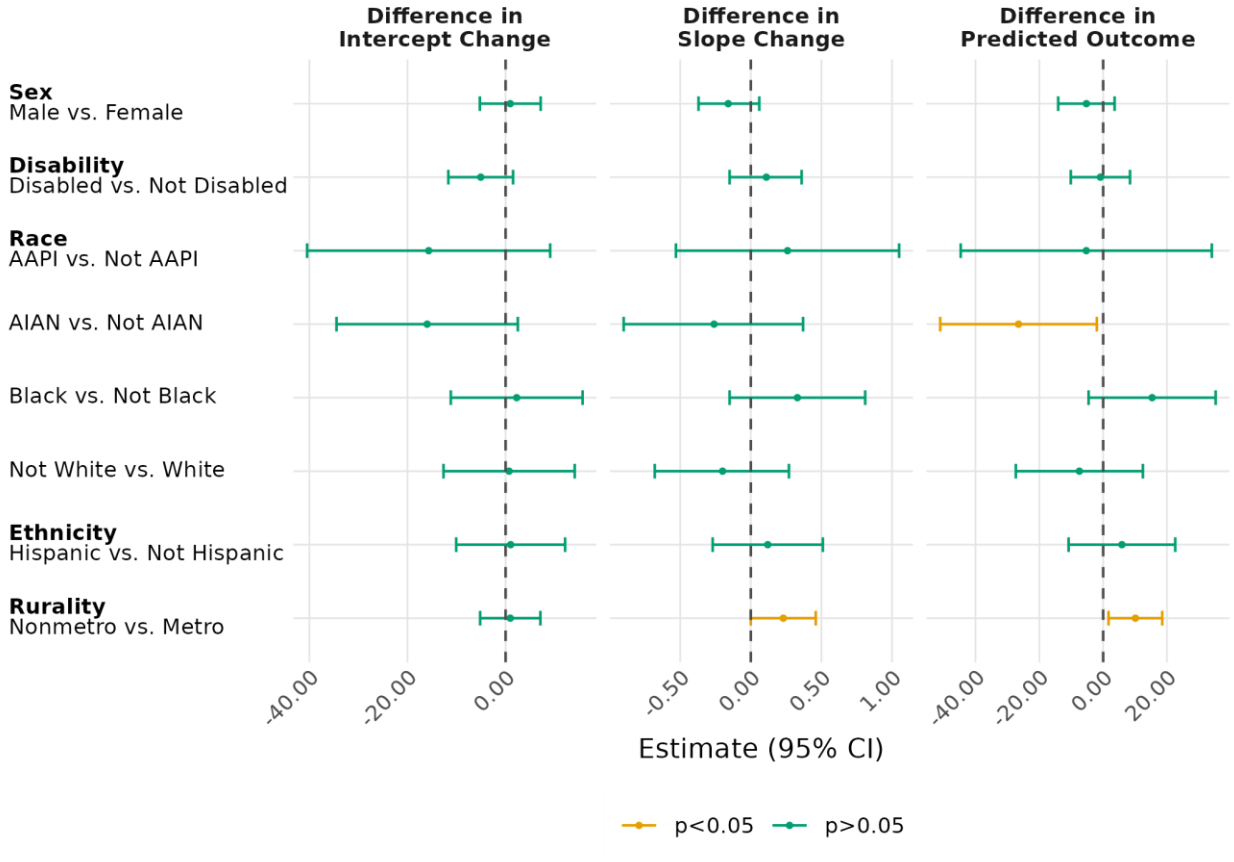
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	29.19* (27.42, 30.97)	30.37* (28.10, 32.64)	1.18 (-1.67, 4.02)
Monthly Change	0.098* (0.049, 0.15)	-0.013 (-0.11, 0.084)	-0.11* (-0.22, -0.0022)
Predicted Average Outcome Nov 2024	33.12* (29.49, 36.74)	29.87* (27.71, 32.02)	-3.25 (-7.55, 1.05)
N			19,663

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 7 Days of ED Visit ‡ (Contrast Plot)

Figure 113: Comparison groups in Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 7 Days of ED Visit

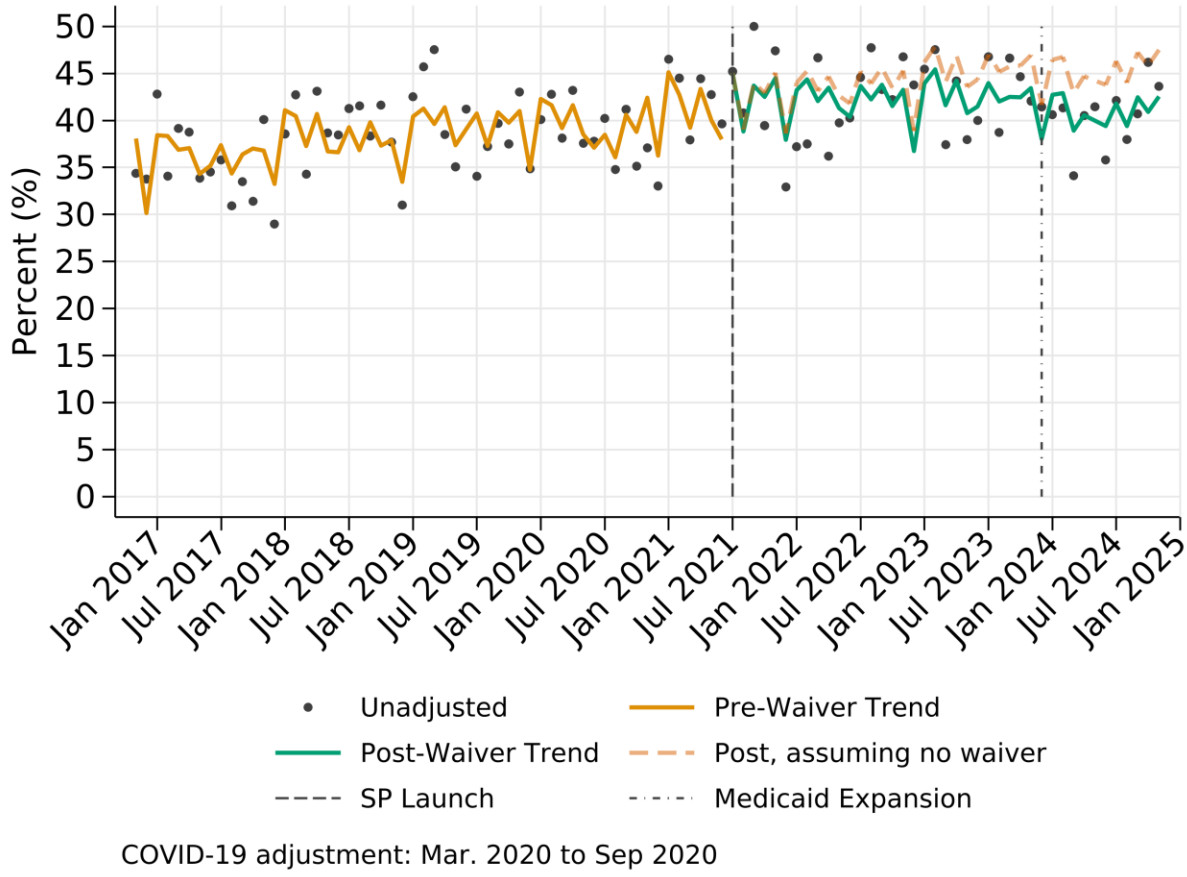


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 30 Days of ED Visit ‡ (Figure)

Figure 114: Trends in Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 30 Days of ED Visit



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 30 Days of ED Visit ‡ (Table)

Table 49: Interrupted time series estimates of Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 30 Days of ED Visit

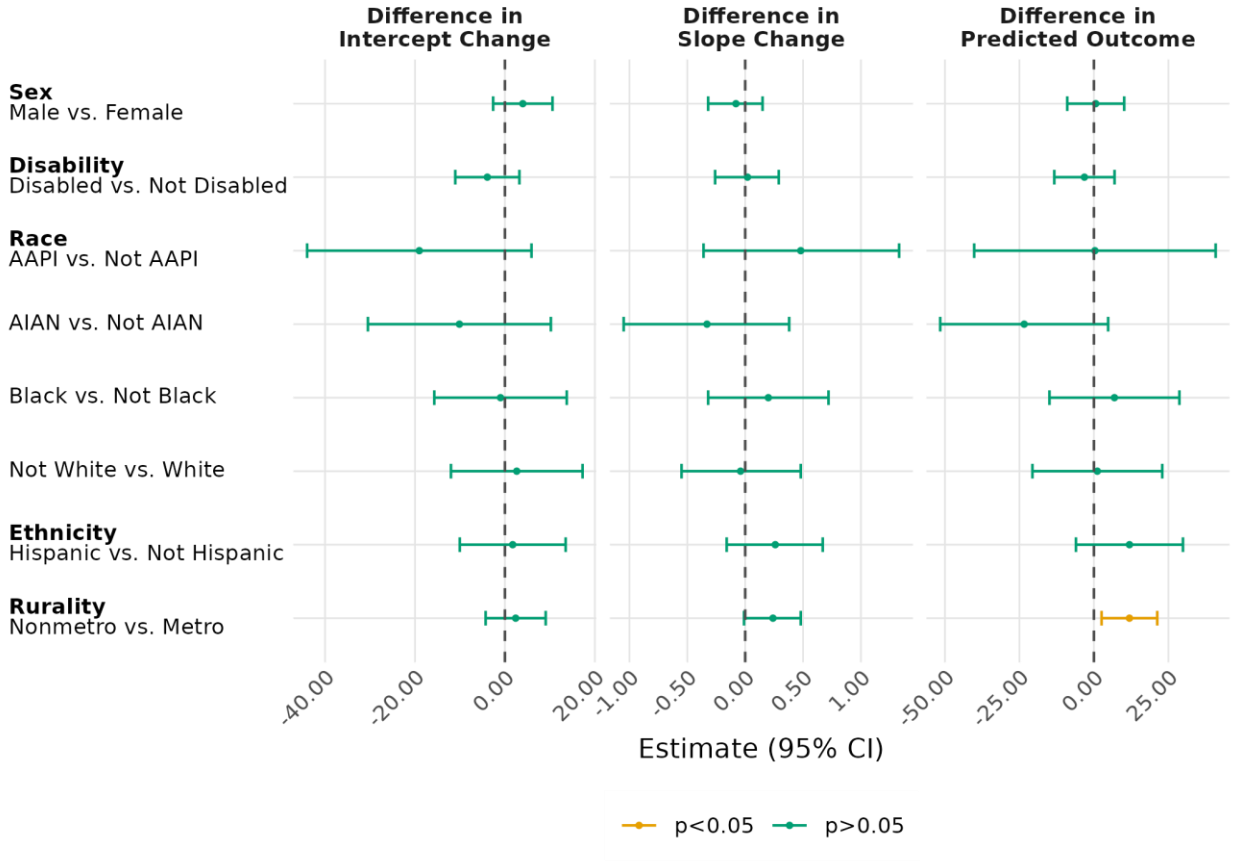
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	41.87* (39.95, 43.79)	41.80* (39.39, 44.22)	-0.066 (-3.12, 2.99)
Monthly Change	0.11* (0.052, 0.16)	-0.017 (-0.12, 0.086)	-0.12* (-0.24, -0.0075)
Predicted Average Outcome Nov 2024	46.13* (42.17, 50.09)	41.14* (38.85, 43.42)	-4.99* (-9.64, -0.35)
N			19,663

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 30 Days of ED Visit ‡ (Contrast Plot)

Figure 115: Comparison groups in Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 30 Days of ED Visit



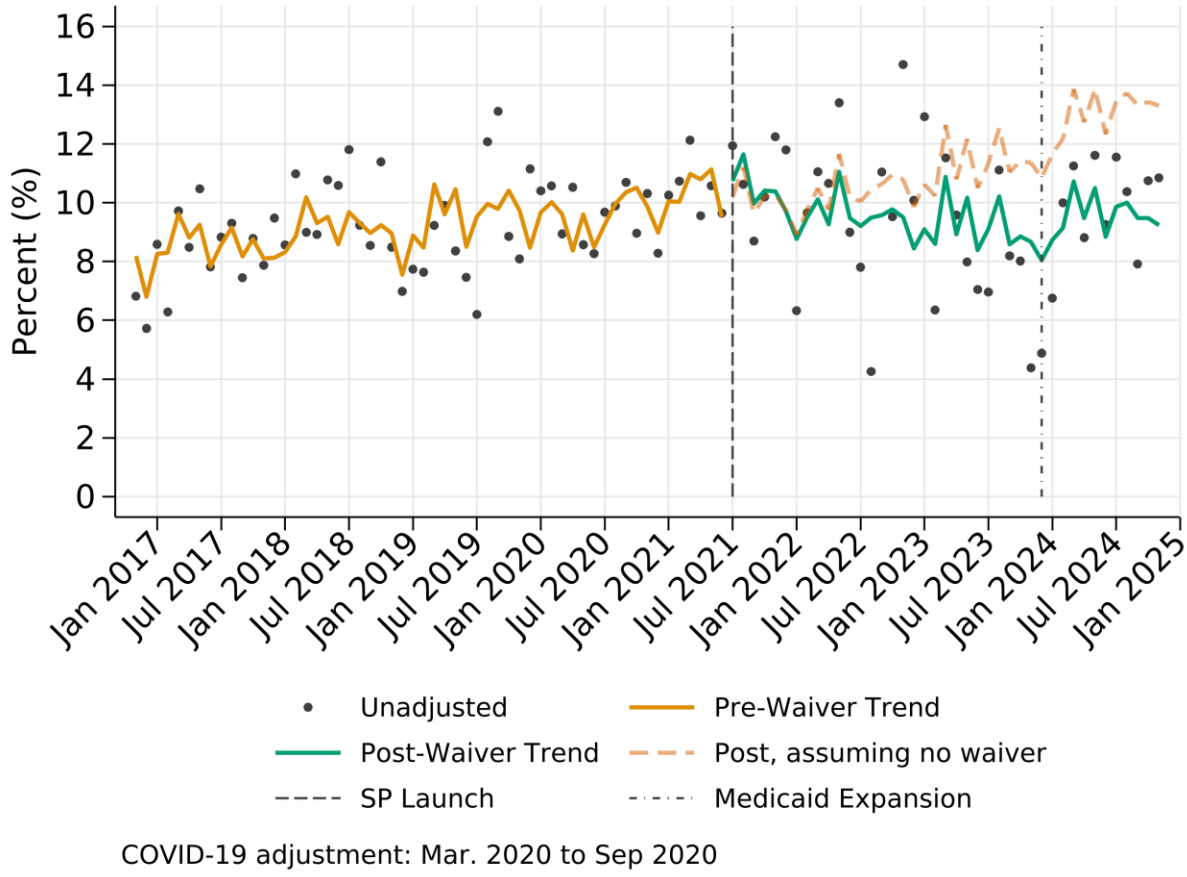
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence: Age 18 and older (FUA-AD)

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 7 Days After ED Visit ‡ (Figure)

Figure 116: Trends in Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 7 Days After ED Visit



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 7 Days After ED Visit ‡ (Table)

Table 50: Interrupted time series estimates of Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 7 Days After ED Visit

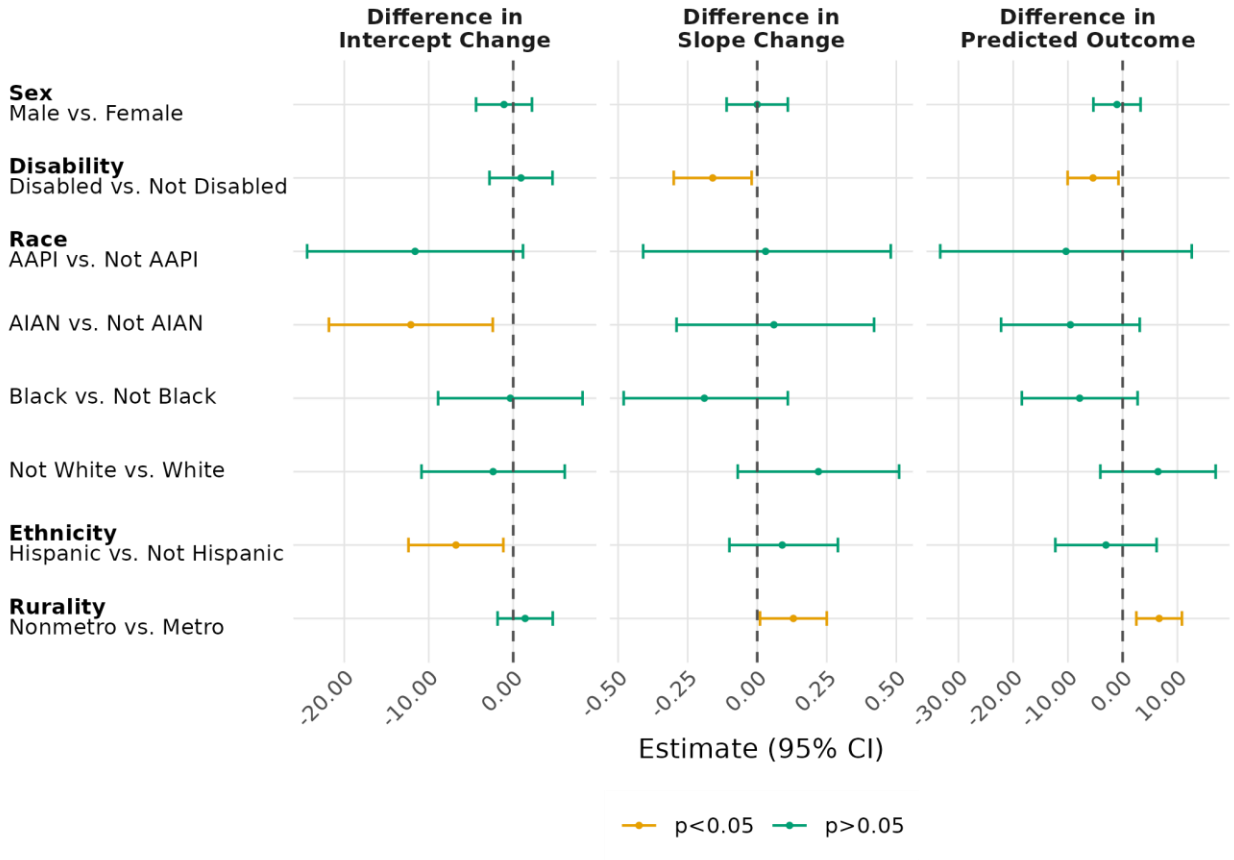
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	10.63* (9.70, 11.57)	11.18* (9.83, 12.53)	0.55 (-1.06, 2.15)
Monthly Change	0.039* (0.013, 0.065)	-0.077* (-0.13, -0.023)	-0.12* (-0.17, -0.056)
Predicted Average Outcome Nov 2024	12.18* (10.28, 14.08)	8.11* (7.05, 9.18)	-4.07* (-6.29, -1.85)
N			31,714

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 7 Days After ED Visit ‡ (Contrast Plot)

Figure 117: Comparison groups in Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 7 Days After ED Visit



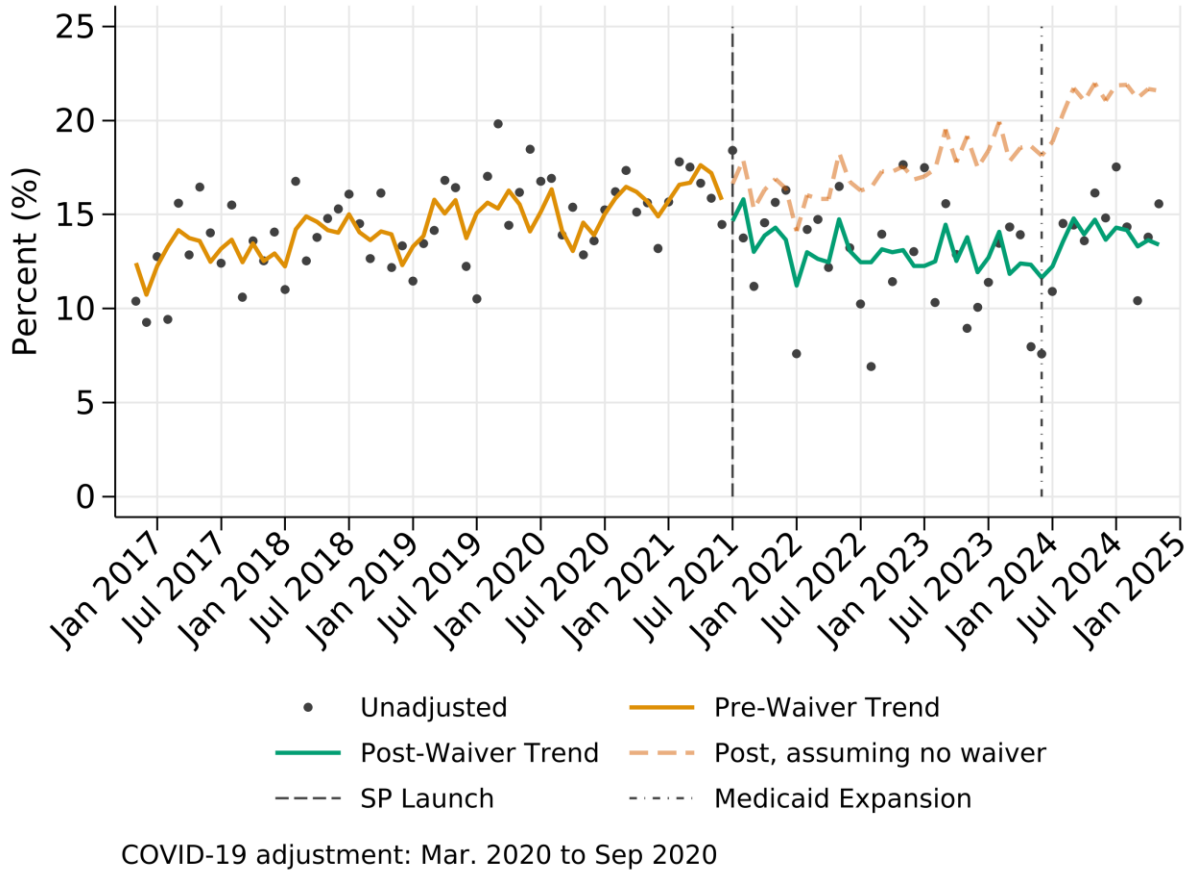
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD)

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit ‡ (Figure)

Figure 118: Trends in Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit ‡ (Table)

Table 51: Interrupted time series estimates of Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit

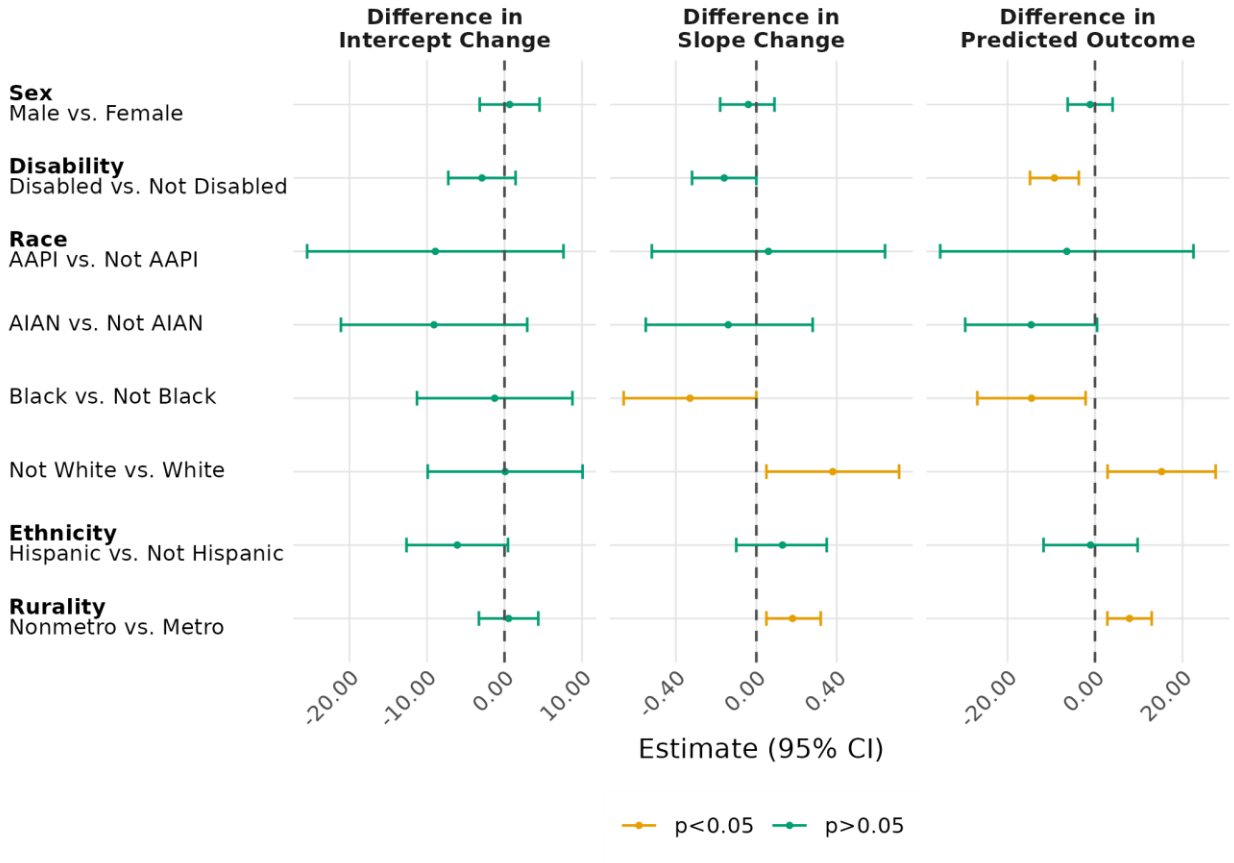
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	17.02* (15.90, 18.14)	15.06* (13.53, 16.59)	-1.96* (-3.81, -0.11)
Monthly Change	0.080* (0.049, 0.11)	-0.076* (-0.14, -0.014)	-0.16* (-0.22, -0.087)
Predicted Average Outcome Nov 2024	20.23* (17.94, 22.52)	12.04* (10.81, 13.27)	-8.19* (-10.83, -5.55)
N			31,714

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit ‡ (Contrast Plot)

Figure 119: Comparison groups in Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit



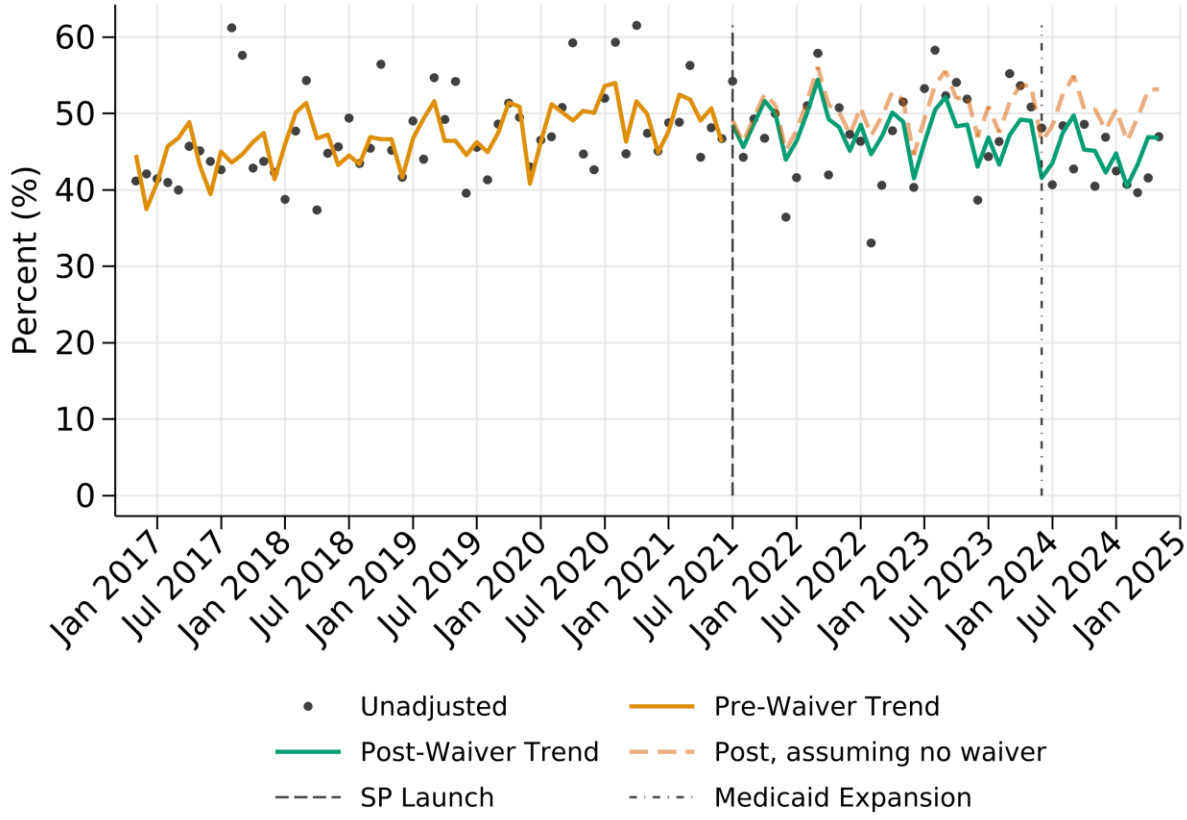
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness (FUH)

Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge ‡ (Figure)

Figure 120: Trends in Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-17) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge ‡ (Table)

Table 52: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge

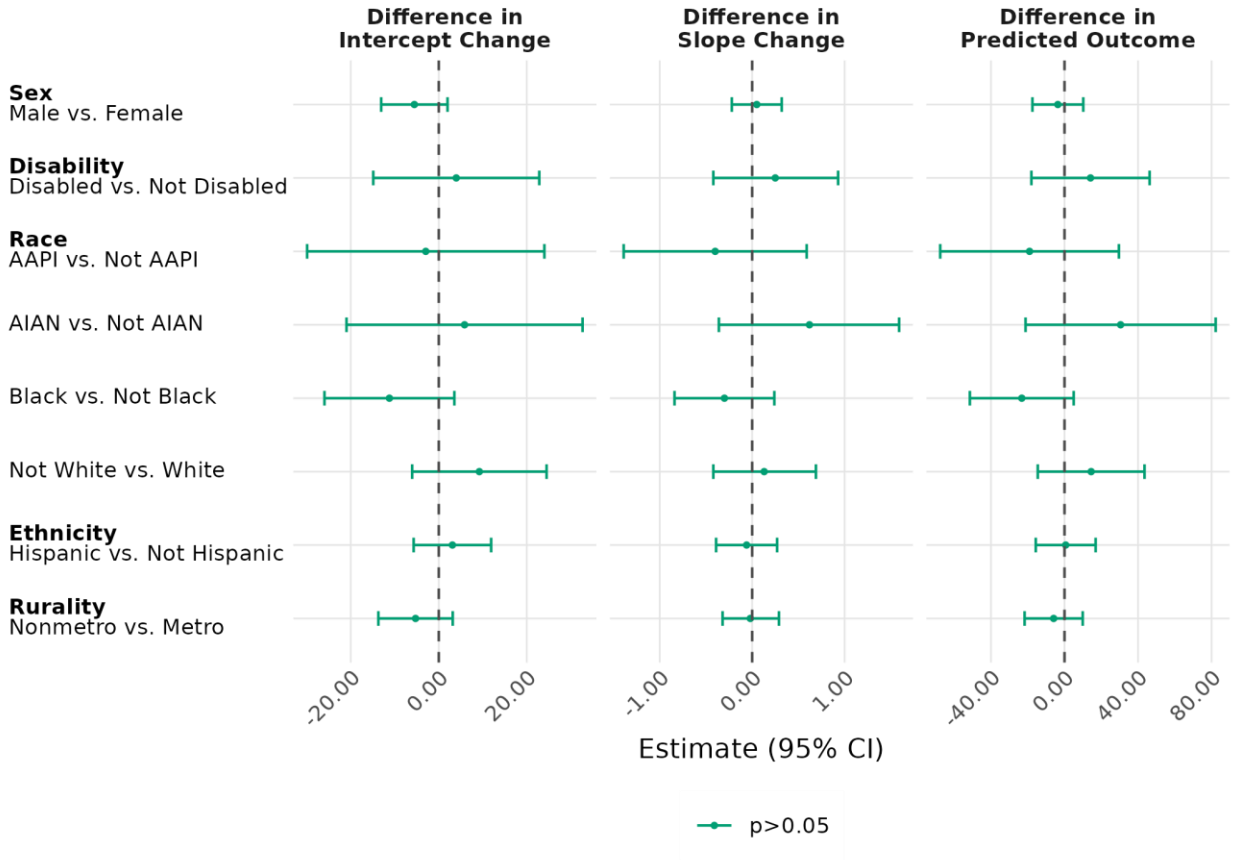
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	49.16* (46.38, 51.94)	48.62* (46.51, 50.72)	-0.54 (-4.03, 2.95)
Monthly Change	0.063 (-0.025, 0.15)	-0.083 (-0.17, 0.0045)	-0.15* (-0.27, -0.021)
Predicted Average Outcome Nov 2024	51.67* (45.57, 57.76)	45.30* (43.34, 47.26)	-6.37 (-12.78, 0.046)
N			14,353

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-17) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge ‡ (Contrast Plot)

Figure 121: Comparison groups in Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge

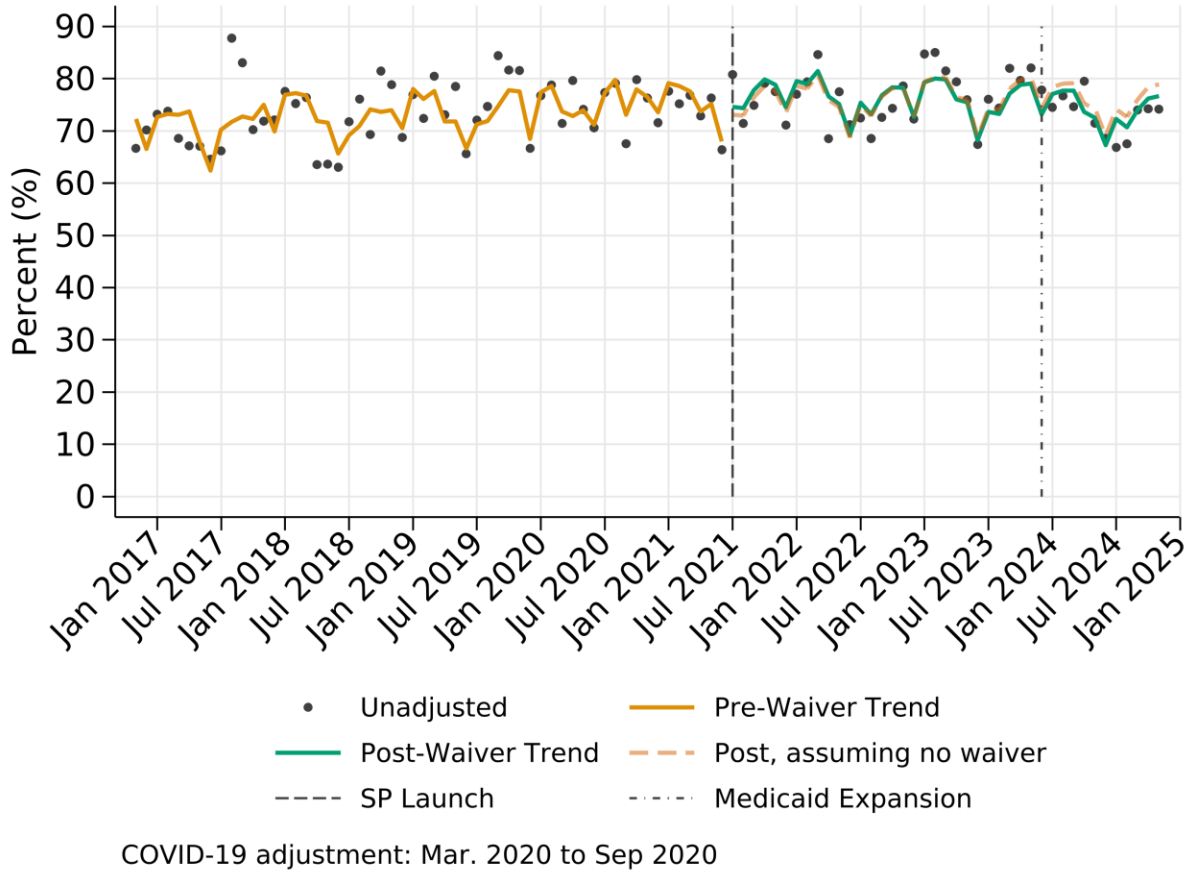


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge ‡ (Figure)

Figure 122: Trends in Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-17) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge ‡ (Table)

Table 53: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge

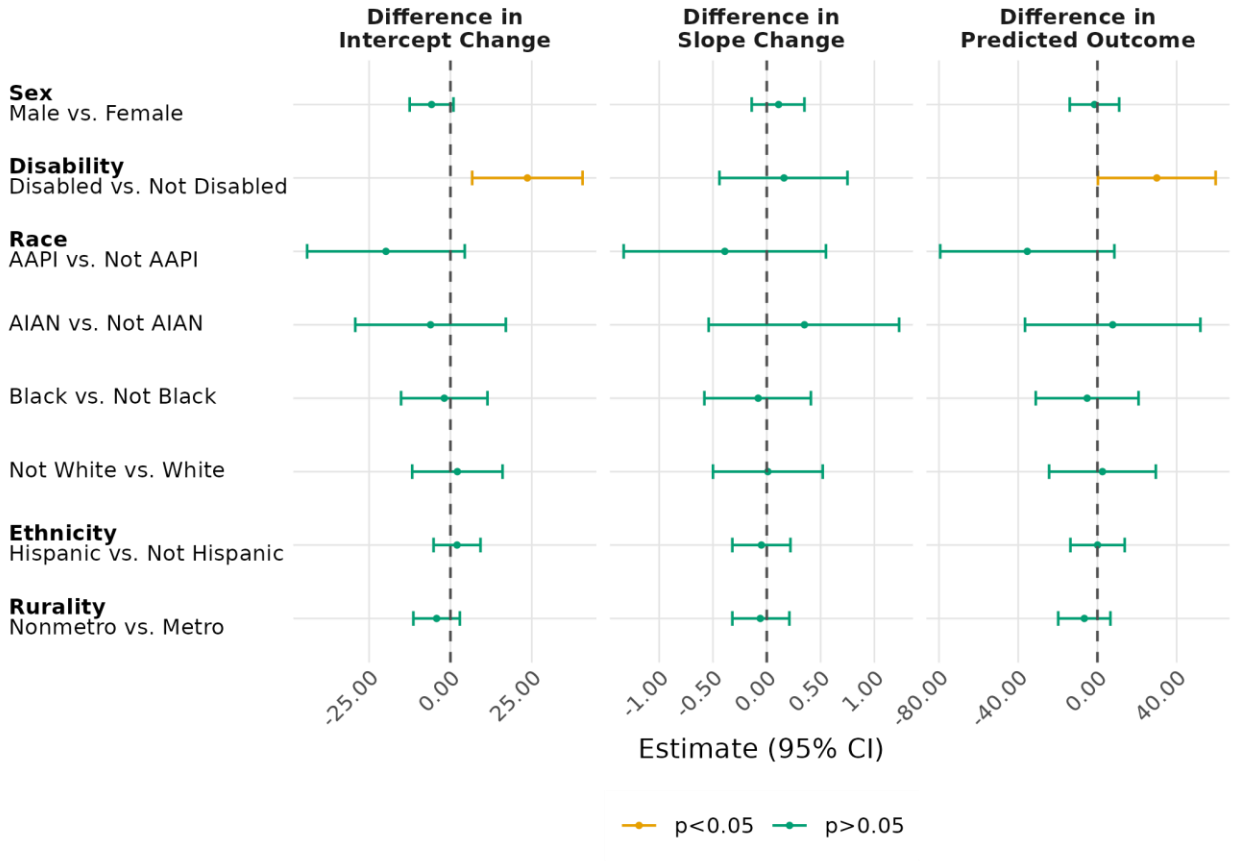
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	75.16* (72.74, 77.58)	76.68* (74.88, 78.47)	1.52 (-1.50, 4.53)
Monthly Change	0.050 (-0.028, 0.13)	-0.044 (-0.12, 0.032)	-0.093 (-0.20, 0.015)
Predicted Average Outcome Nov 2024	77.15* (71.79, 82.51)	74.93* (73.22, 76.63)	-2.22 (-7.84, 3.40)
N			14,353

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-17) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge ‡ (Contrast Plot)

Figure 123: Comparison groups in Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge

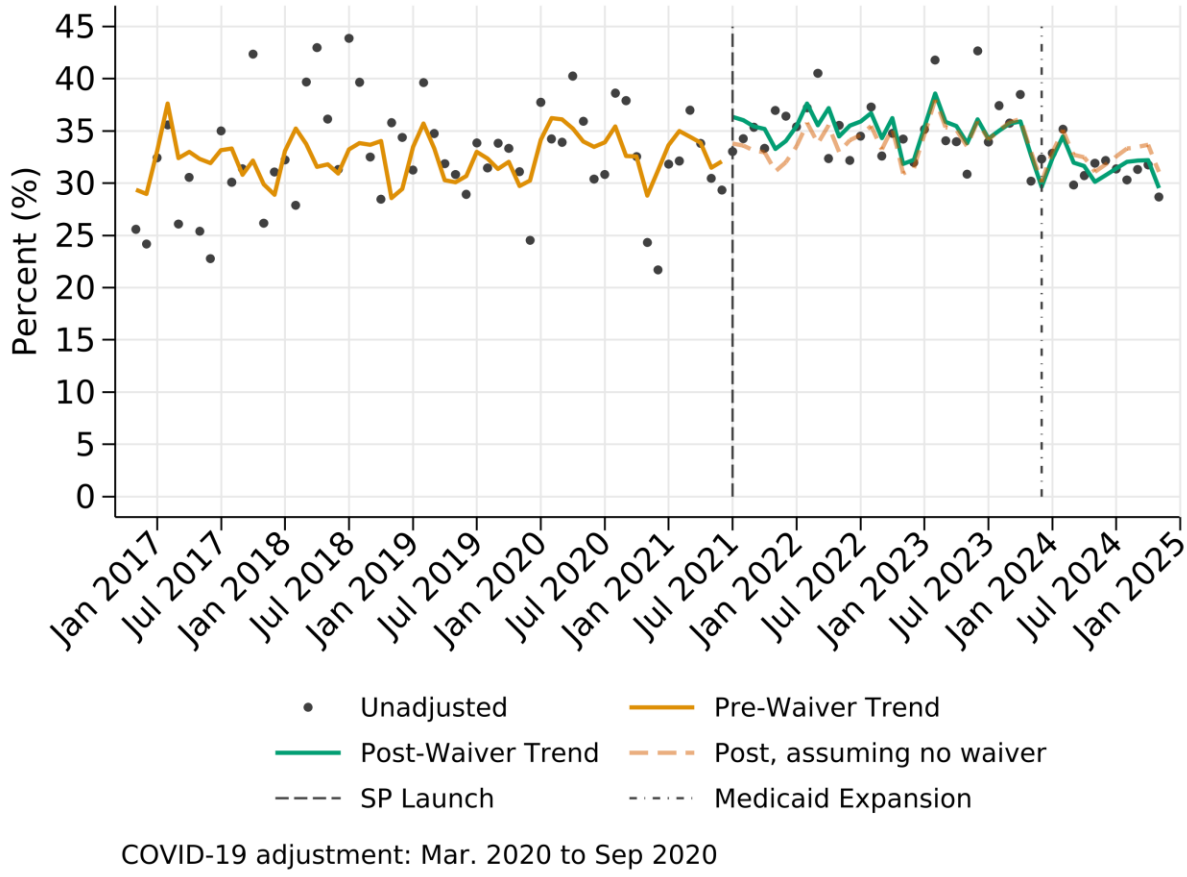


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge ‡ (Figure)

Figure 124: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge ‡ (Table)

Table 54: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge

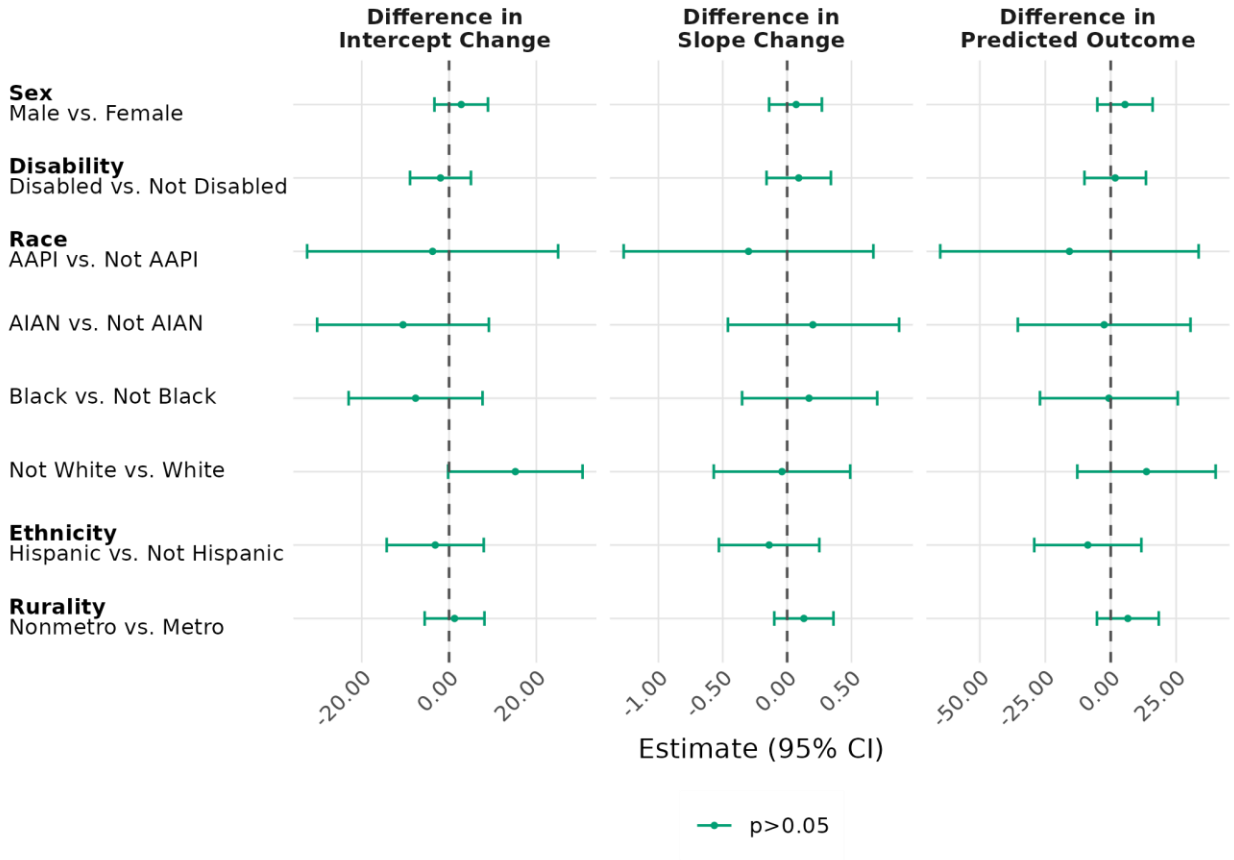
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	32.81* (30.39, 35.24)	35.34* (33.32, 37.37)	2.53 (-0.54, 5.61)
Monthly Change	0.040 (-0.031, 0.11)	-0.062 (-0.14, 0.019)	-0.10 (-0.21, 0.0053)
Predicted Average Outcome Nov 2024	34.42* (29.33, 39.51)	32.87* (31.27, 34.47)	-1.55 (-6.94, 3.84)
N			19,671

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge ‡ (Contrast Plot)

Figure 125: Comparison groups in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge

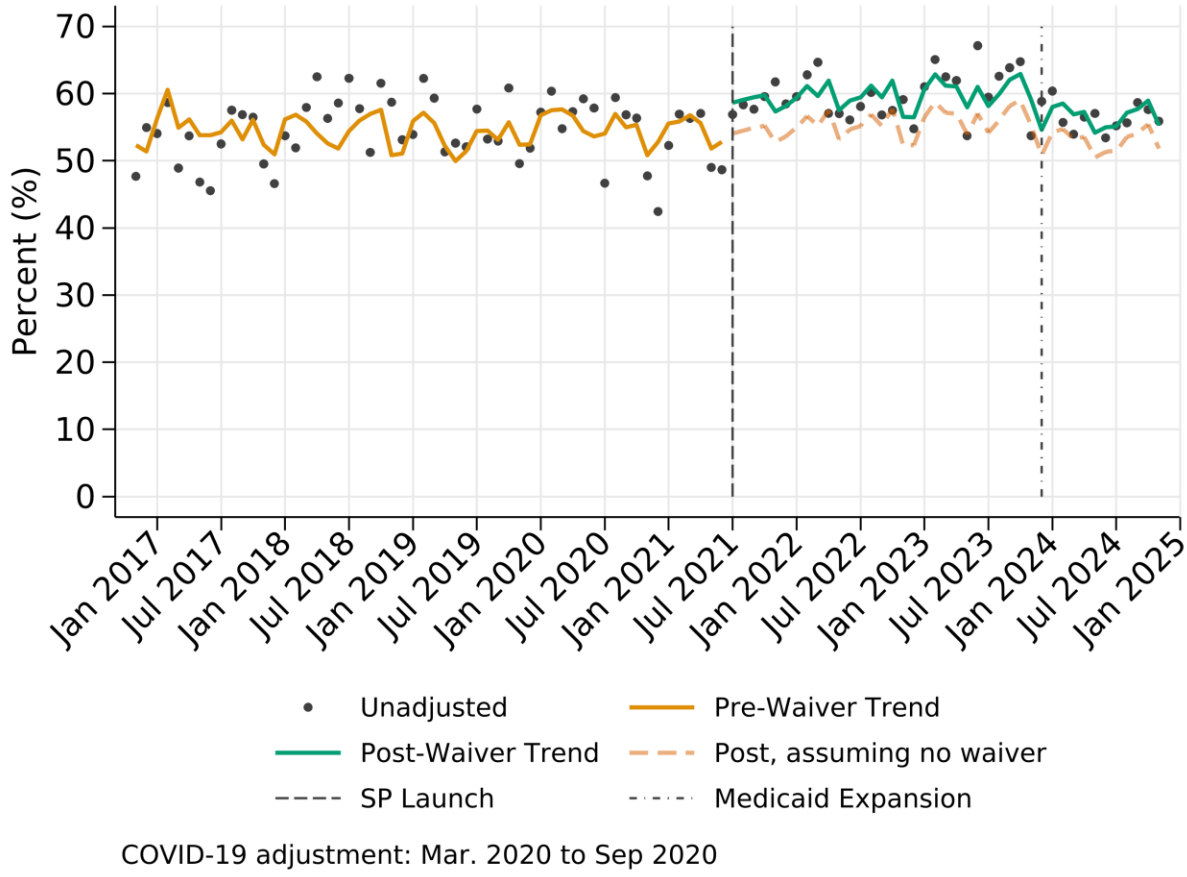


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge ‡ (Figure)

Figure 126: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge ‡ (Table)

Table 55: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge

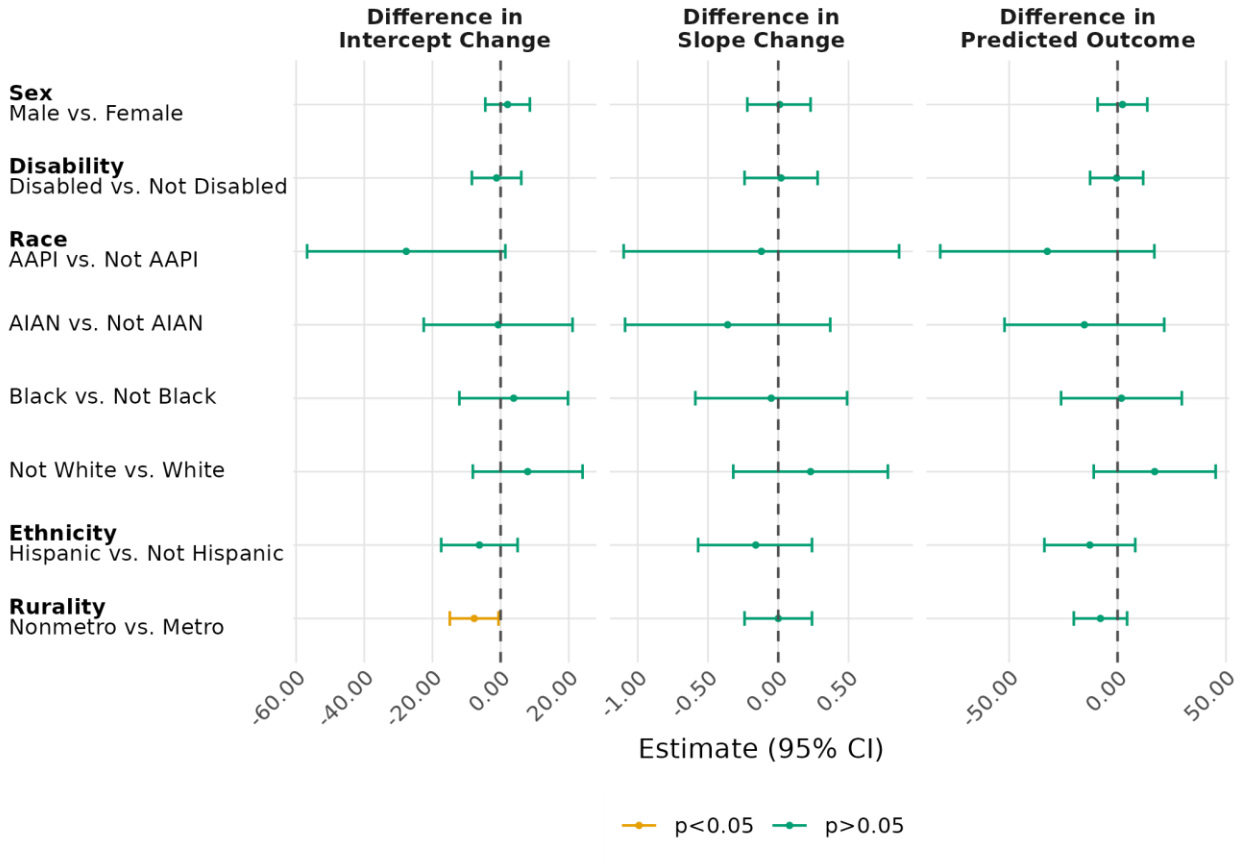
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	54.10* (51.56, 56.65)	58.73* (56.64, 60.82)	4.62* (1.42, 7.83)
Monthly Change	0.033 (-0.042, 0.11)	0.0056 (-0.077, 0.089)	-0.028 (-0.14, 0.084)
Predicted Average Outcome Nov 2024	55.44* (50.07, 60.82)	58.95* (57.32, 60.59)	3.51 (-2.17, 9.19)
N			19,671

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge ‡ (Contrast Plot)

Figure 127: Comparison groups in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge

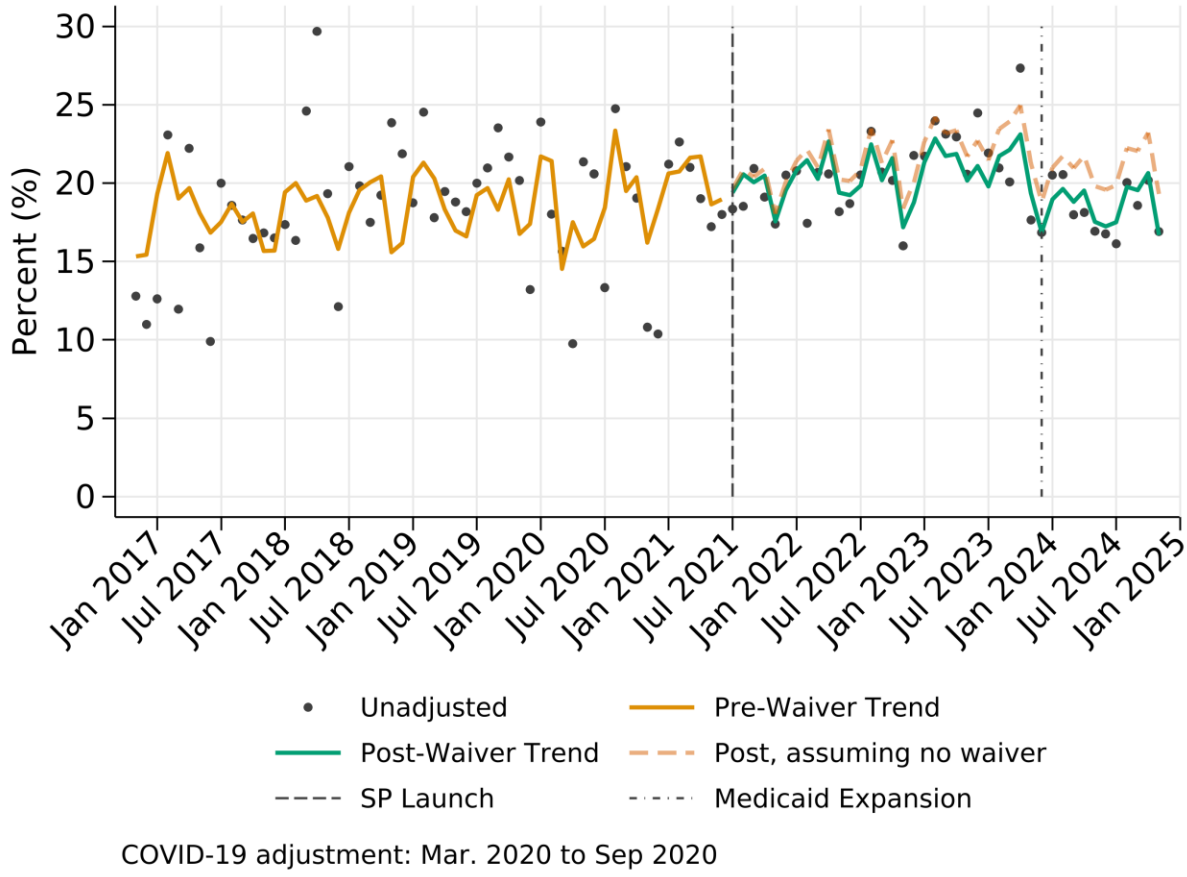


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with PCP ‡ (Figure)

Figure 128: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with PCP



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with PCP ‡ (Table)

Table 56: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with PCP

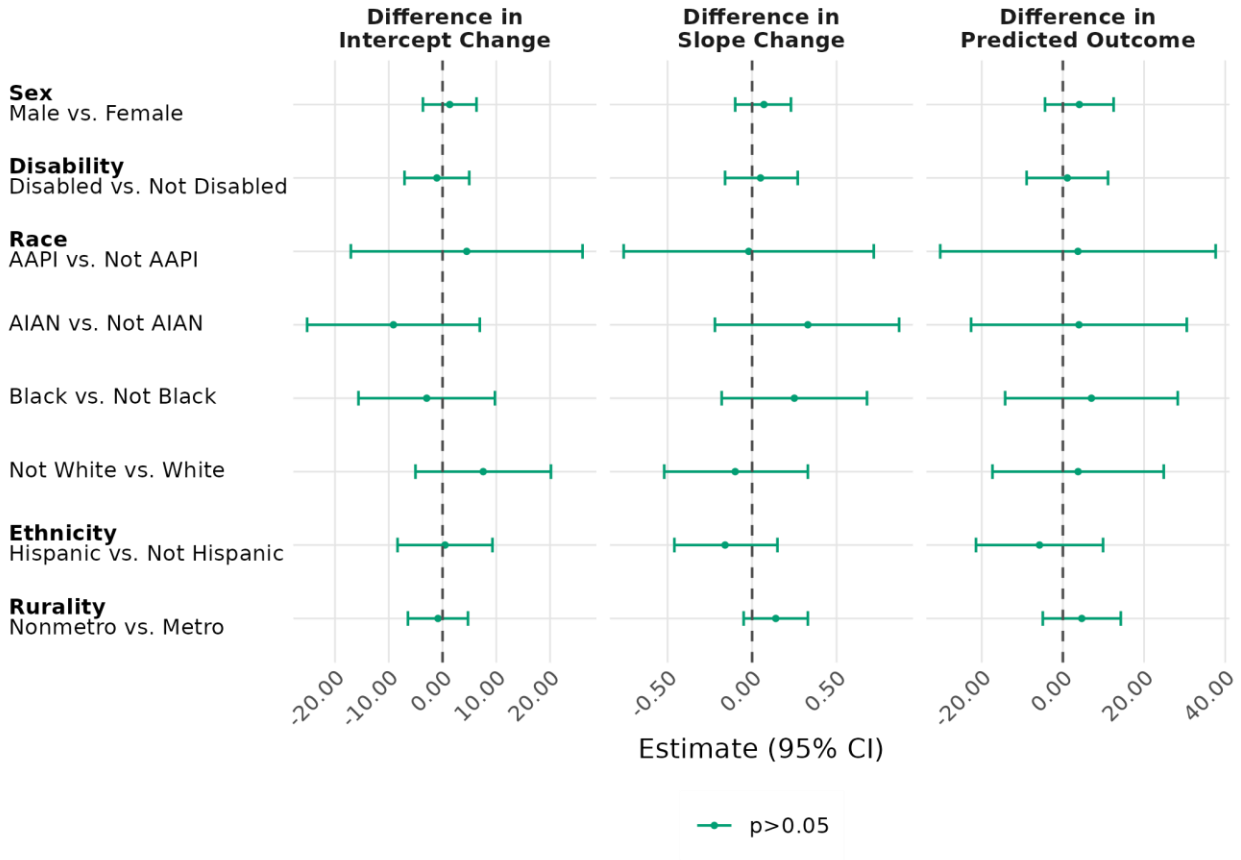
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	20.05* (18.05, 22.05)	19.80* (18.12, 21.48)	-0.25 (-2.79, 2.29)
Monthly Change	0.070* (0.012, 0.13)	0.011 (-0.056, 0.077)	-0.060 (-0.15, 0.029)
Predicted Average Outcome Nov 2024	22.86* (18.70, 27.02)	20.23* (18.89, 21.57)	-2.63 (-7.05, 1.78)
N			19,671

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with PCP ‡ (Contrast Plot)

Figure 129: Comparison groups in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with PCP

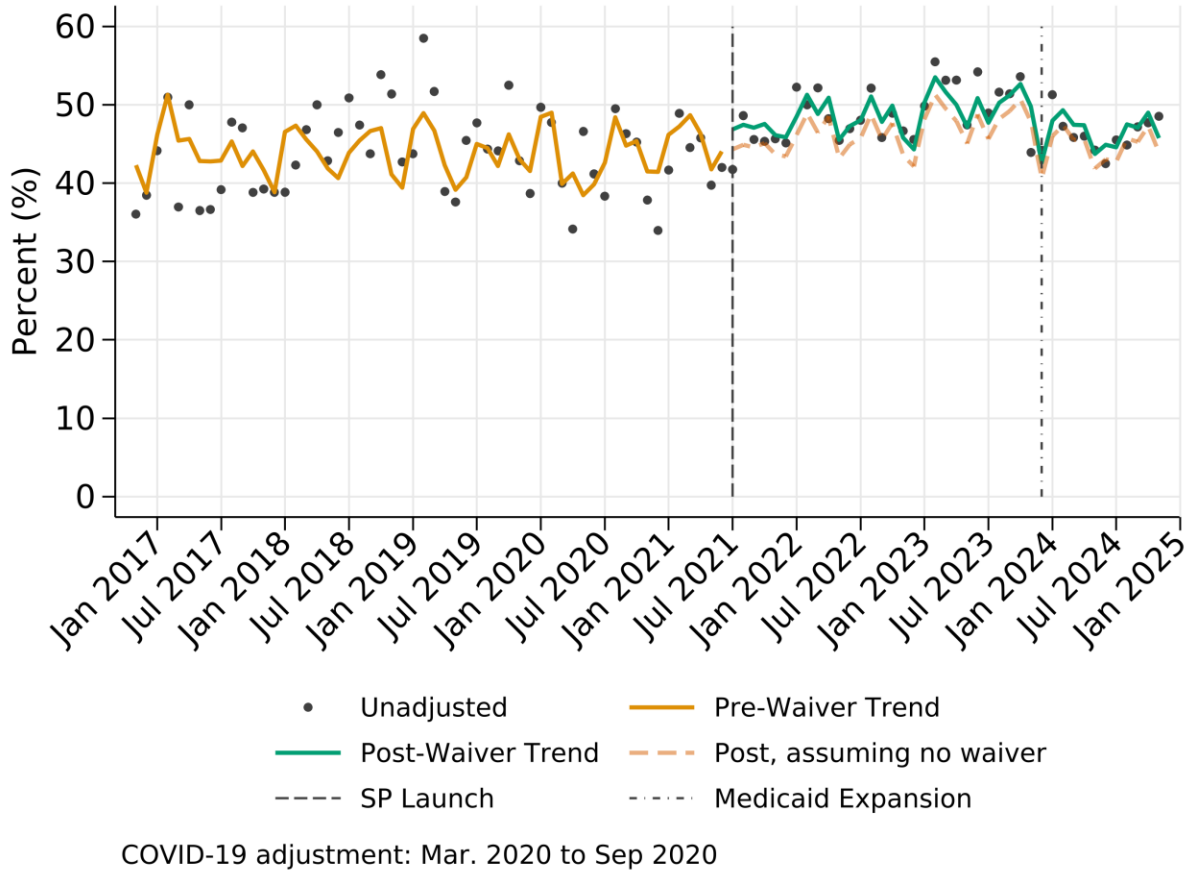


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with PCP ‡ (Figure)

Figure 130: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with PCP



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with PCP ‡ (Table)

Table 57: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with PCP

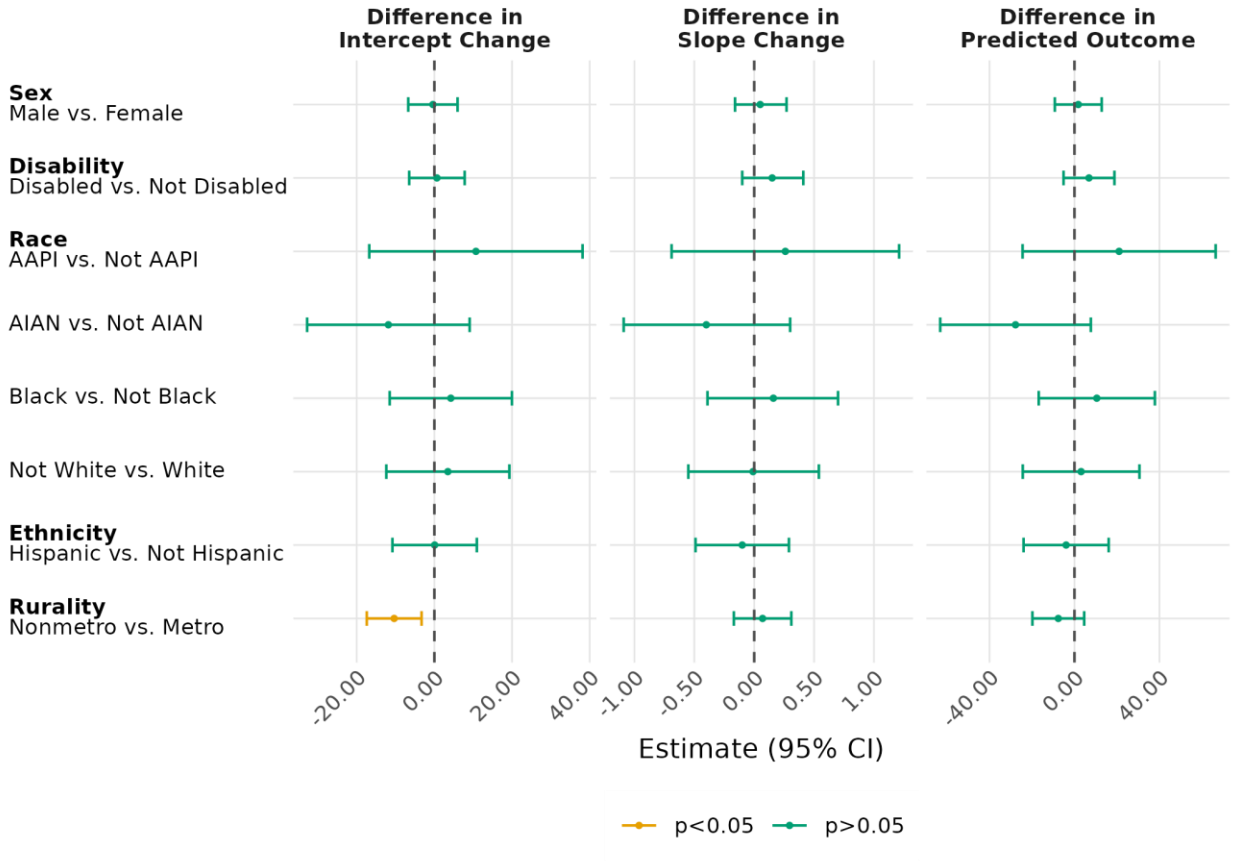
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	44.74* (42.25, 47.23)	47.26* (45.18, 49.35)	2.52 (-0.63, 5.68)
Monthly Change	0.073 (-0.0004, 0.15)	0.054 (-0.029, 0.14)	-0.019 (-0.13, 0.091)
Predicted Average Outcome Nov 2024	47.67* (42.43, 52.91)	49.42* (47.77, 51.07)	1.75 (-3.80, 7.30)
N			19,671

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with PCP ‡ (Contrast Plot)

Figure 131: Comparison groups in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with PCP

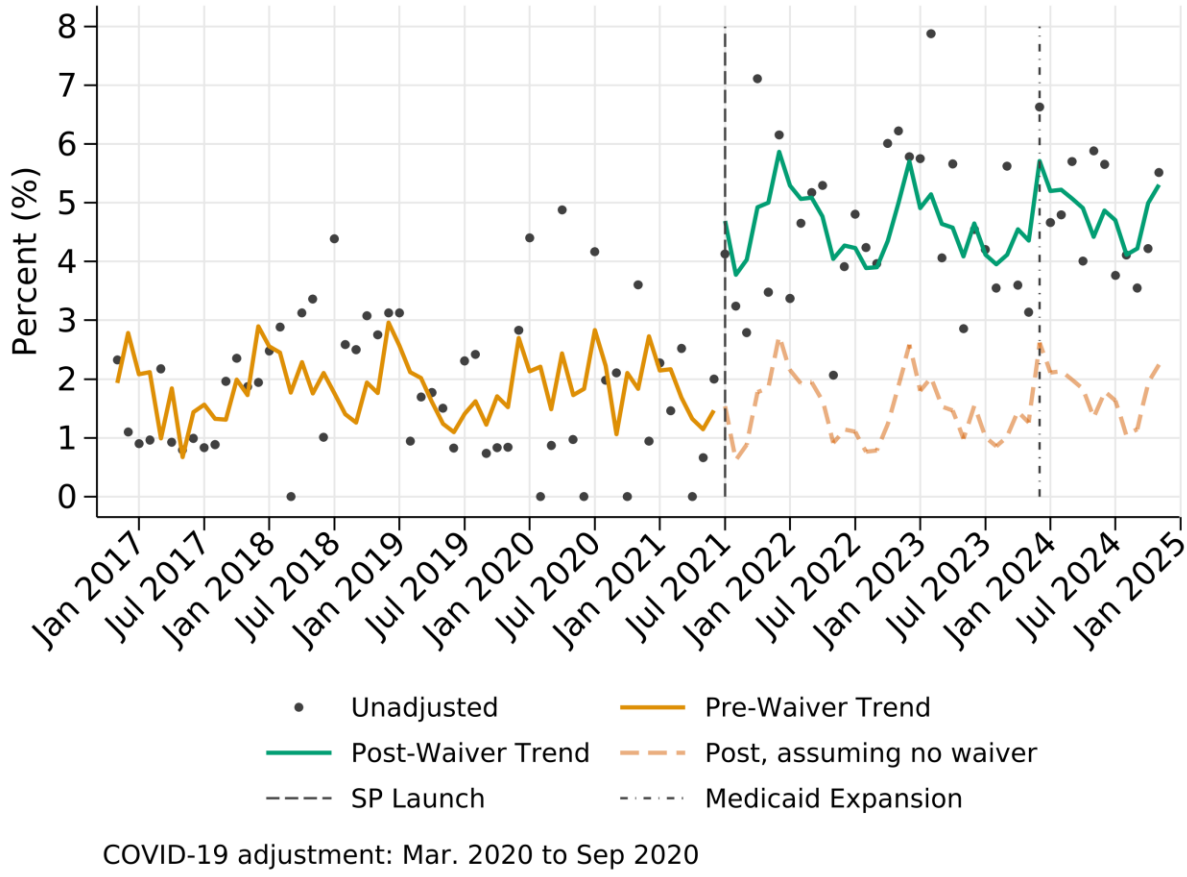


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with enhanced service ‡ (Figure)

Figure 132: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with enhanced service



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with enhanced service ‡ (Table)

Table 58: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with enhanced service

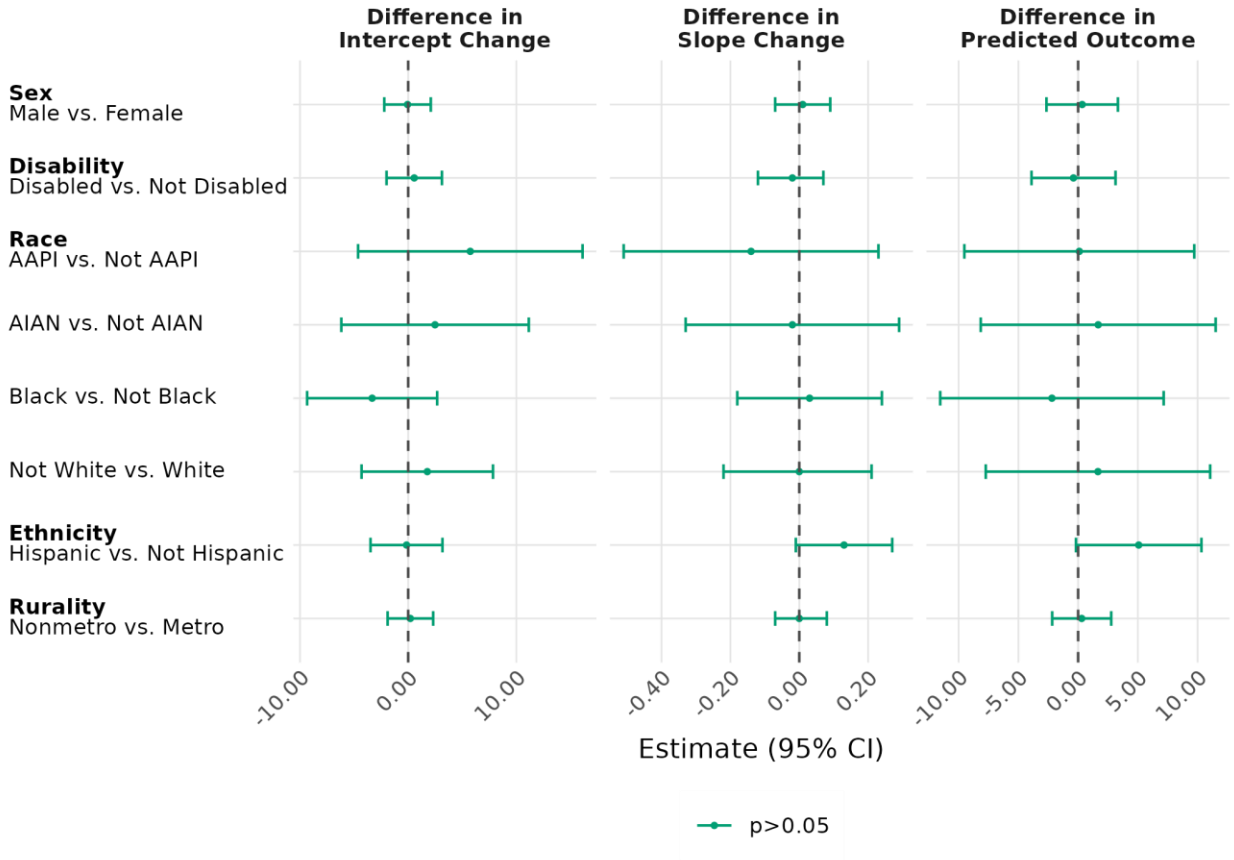
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	1.72* (1.04, 2.40)	4.87* (3.98, 5.76)	3.15* (2.07, 4.24)
Monthly Change	-0.0086 (-0.028, 0.011)	-0.011 (-0.046, 0.024)	-0.0022 (-0.042, 0.038)
Predicted Average Outcome Nov 2024	1.37 (-0.017, 2.76)	4.44* (3.74, 5.13)	3.06* (1.47, 4.66)
N			19,671

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with enhanced service ‡ (Contrast Plot)

Figure 133: Comparison groups in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with enhanced service

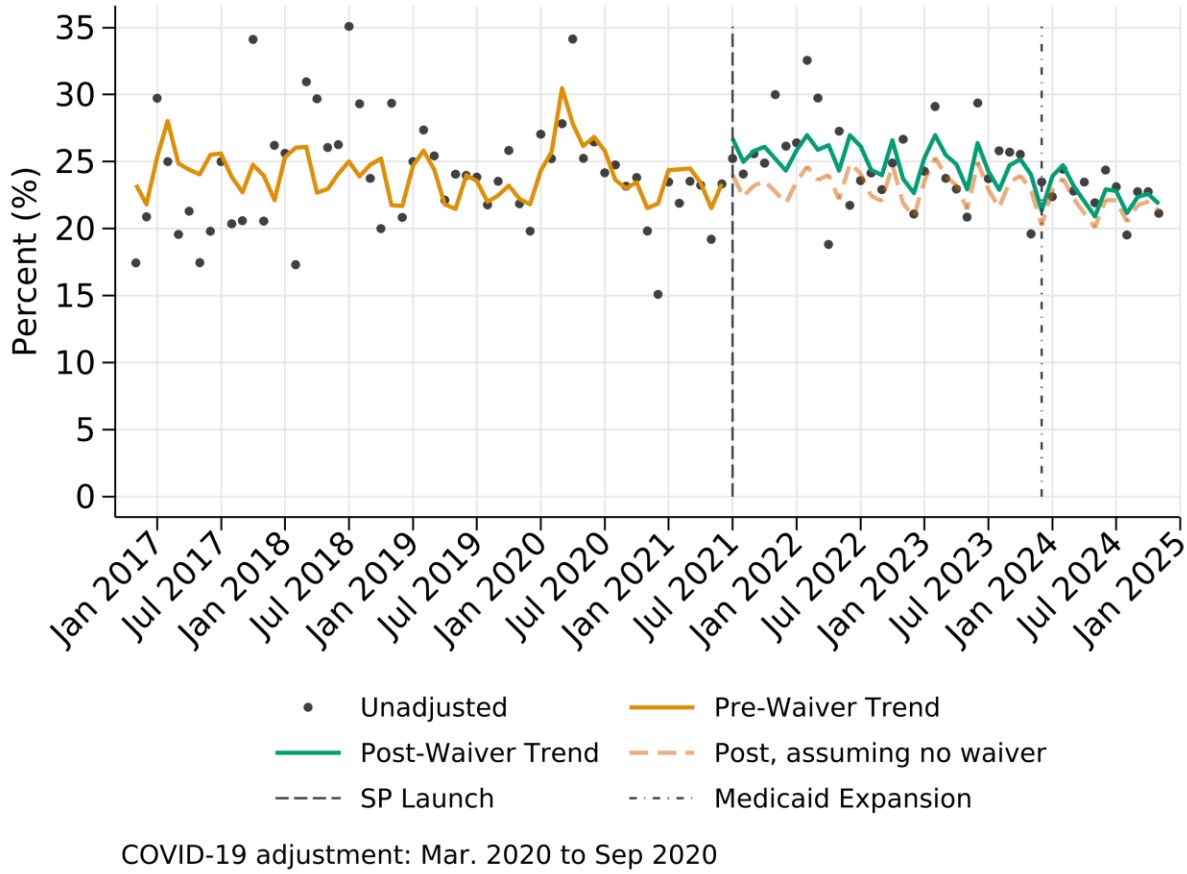


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with mental health provider ‡ (Figure)

Figure 134: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with mental health provider



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with mental health provider ‡ (Table)

Table 59: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with mental health provider

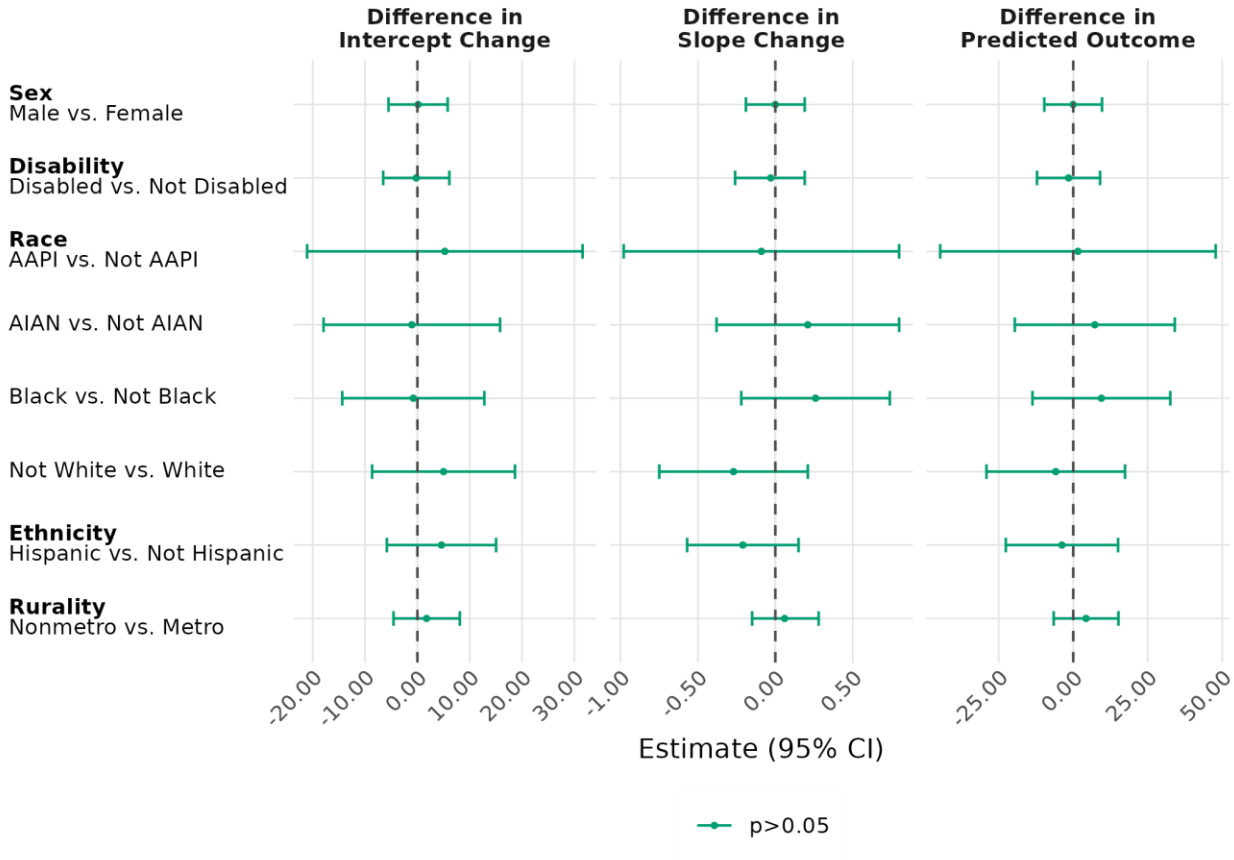
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	23.02* (20.83, 25.22)	25.72* (23.85, 27.59)	2.70 (-0.11, 5.51)
Monthly Change	-0.018 (-0.083, 0.048)	-0.072 (-0.15, 0.0015)	-0.055 (-0.15, 0.043)
Predicted Average Outcome Nov 2024	22.32* (17.70, 26.95)	22.82* (21.36, 24.28)	0.50 (-4.40, 5.40)
N			19,671

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with mental health provider ‡ (Contrast Plot)

Figure 135: Comparison groups in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with mental health provider

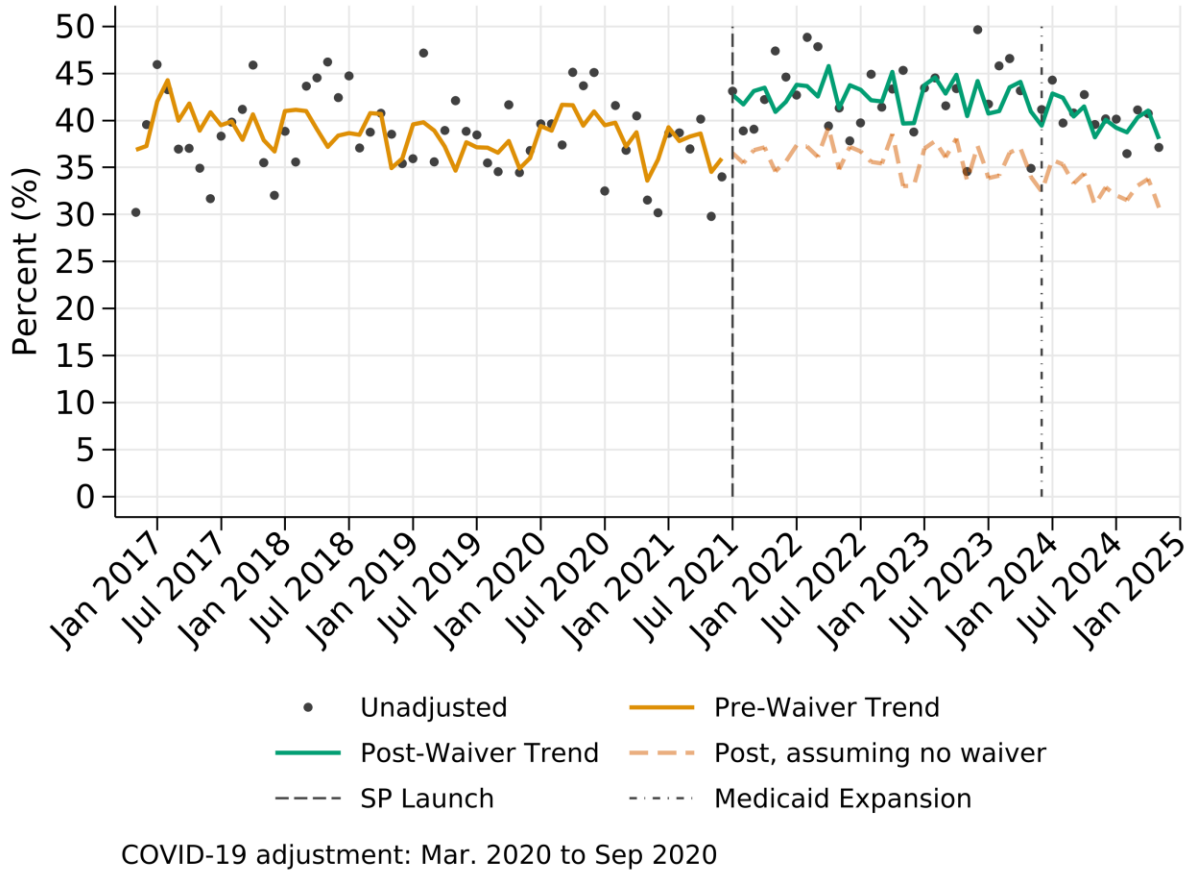


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with mental health provider ‡ (Figure)

Figure 136: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with mental health provider



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with mental health provider ‡ (Table)

Table 60: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with mental health provider

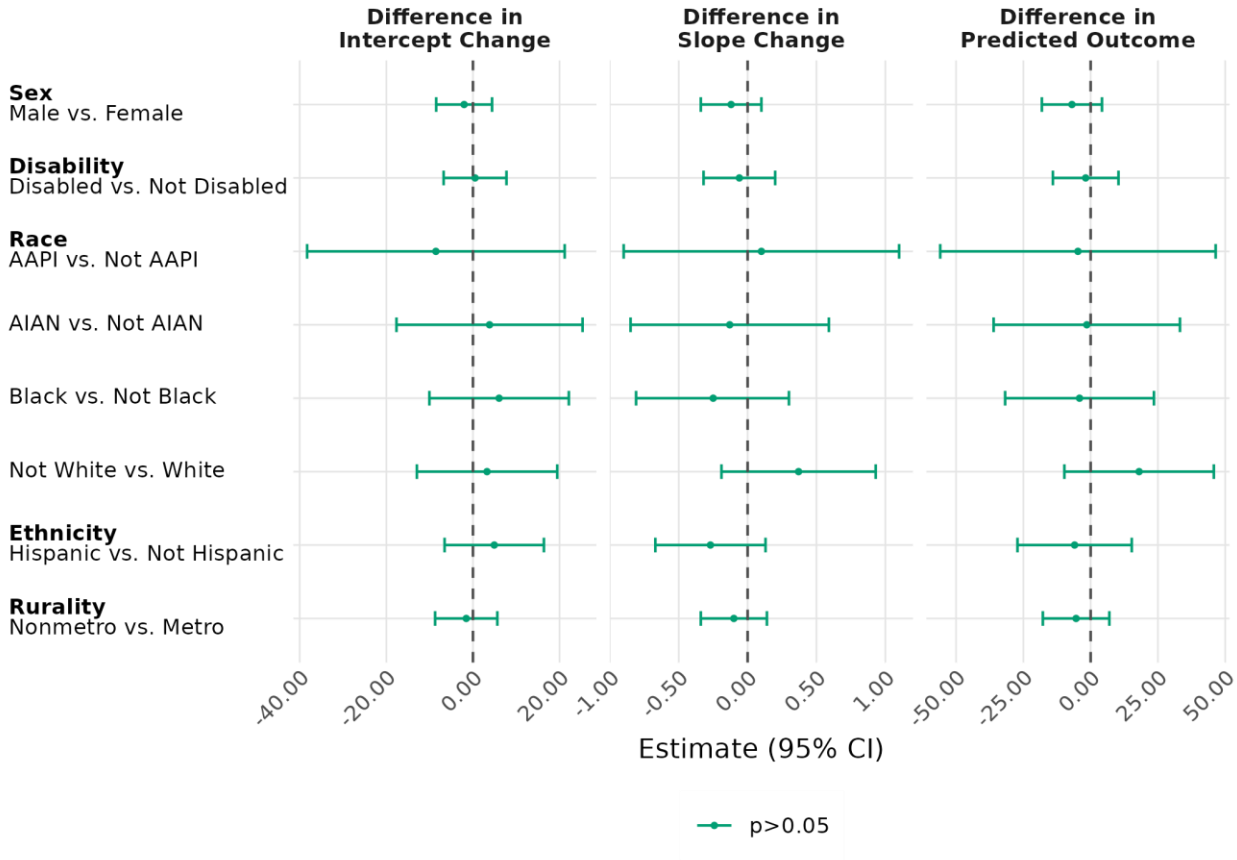
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	36.14* (33.63, 38.65)	42.37* (40.25, 44.50)	6.23* (3.04, 9.43)
Monthly Change	-0.052 (-0.13, 0.023)	-0.025 (-0.11, 0.059)	0.027 (-0.086, 0.14)
Predicted Average Outcome Nov 2024	34.05* (28.76, 39.35)	41.35* (39.68, 43.03)	7.30* (1.69, 12.91)
N			19,671

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with mental health provider ‡ (Contrast Plot)

Figure 137: Comparison groups in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with mental health provider



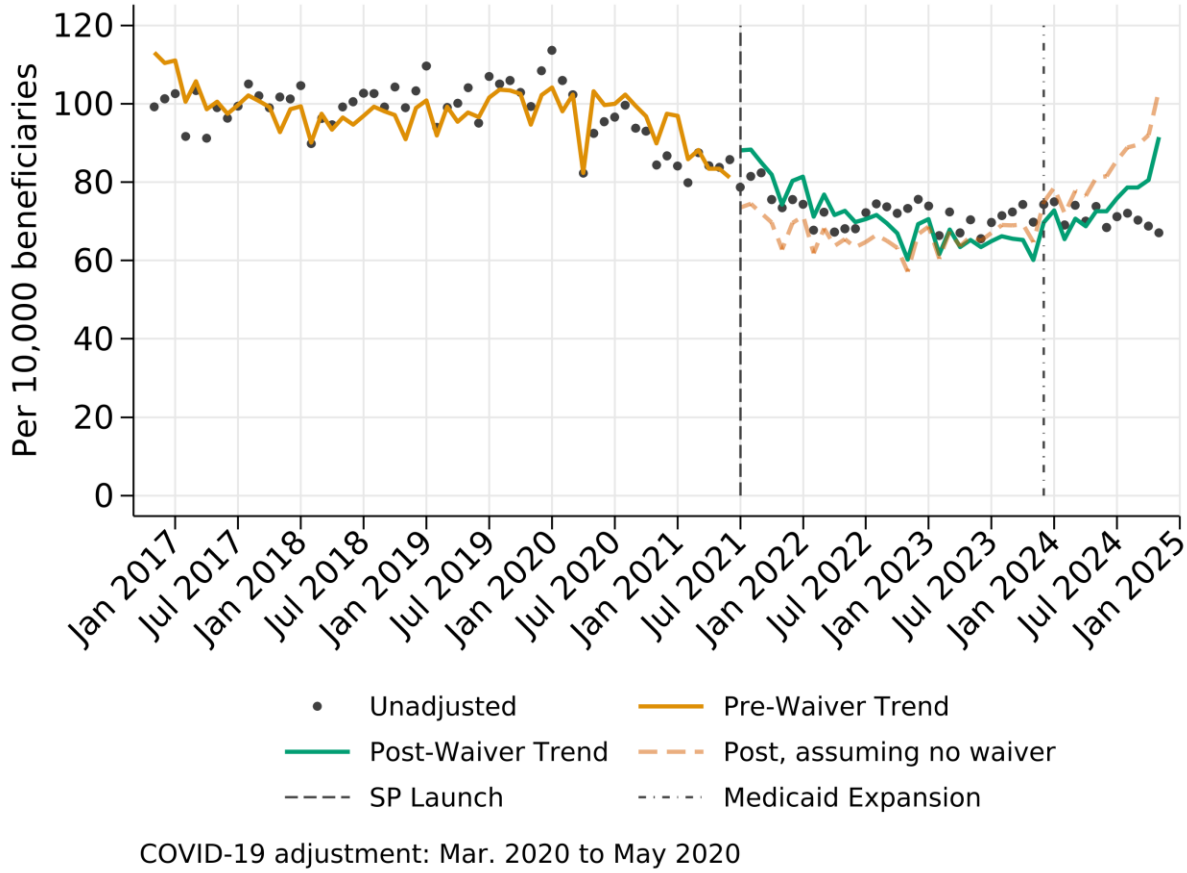
Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Hospital Admissions

Hospital Admissions: Proportion of members with a hospital admission (Figure)

Figure 138: Trends in Hospital Admissions: Proportion of members with a hospital admission



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

The Medicaid Expansion population has been excluded.

Hospital Admissions: Proportion of members with a hospital admission (Table)

Table 61: Interrupted time series estimates of Hospital Admissions: Proportion of members with a hospital admission

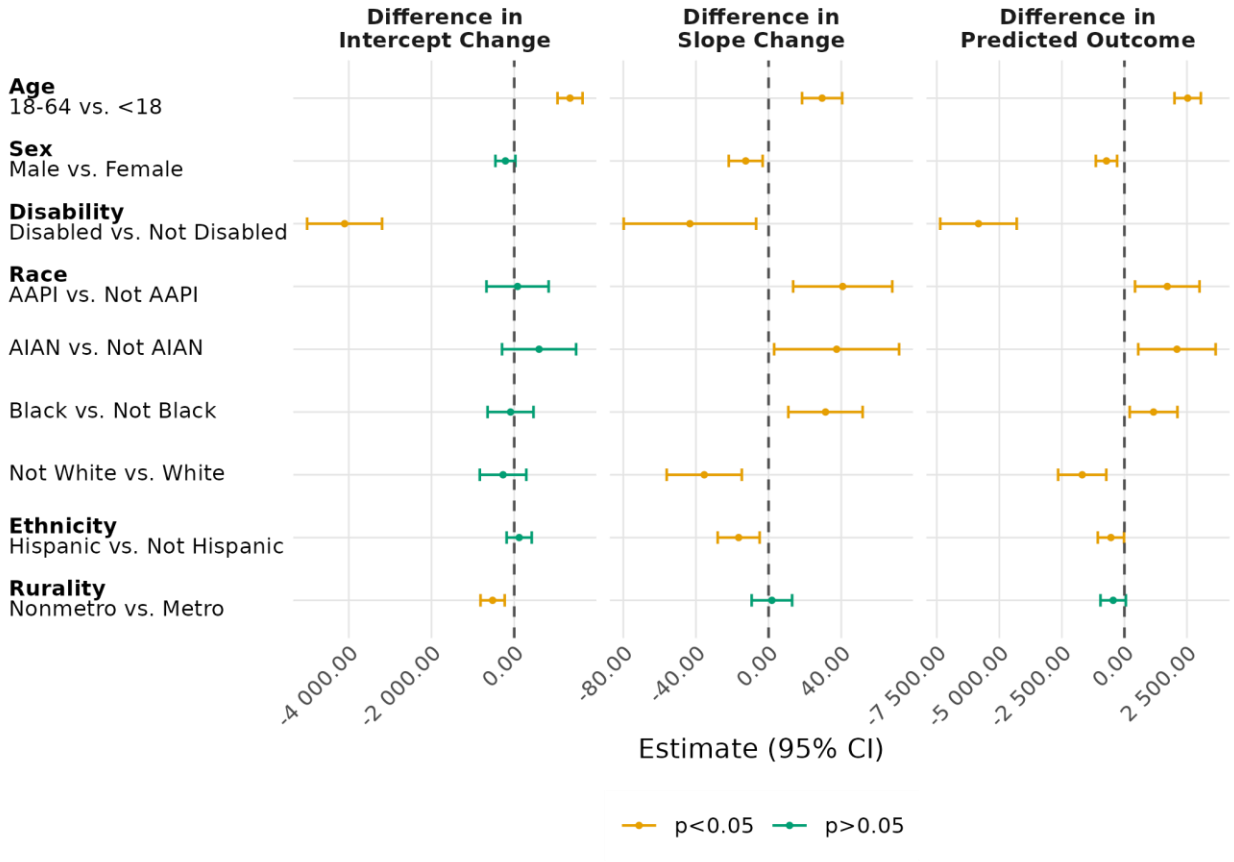
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	23.96* (20.92, 27.00)	39.30* (37.29, 41.31)	15.34* (13.22, 17.45)
Monthly Change	-9.61* (-9.91, -9.32)	-10.35* (-10.61, -10.09)	-0.74* (-0.84, -0.64)
Predicted Average Outcome Nov 2024	-360.56* (-374.96, -346.15)	-374.73* (-386.24, -363.22)	-14.17* (-18.88, -9.46)
N			32,134,963

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

The Medicaid Expansion population has been excluded.

Hospital Admissions: Proportion of members with a hospital admission (Contrast Plot)

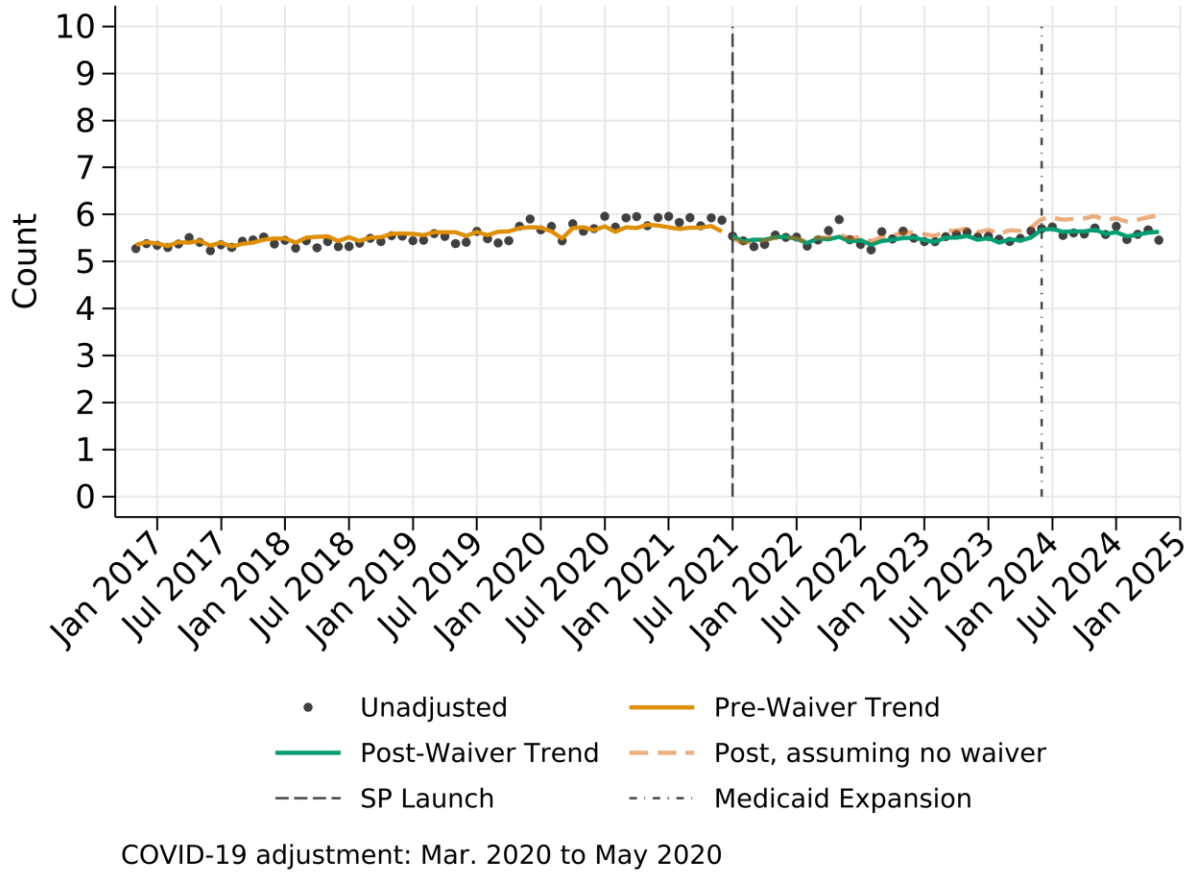
Figure 139: Comparison groups in Hospital Admissions: Proportion of members with a hospital admission



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

Hospital Admissions: Number of days per month for beneficiaries with a hospital admission (Figure)

Figure 140: Trends in Hospital Admissions: Number of days per month for beneficiaries with a hospital admission



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE negative binomial regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.
The Medicaid Expansion population has been excluded.

Hospital Admissions: Number of days per month for beneficiaries with a hospital admission (Table)

Table 62: Interrupted time series estimates of Hospital Admissions: Number of days per month for beneficiaries with a hospital admission

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	5.70* (5.67, 5.73)	5.64* (5.60, 5.67)	-0.061* (-0.10, -0.017)
Monthly Change	0.0016* (0.0014, 0.0017)	-0.0004* (-0.0007, -0.0001)	-0.0020* (-0.0023, -0.0017)
Predicted Average Outcome Nov 2024	6.07* (6.01, 6.13)	5.55* (5.51, 5.58)	-0.52* (-0.59, -0.45)
N			1,375,865

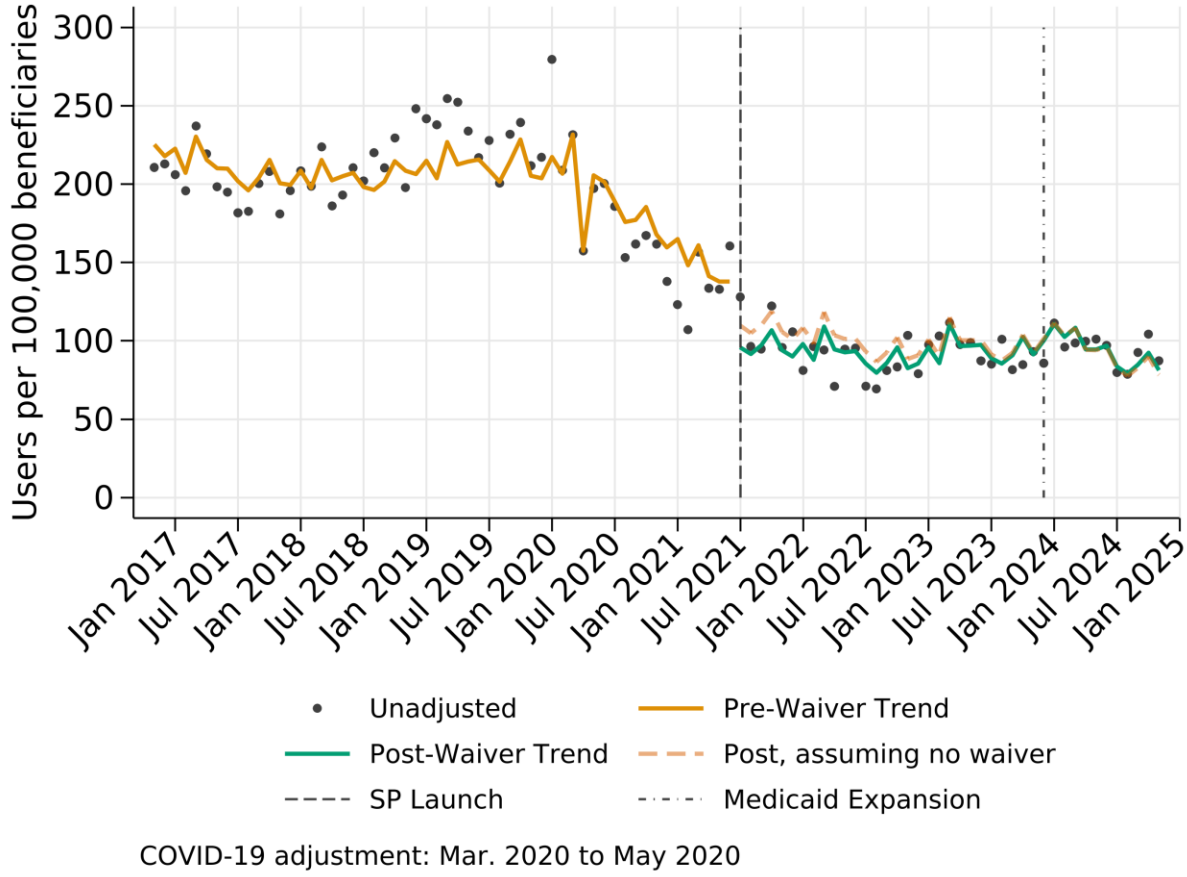
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE negative binomial regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

The Medicaid Expansion population has been excluded.

Prevention Quality Indicators

Prevention Quality Indicators Composite (PQI-90): Rate of Any Ambulatory Sensitive Care Conditions per 100,000 (Figure)

Figure 141: Trends in Prevention Quality Indicators Composite (PQI-90): Rate of Any Ambulatory Sensitive Care Conditions per 100,000



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Prevention Quality Indicators Composite (PQI-90): Rate of Any Ambulatory Sensitive Care Conditions per 100,000 (Table)

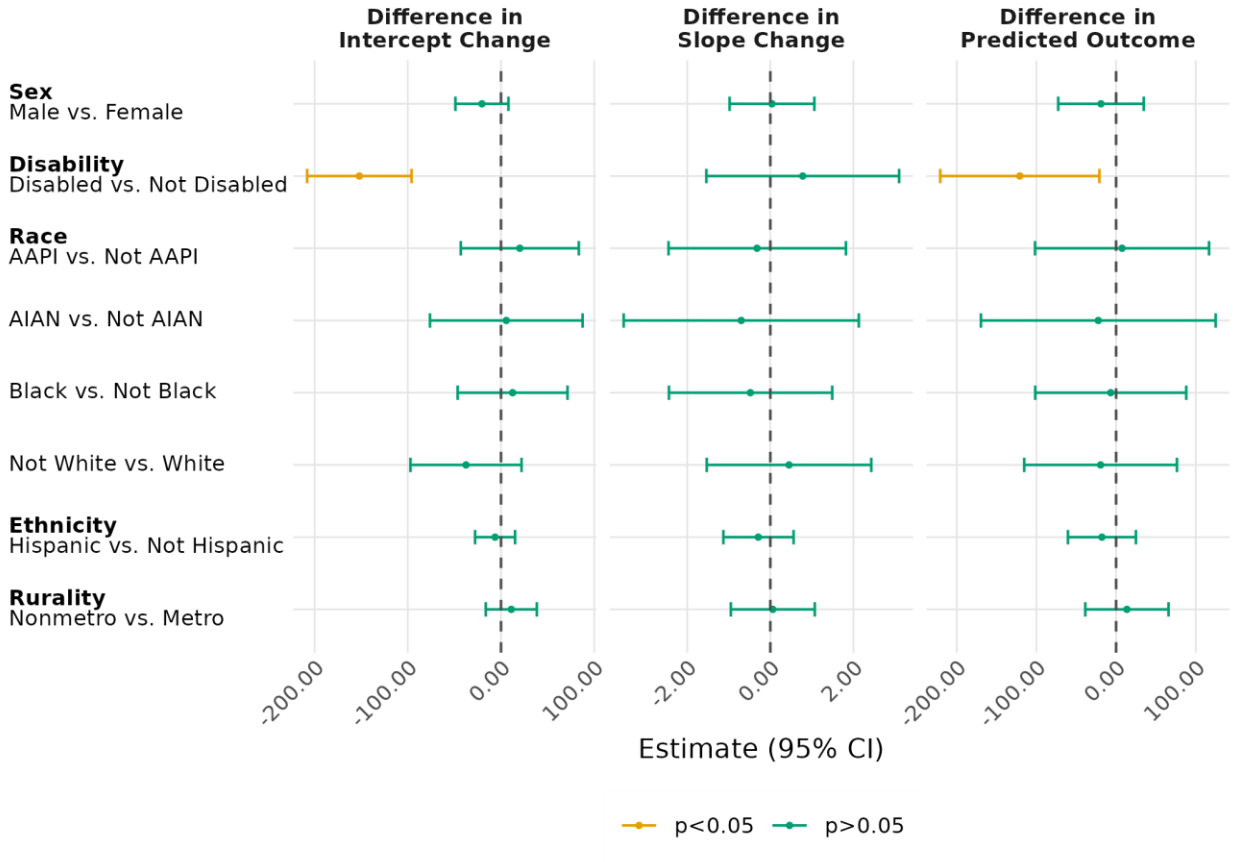
Table 63: Interrupted time series estimates of Prevention Quality Indicators Composite (PQI-90): Rate of Any Ambulatory Sensitive Care Conditions per 100,000

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	0.15* (0.14, 0.16)	0.13* (0.12, 0.13)	-0.022* (-0.032, -0.012)
Monthly Change	0.0008* (0.0000, 0.0016)	0.0012* (0.0005, 0.0020)	0.0004 (0.0000, 0.0009)
Predicted Average Outcome Nov 2024	0.18* (0.15, 0.22)	0.18* (0.15, 0.21)	-0.0040 (-0.028, 0.020)
N			10,897,117

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

Prevention Quality Indicators Composite (PQI-90): Rate of Any Ambulatory Sensitive Care Conditions per 100,000 (Contrast Plot)

Figure 142: Comparison groups in Prevention Quality Indicators Composite (PQI-90): Rate of Any Ambulatory Sensitive Care Conditions per 100,000

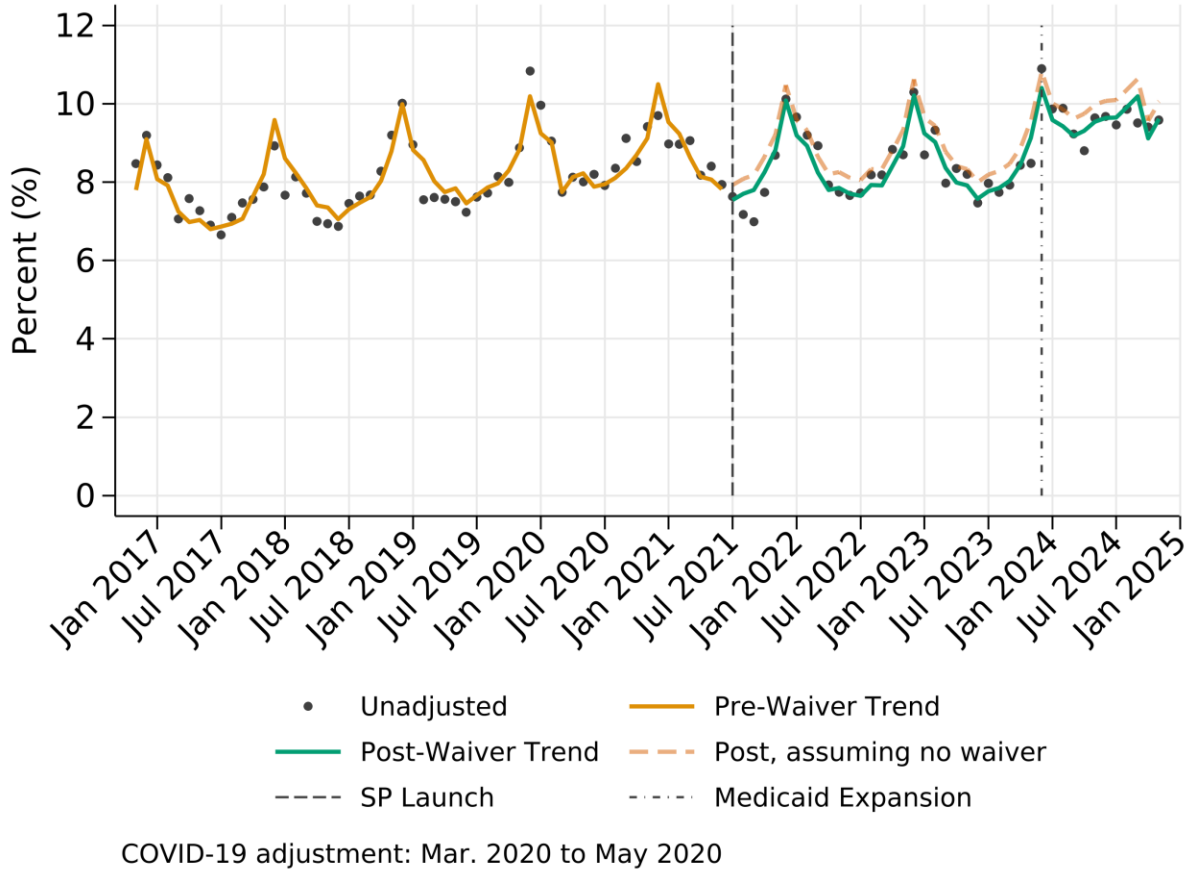


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Plan All-Cause Readmissions (PCR)

Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions (Figure)

Figure 143: Trends in Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18-64) in the NC Medicaid population as determined in the metric specifications.

Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions (Table)

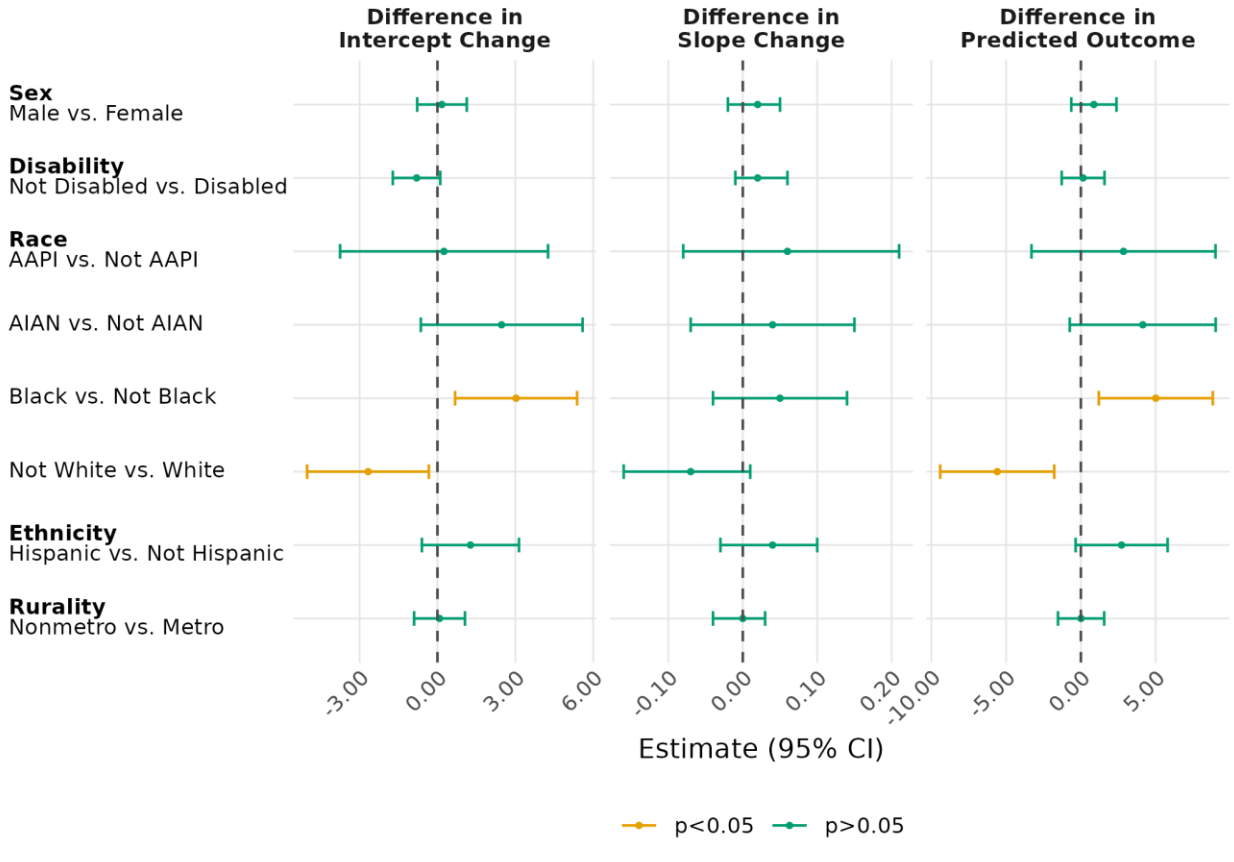
Table 64: Interrupted time series estimates of Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	8.74* (8.55, 8.94)	8.36* (8.14, 8.57)	-0.39* (-0.68, -0.10)
Monthly Change	0.020* (0.015, 0.026)	0.019* (0.0098, 0.028)	-0.0015 (-0.012, 0.0093)
Predicted Average Outcome Nov 2024	9.56* (9.15, 9.97)	9.11* (8.90, 9.33)	-0.45 (-0.91, 0.014)
N			624,810

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18-64) in the NC Medicaid population as determined in the metric specifications.*

Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions (Contrast Plot)

Figure 144: Comparison groups in Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions

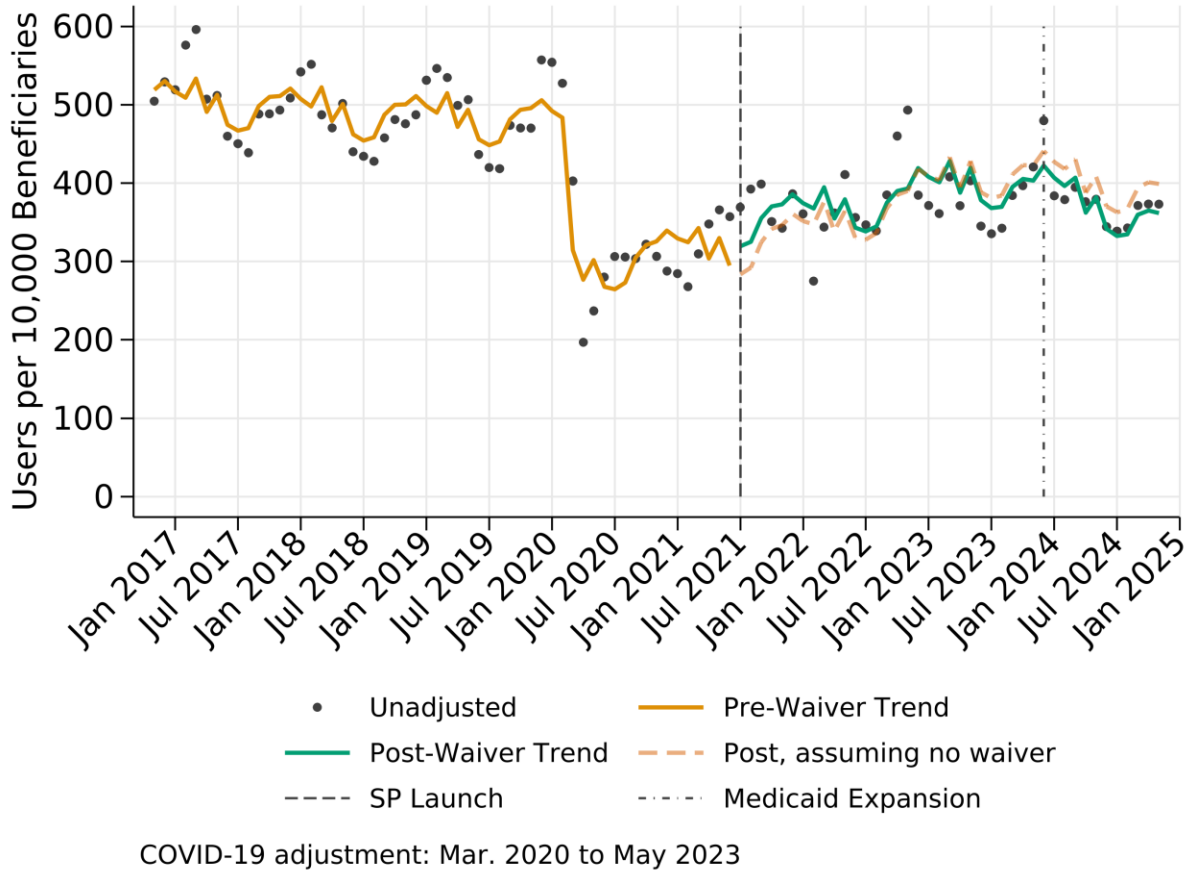


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Emergency Department Visits

Emergency Department Visits: Rate of members with emergency department visits (Figure)

Figure 145: Trends in Emergency Department Visits: Rate of members with emergency department visits



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Emergency Department Visits: Rate of members with emergency department visits (Table)

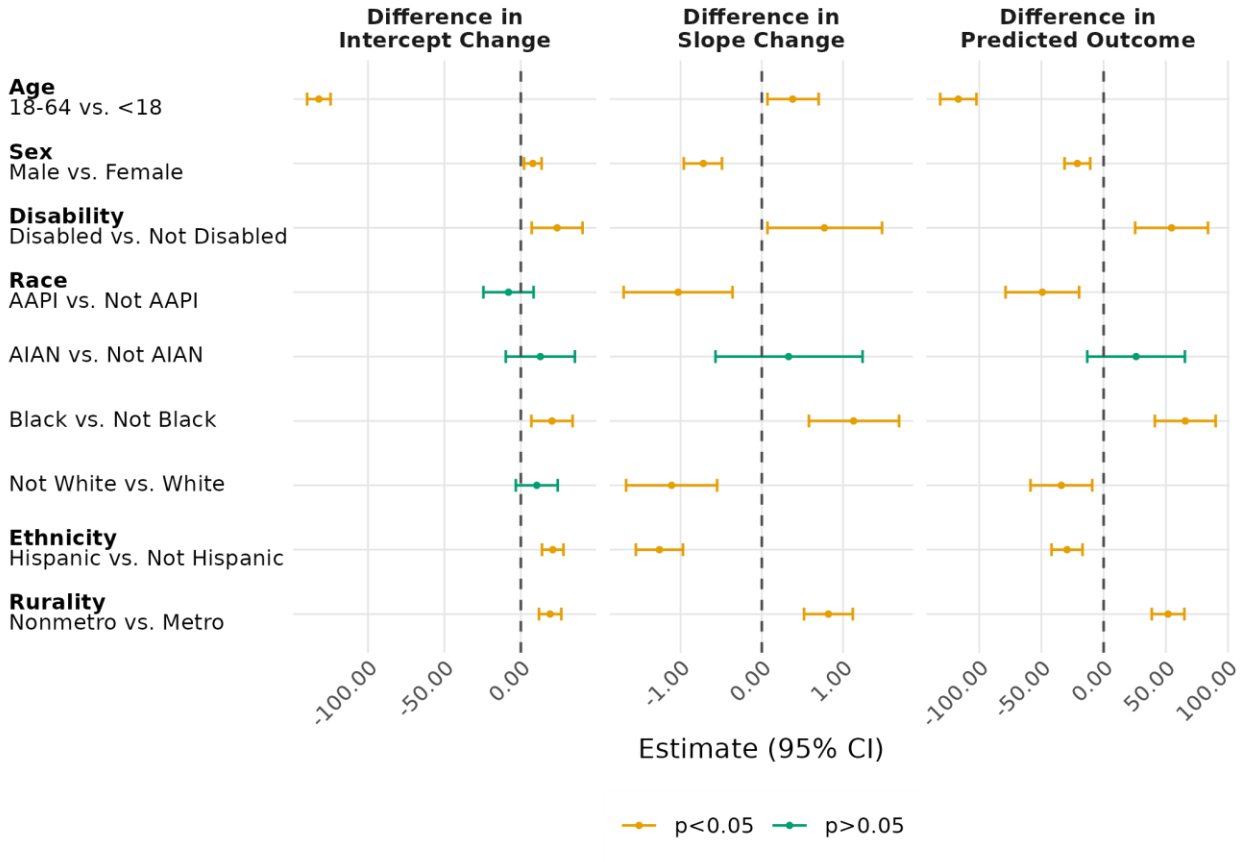
Table 65: Interrupted time series estimates of Emergency Department Visits: Rate of members with emergency department visits

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	336.14* (329.41, 342.86)	365.95* (357.78, 374.13)	29.82* (22.62, 37.02)
Monthly Change	-0.75* (-1.12, -0.39)	-2.93* (-3.35, -2.51)	-2.18* (-2.70, -1.65)
Predicted Average Outcome Nov 2024	421.69* (400.87, 442.52)	364.43* (352.72, 376.13)	-57.27* (-76.95, -37.59)
N			33,008,115

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Emergency Department Visits: Rate of members with emergency department visits (Contrast Plot)

Figure 146: Comparison groups in Emergency Department Visits: Rate of members with emergency department visits

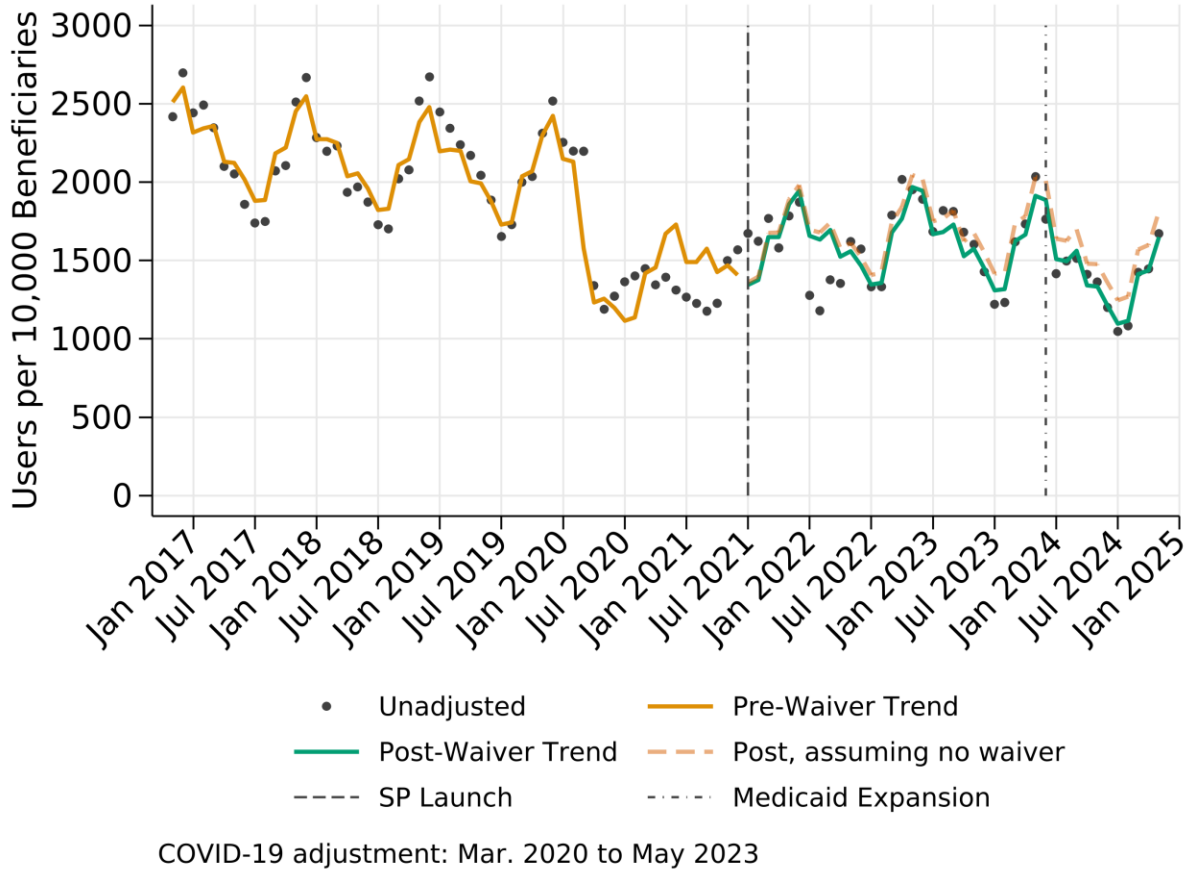


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Avoidable or Preventable Emergency Department Visits

Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit (Figure)

Figure 147: Trends in Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit (Table)

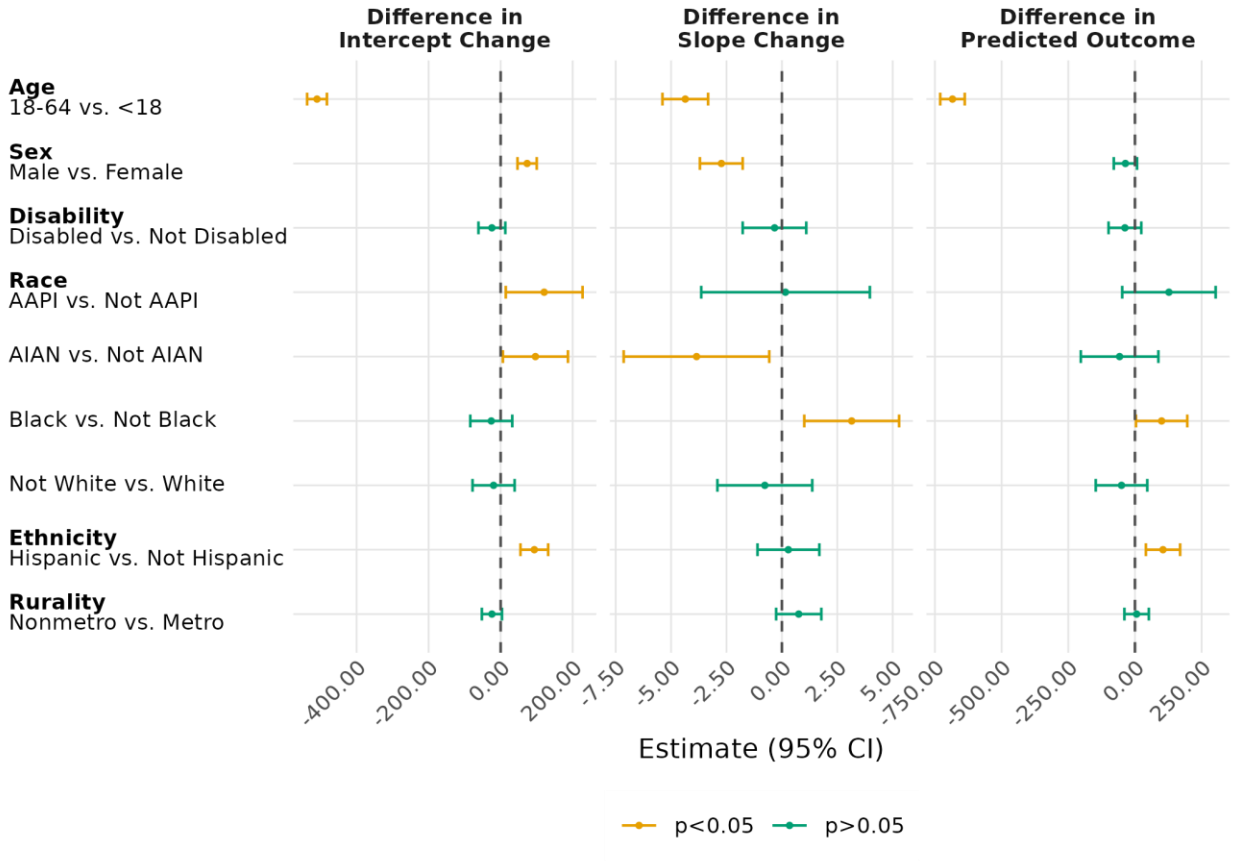
Table 66: Interrupted time series estimates of Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	1578.81* (1569.22, 1588.41)	1561.43* (1550.14, 1572.73)	-17.38* (-33.43, -1.33)
Monthly Change	-6.58* (-6.96, -6.20)	-10.26* (-10.83, -9.69)	-3.68* (-4.49, -2.87)
Predicted Average Outcome Nov 2024	1629.42* (1600.30, 1658.55)	1464.82* (1455.71, 1473.92)	-164.61* (-196.92, -132.29)
N			6,687,049

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit (Contrast Plot)

Figure 148: Comparison groups in Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit

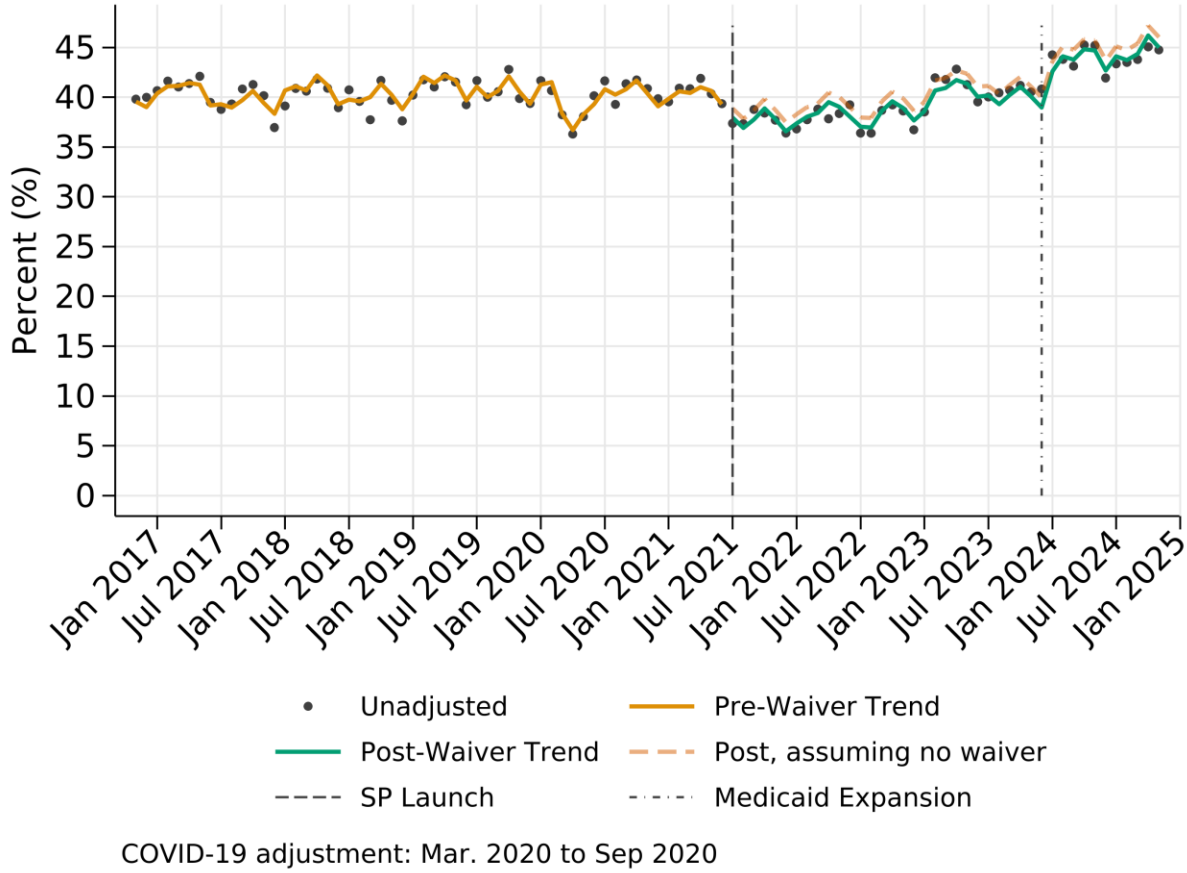


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Transitions of Care (TRC)

Transitions of Care (TRC) (Figure)

Figure 149: Trends in Transitions of Care (TRC)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Transitions of Care (TRC) (Table)

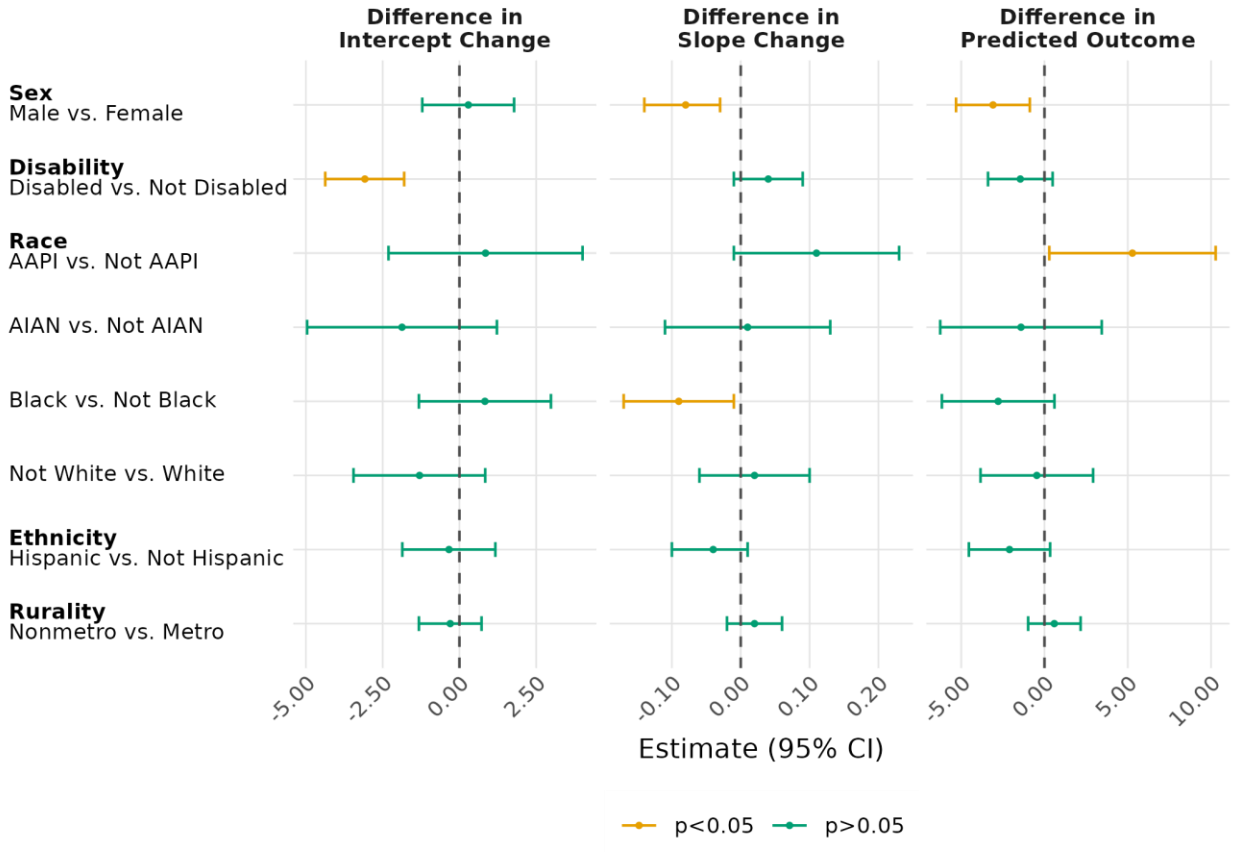
Table 67: Interrupted time series estimates of Transitions of Care (TRC)

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	40.95* (40.63, 41.26)	40.02* (39.67, 40.38)	-0.92* (-1.39, -0.46)
Monthly Change	0.0077 (-0.0012, 0.017)	0.0052 (-0.0098, 0.020)	-0.0025 (-0.020, 0.015)
Predicted Average Outcome Nov 2024	41.25* (40.60, 41.91)	40.23* (39.88, 40.58)	-1.02* (-1.77, -0.28)
N			666,691

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

Transitions of Care (TRC) (Contrast Plot)

Figure 150: Comparison groups in Transitions of Care (TRC)

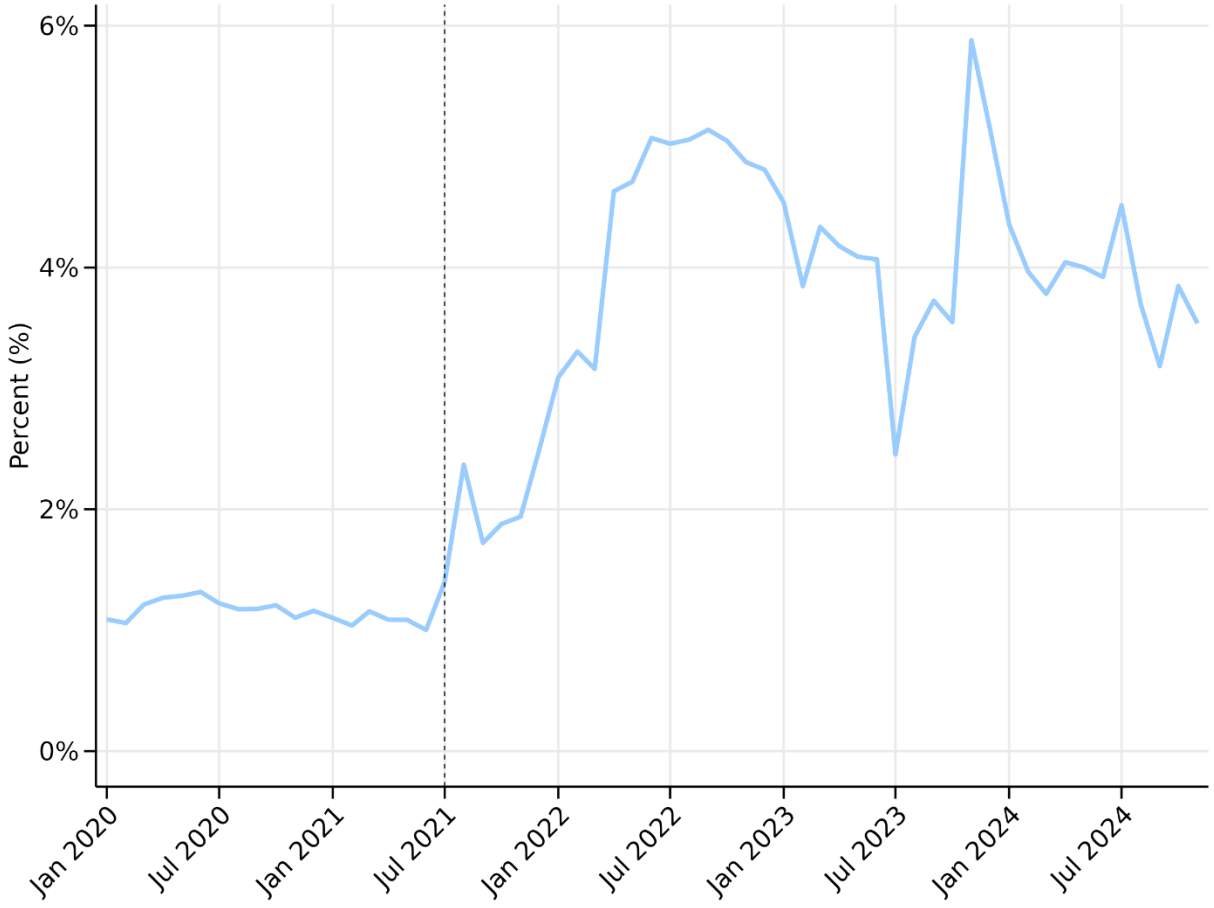


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Percent of Enrollees Receiving Care Management

Percent of Enrollees Receiving Care Management (Figure)

Figure 151: Trends in Percent of Enrollees Receiving Care Management



Percent of Enrollees Receiving Care Management (Table)

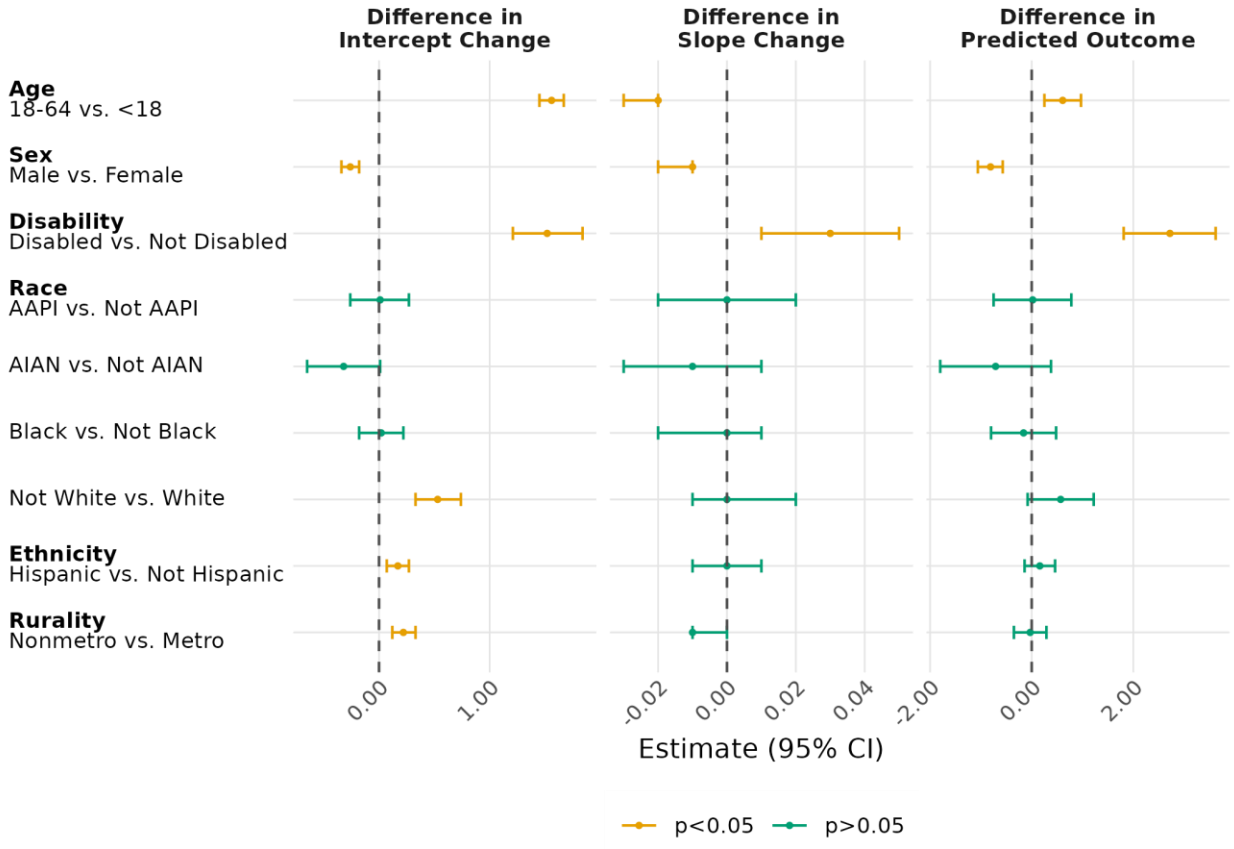
Table 68: Interrupted time series estimates of Percent of Enrollees Receiving Care Management

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	1.11* (0.83, 1.39)	3.27* (2.86, 3.68)	2.16* (1.50, 2.83)
Monthly Change	-0.017* (-0.030, -0.0040)	0.0033 (-0.013, 0.020)	0.020* (0.0052, 0.035)
Predicted Average Outcome Nov 2024	0.43 (-0.21, 1.08)	3.40* (3.15, 3.66)	2.97* (2.45, 3.49)
N			21,141,468

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Percent of Enrollees Receiving Care Management (Contrast Plot)

Figure 152: Comparison groups in Percent of Enrollees Receiving Care Management

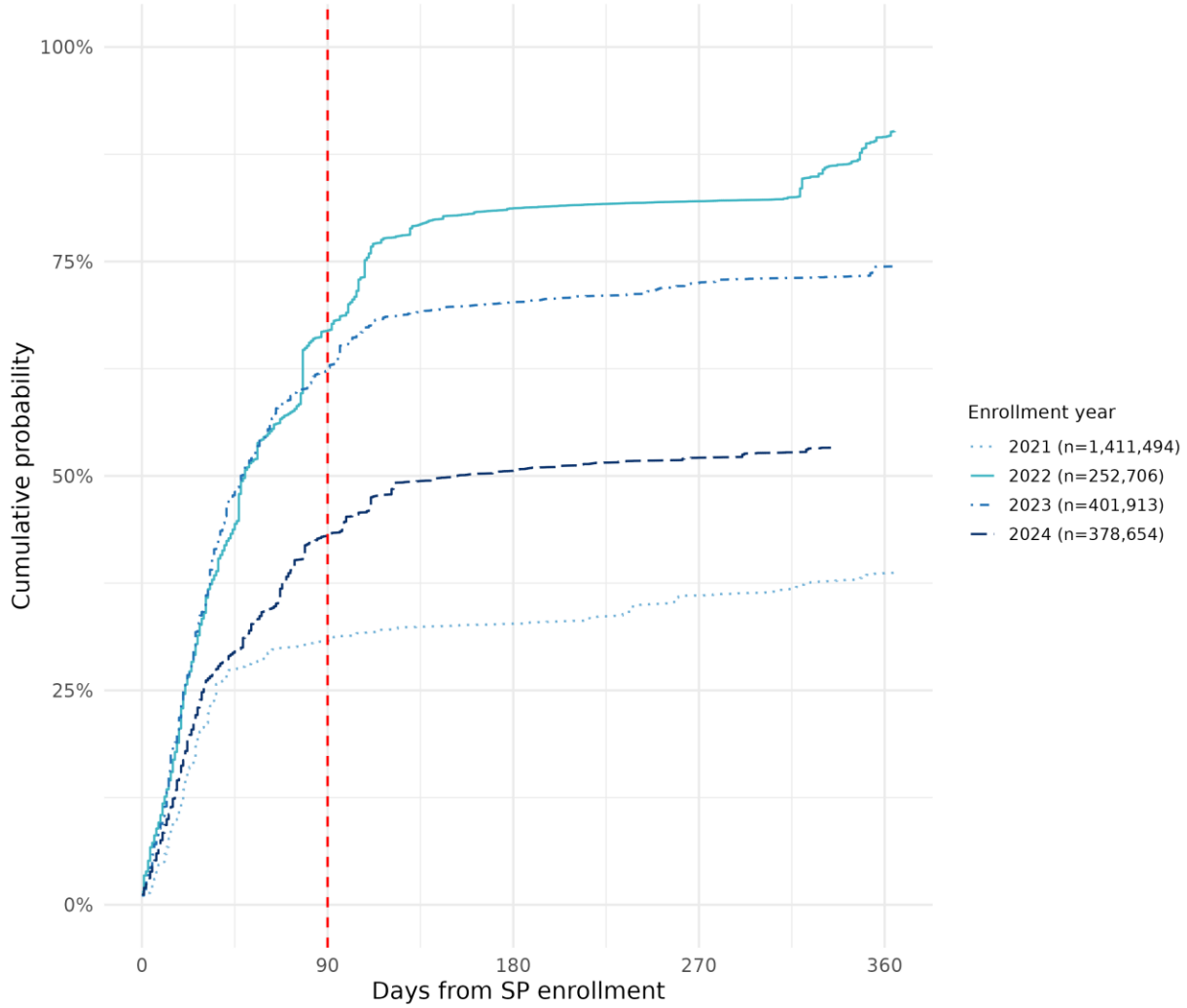


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Time to first SDOH Contact Attempt from PHP Attribution

Time to first SDOH Screening Contact Attempt from PHP Enrollment Date (Figure)

Figure 153: Cumulative Incidence of Time to first SDOH Screening Contact Attempt from PHP Enrollment Date

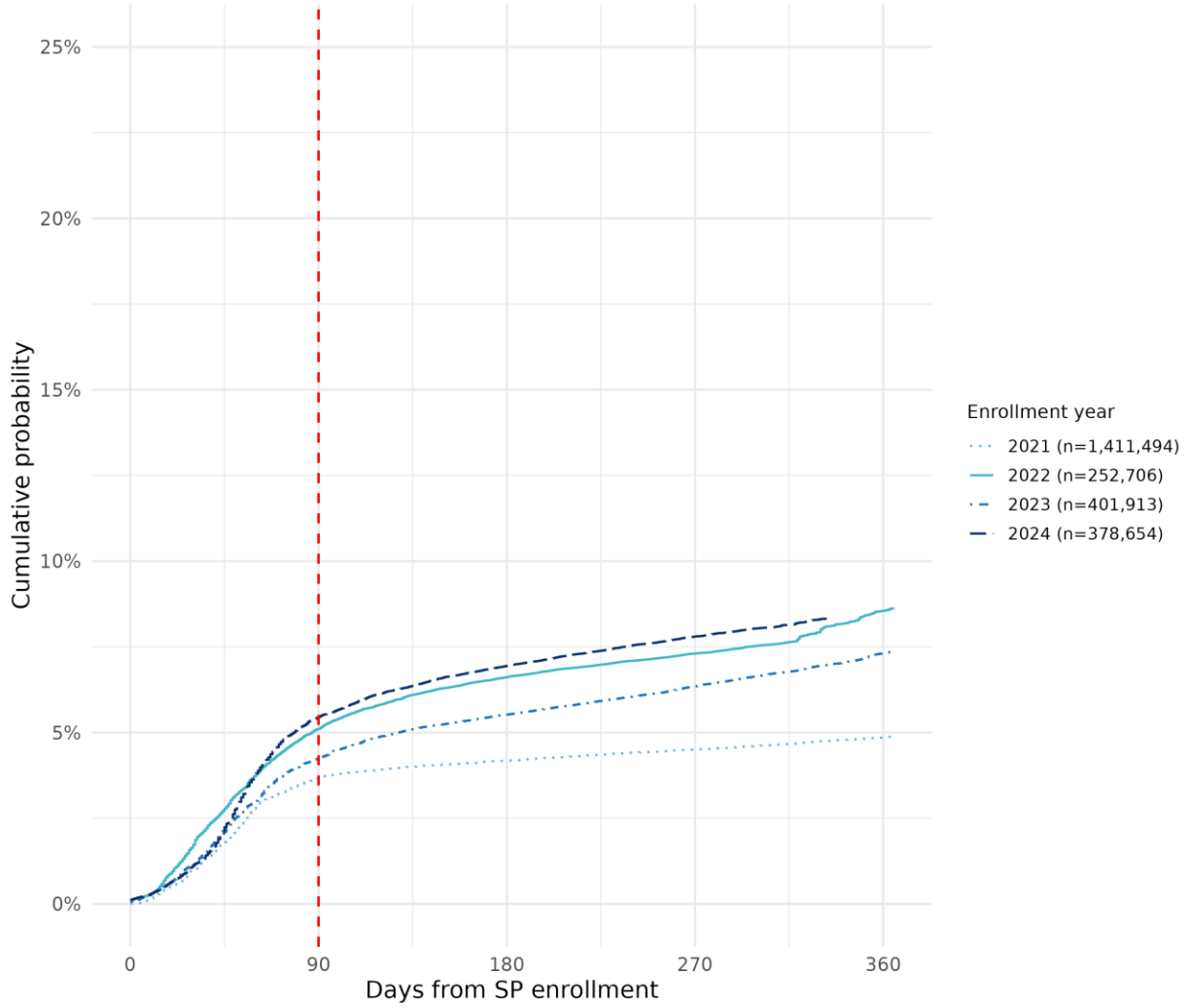


Notes: Predictions estimated from a cumulative incidence function model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications. SP launched in July 2021; the 2021 cohort reflects approx. 6 months of program activity. The enrollment year represents beneficiaries who were newly enrolled or re-enrolled in that year. The red dashed line indicates the 90-day requirement by which PHPs must make best efforts to conduct an initial care needs screening for each enrolled or re-enrolled member (NC DHHS Care Management Strategy under Managed Care). Analyses reflect a study period ending Nov 30, 2024.

Time to first SDOH Screening Completion from PHP Attribution

Time to first SDOH Screening Completion from PHP Enrollment Date (Figure)

Figure 154: Cumulative Incidence of Time to first SDOH Screening Completion from PHP Enrollment Date

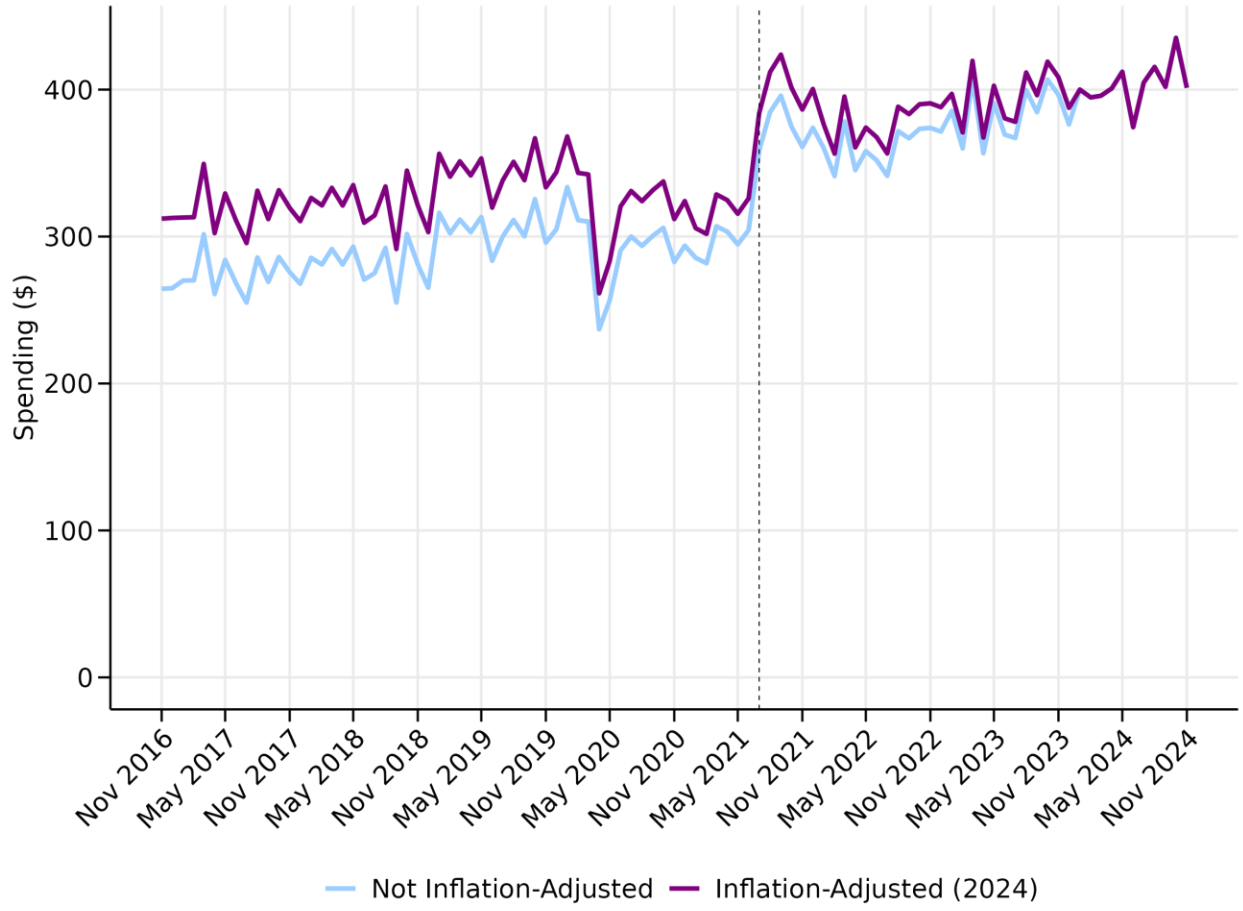


Notes: Predictions estimated from a cumulative incidence function model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications. SP launched in July 2021; the 2021 cohort reflects approx. 6 months of program activity. The enrollment year represents beneficiaries who were newly enrolled or re-enrolled in that year. The red dashed line indicates the 90-day requirement by which PHPs must make best efforts to conduct an initial care needs screening for each enrolled or re-enrolled member (NC DHHS Care Management Strategy under Managed Care). Analyses reflect a study period ending Nov 30, 2024.

Medicaid Expenditures

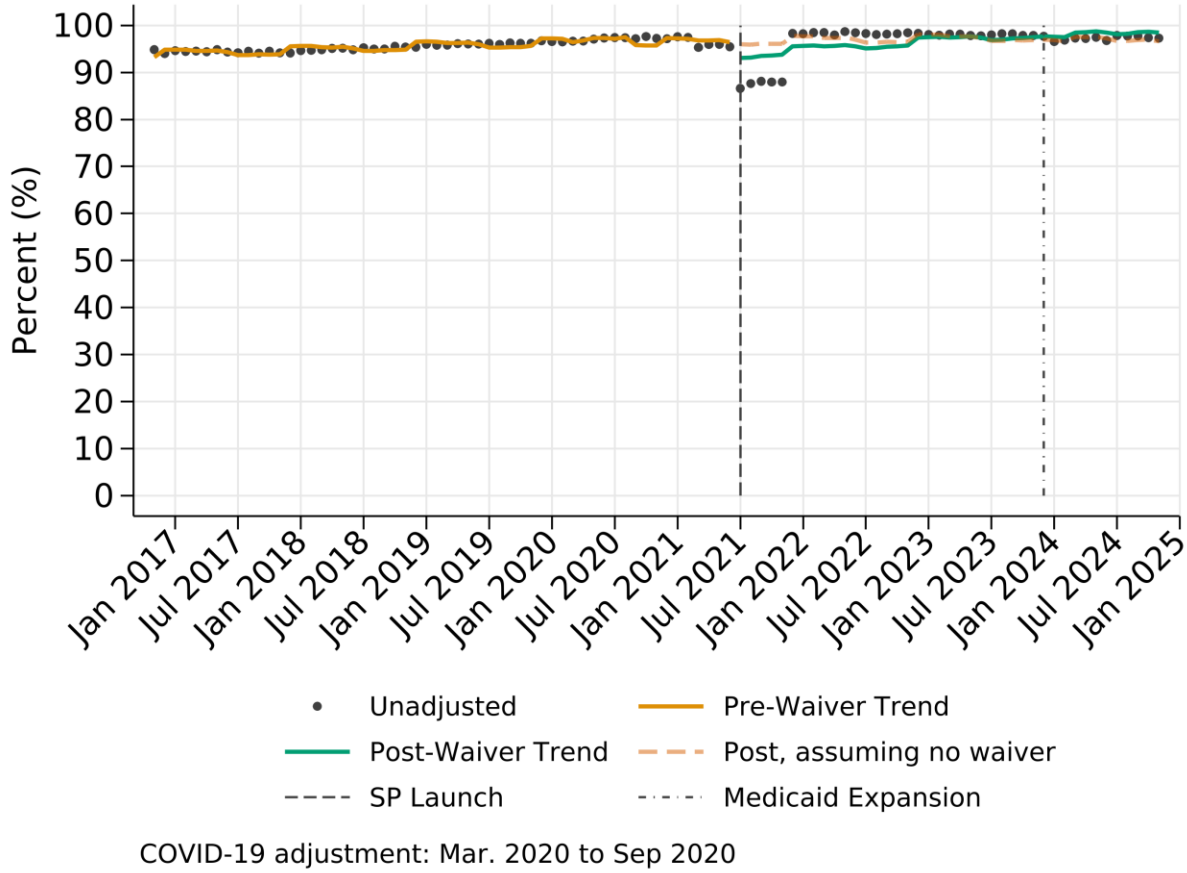
Medicaid Expenditures: Per Member Per Month Total Medicaid Service Expenditures (Figure)

Figure 155: Trends in Medicaid Expenditures: Per Member Per Month Total Medicaid Service Expenditures



Medicaid Expenditures: Proportion of beneficiaries with an expenditure (Figure)

Figure 156: Trends in Medicaid Expenditures: Proportion of beneficiaries with an expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Proportion of beneficiaries with an expenditure (Table)

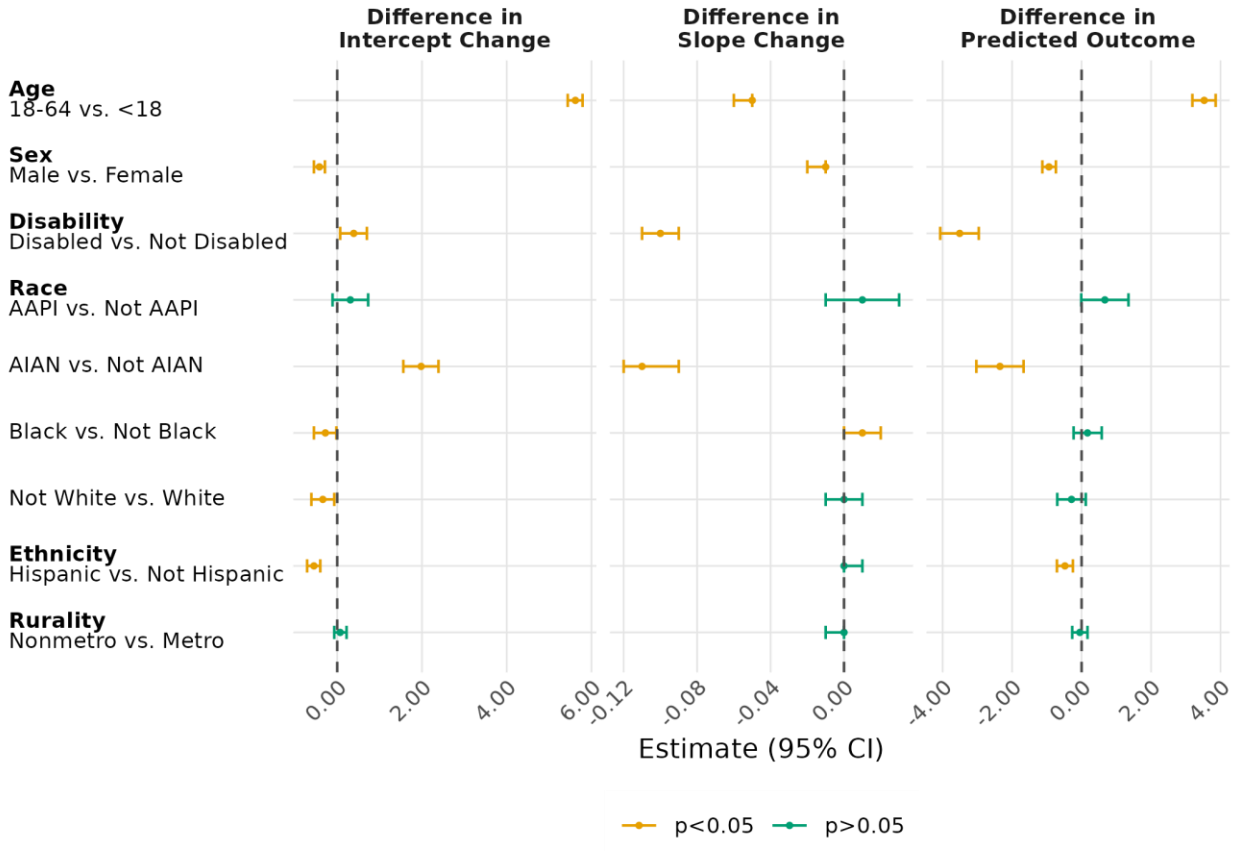
Table 69: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with an expenditure

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	96.31* (96.15, 96.47)	93.07* (92.75, 93.40)	-3.24* (-3.60, -2.88)
Monthly Change	-0.0049* (-0.0094, -0.0004)	0.13* (0.11, 0.15)	0.13* (0.12, 0.15)
Predicted Average Outcome Nov 2024	96.12* (95.83, 96.40)	98.21* (97.77, 98.65)	2.10* (1.54, 2.66)
N			33,015,336

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Medicaid Expenditures: Proportion of beneficiaries with an expenditure (Contrast Plot)

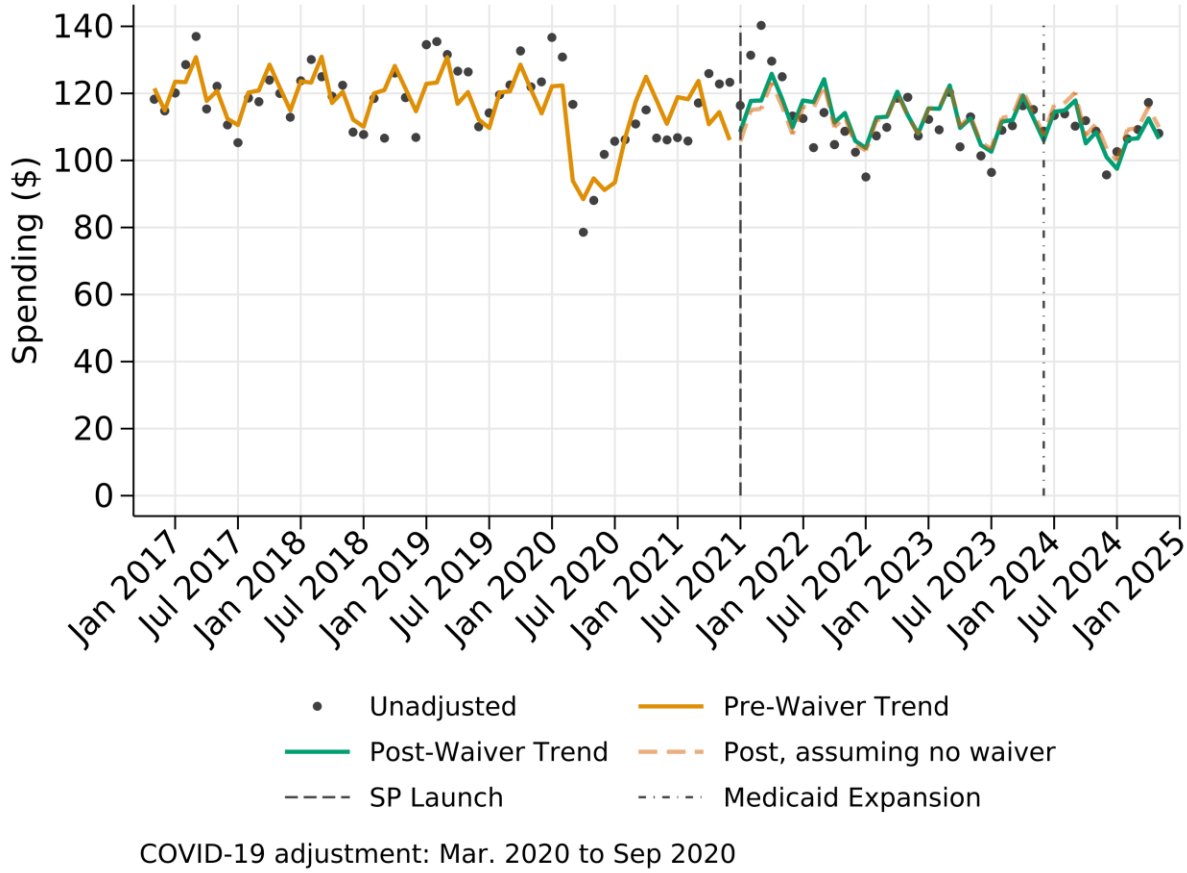
Figure 157: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with an expenditure



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries (Figure)

Figure 158: Trends in Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries (Table)

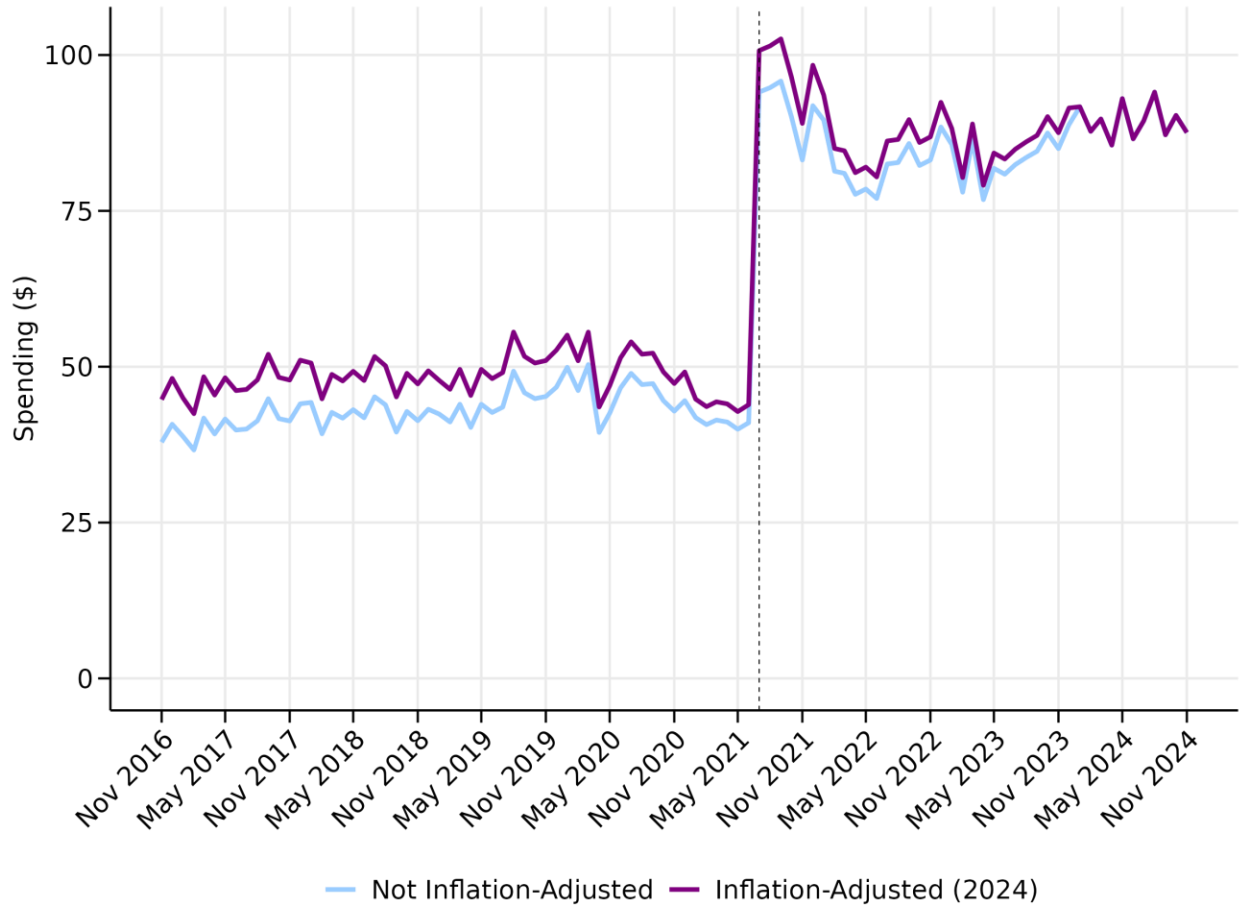
Table 70: Interrupted time series estimates of Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	110.34* (110.07, 110.61)	112.70* (112.42, 112.97)	2.36* (2.08, 2.65)
Monthly Change	-0.0041 (-0.010, 0.0020)	-0.16* (-0.17, -0.15)	-0.16* (-0.17, -0.15)
Predicted Average Outcome Nov 2024	110.17* (109.70, 110.64)	106.35* (106.10, 106.61)	-3.82* (-4.29, -3.35)
N			30,166,301

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

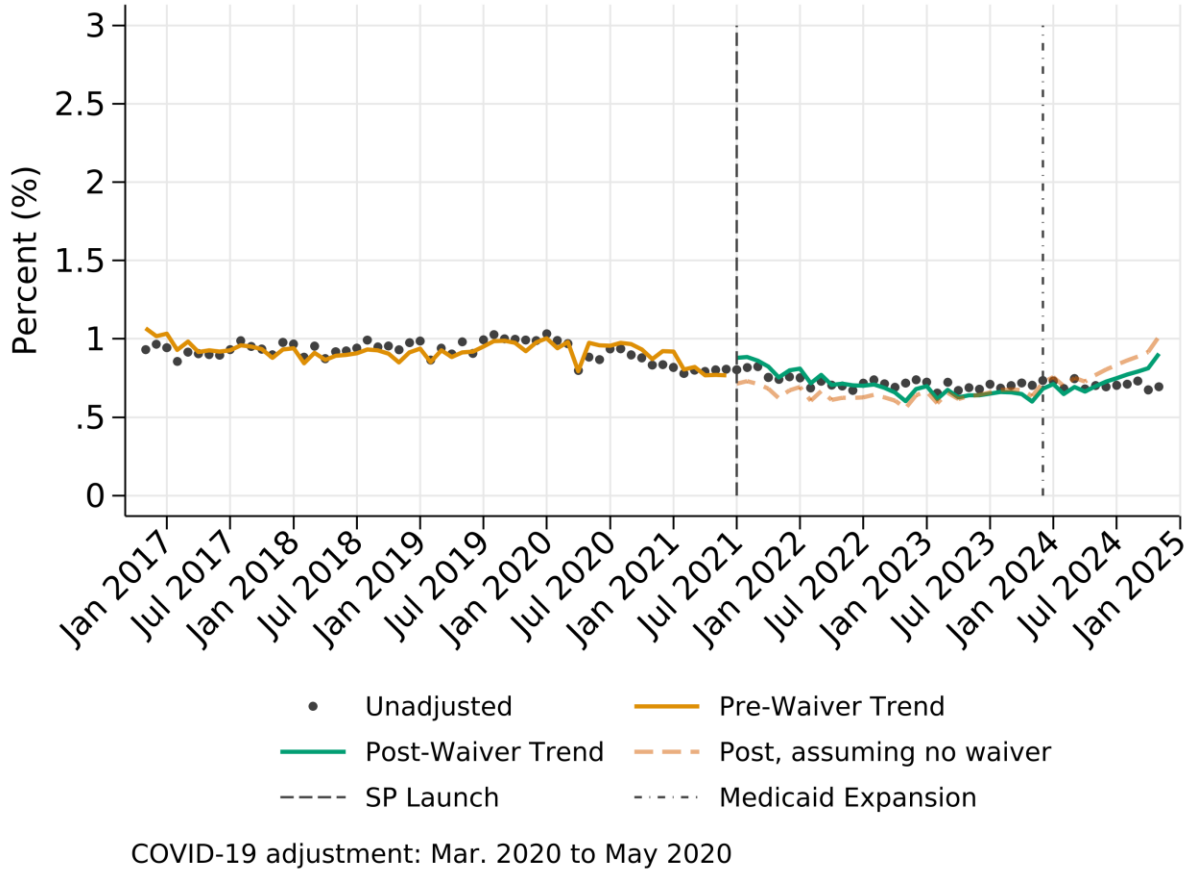
Medicaid Expenditures: Per Member Per Month Medicaid Service Inpatient Expenditures (Figure)

Figure 159: Trends in Medicaid Expenditures: Per Member Per Month Medicaid Service Inpatient Expenditures



Medicaid Expenditures: Proportion of beneficiaries with an Inpatient expenditure (Figure)

Figure 160: Trends in Medicaid Expenditures: Proportion of beneficiaries with an Inpatient expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

The Medicaid Expansion population has been excluded.

Medicaid Expenditures: Proportion of beneficiaries with an Inpatient expenditure (Table)

Table 71: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with an Inpatient expenditure

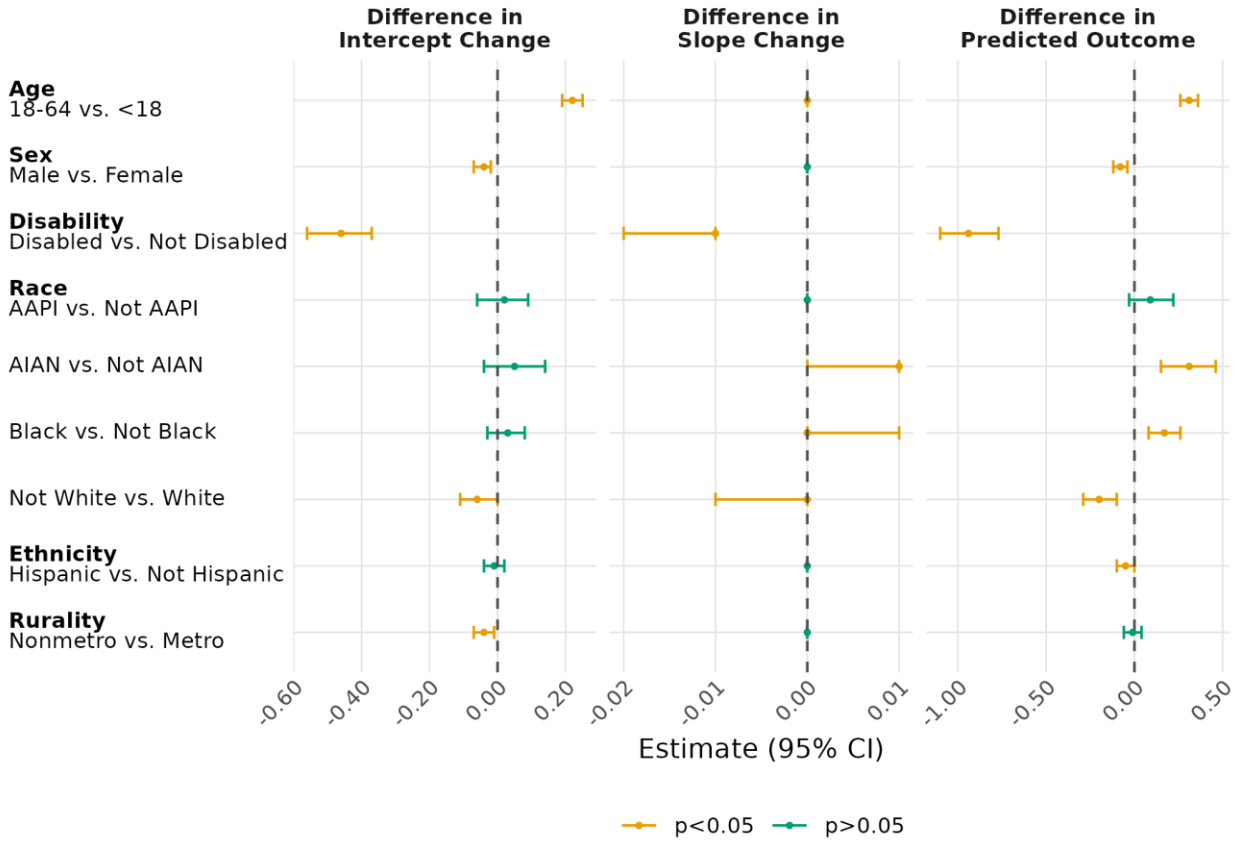
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	0.21* (0.19, 0.23)	0.40* (0.38, 0.42)	0.19* (0.17, 0.21)
Monthly Change	-0.094* (-0.097, -0.092)	-0.10* (-0.10, -0.099)	-0.0074* (-0.0082, -0.0066)
Predicted Average Outcome Nov 2024	-3.56* (-3.68, -3.44)	-3.67* (-3.77, -3.56)	-0.11* (-0.14, -0.075)
N			31,989,132

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

The Medicaid Expansion population has been excluded.

Medicaid Expenditures: Proportion of beneficiaries with an Inpatient expenditure (Contrast Plot)

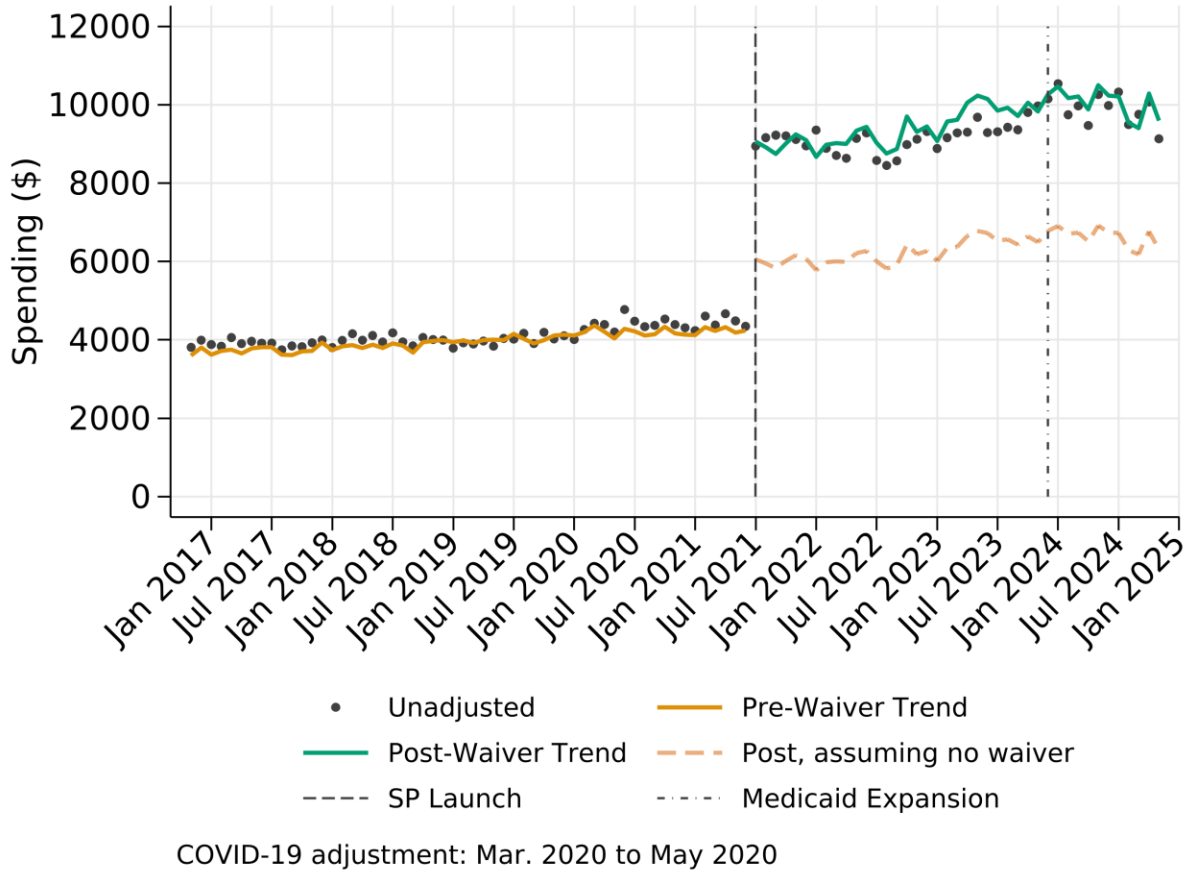
Figure 161: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with an Inpatient expenditure



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Inpatient services expenditure (Figure)

Figure 162: Trends in Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Inpatient services expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.
The Medicaid Expansion population has been excluded.

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Inpatient services expenditure (Table)

Table 72: Interrupted time series estimates of Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Inpatient services expenditure

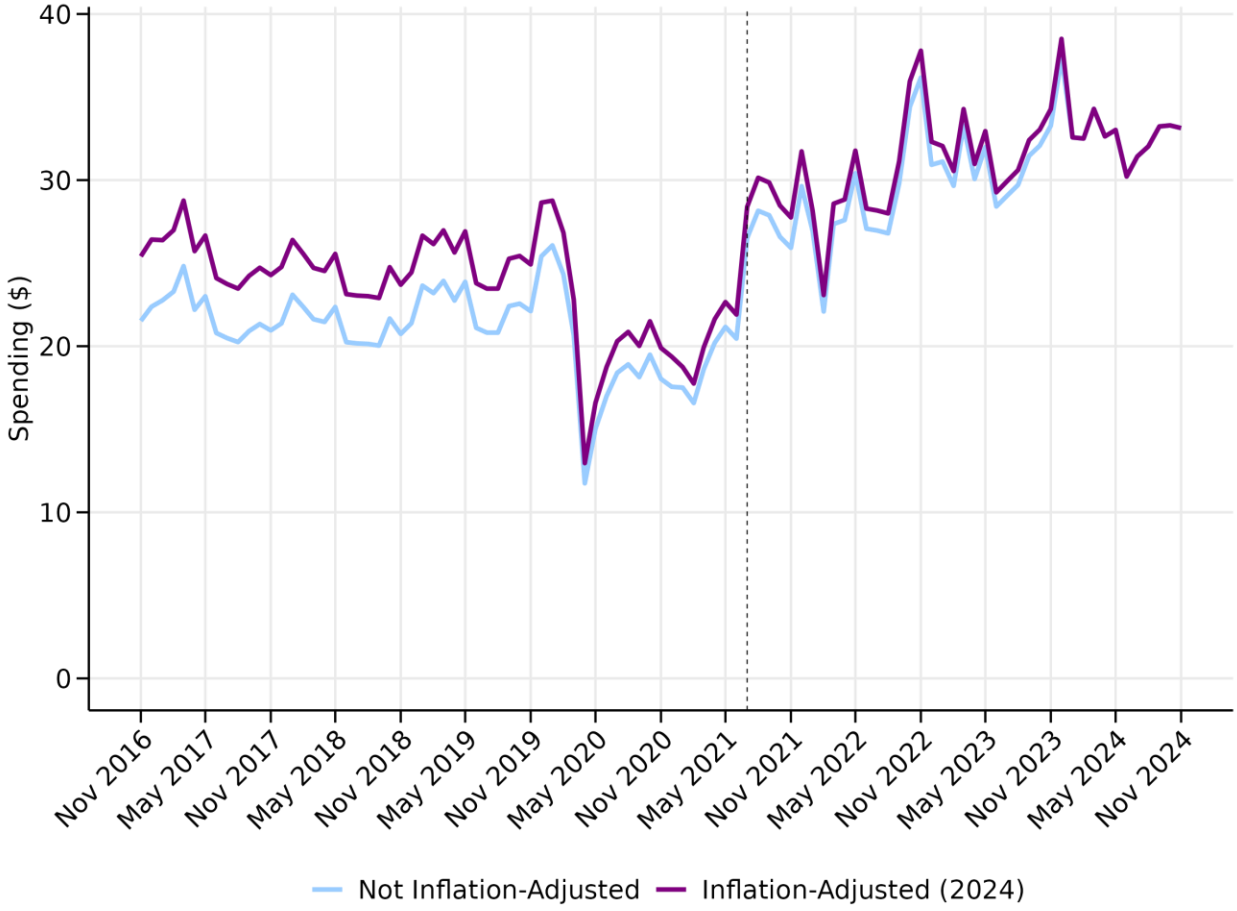
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	4290.93* (4229.75, 4352.11)	9754.71* (9594.43, 9914.99)	5463.78* (5298.18, 5629.37)
Monthly Change	10.42* (8.57, 12.27)	27.48* (21.28, 33.68)	17.06* (10.60, 23.52)
Predicted Average Outcome Nov 2024	4728.64* (4591.61, 4865.68)	10918.21* (10738.50, 11097.91)	6189.56* (5968.89, 6410.23)
N			262,656

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

The Medicaid Expansion population has been excluded.

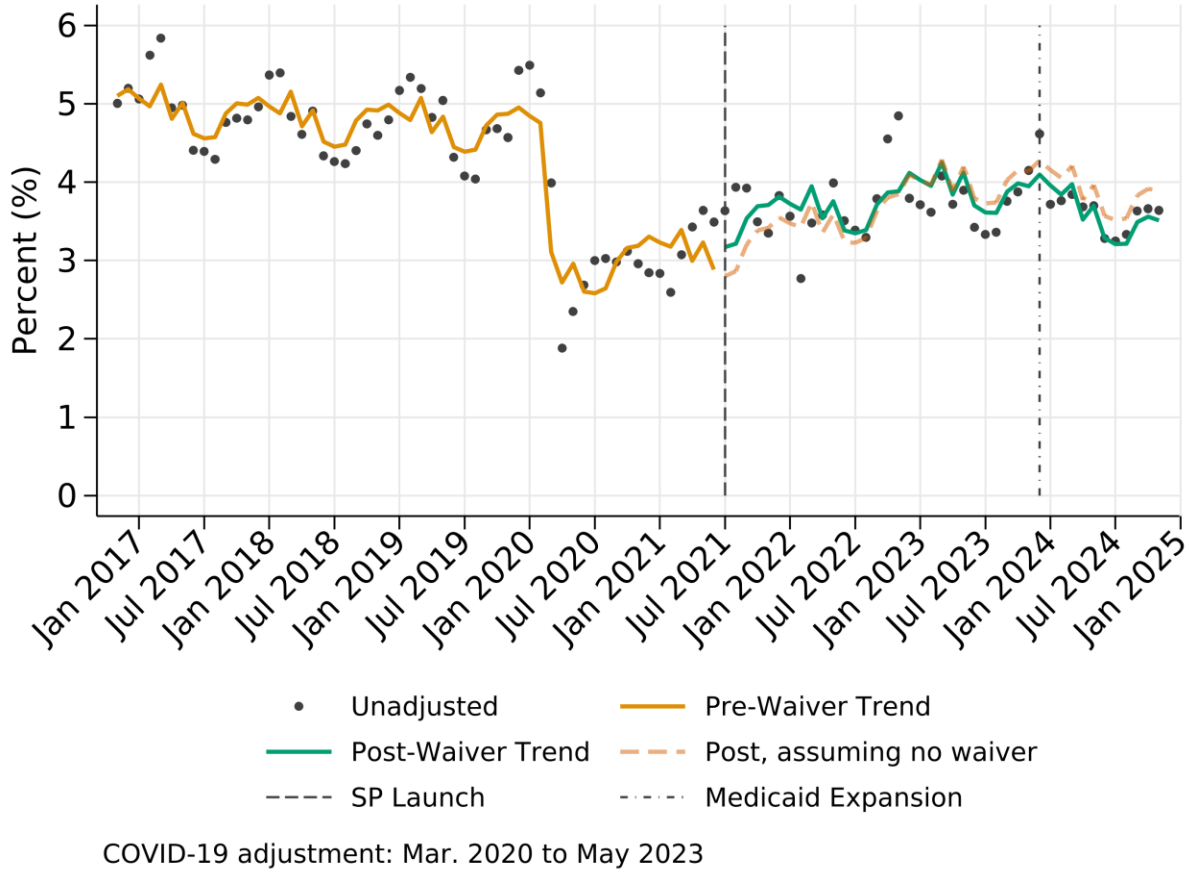
Medicaid Expenditures: Per Member Per Month Medicaid Service ER Expenditures (Figure)

Figure 163: Trends in Medicaid Expenditures: Per Member Per Month Medicaid Service ER Expenditures



Medicaid Expenditures: Proportion of beneficiaries with an ER expenditure (Figure)

Figure 164: Trends in Medicaid Expenditures: Proportion of beneficiaries with an ER expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Proportion of beneficiaries with an ER expenditure (Table)

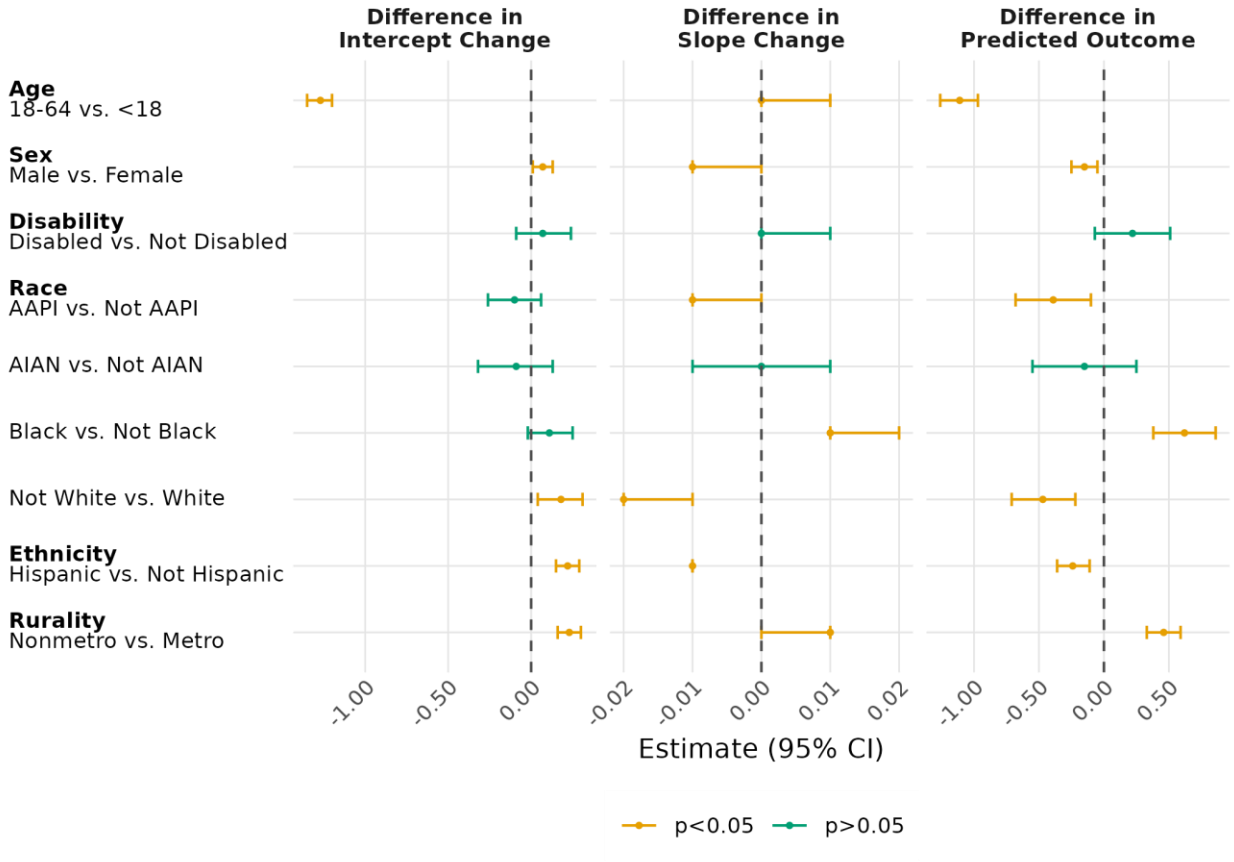
Table 73: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with an ER expenditure

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	3.28* (3.21, 3.36)	3.61* (3.54, 3.69)	0.33* (0.27, 0.40)
Monthly Change	-0.0090* (-0.013, -0.0055)	-0.031* (-0.036, -0.027)	-0.022* (-0.028, -0.017)
Predicted Average Outcome Nov 2024	4.06* (3.86, 4.26)	3.50* (3.36, 3.64)	-0.56* (-0.77, -0.35)
N			32,945,470

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Medicaid Expenditures: Proportion of beneficiaries with an ER expenditure (Contrast Plot)

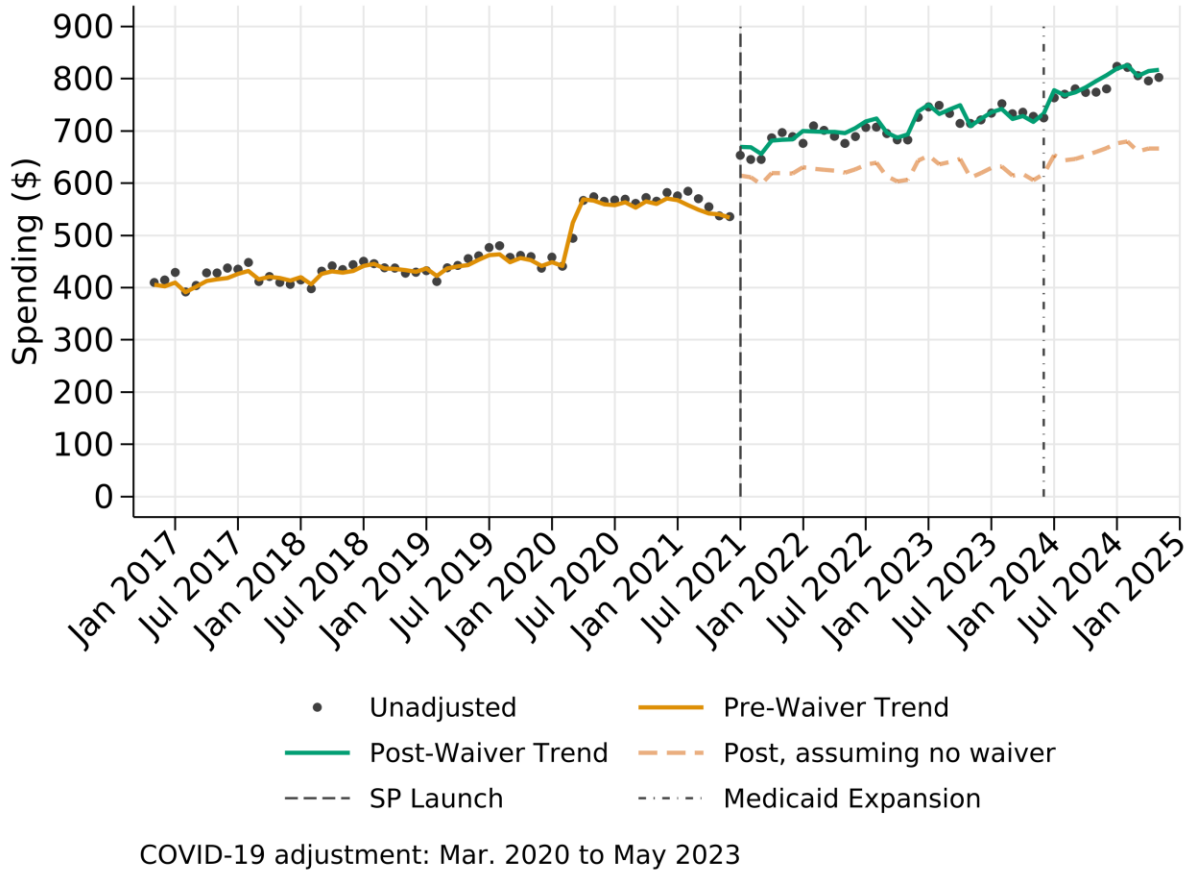
Figure 165: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with an ER expenditure



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an ER expenditure (Figure)

Figure 166: Trends in Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an ER expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an ER expenditure (Table)

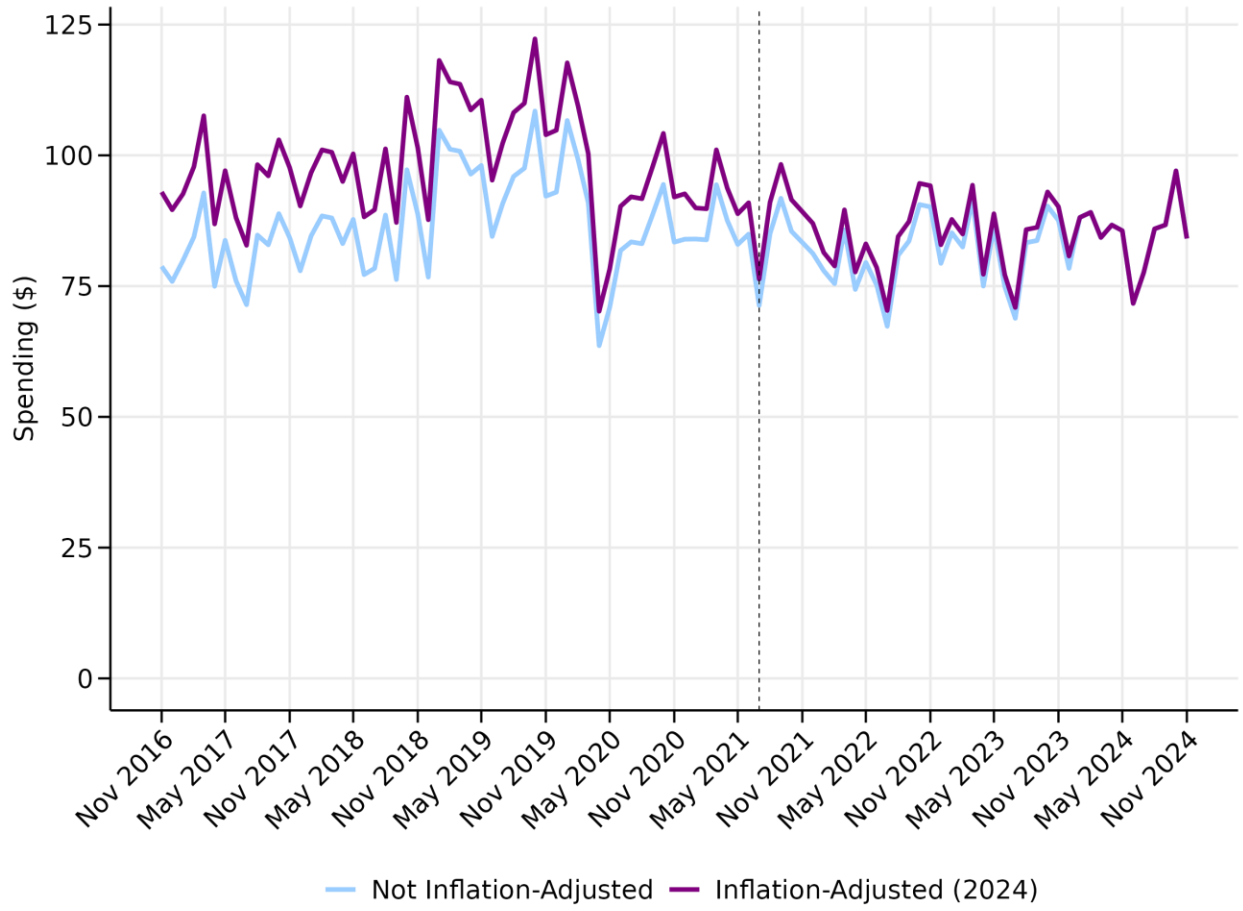
Table 74: Interrupted time series estimates of Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an ER expenditure

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	534.24* (531.46, 537.02)	681.31* (677.02, 685.60)	147.07* (141.61, 152.53)
Monthly Change	0.85* (0.62, 1.08)	3.09* (2.78, 3.40)	2.24* (1.98, 2.49)
Predicted Average Outcome Nov 2024	553.29* (545.39, 561.19)	793.71* (789.68, 797.75)	240.42* (230.95, 249.89)
N			1,311,928

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

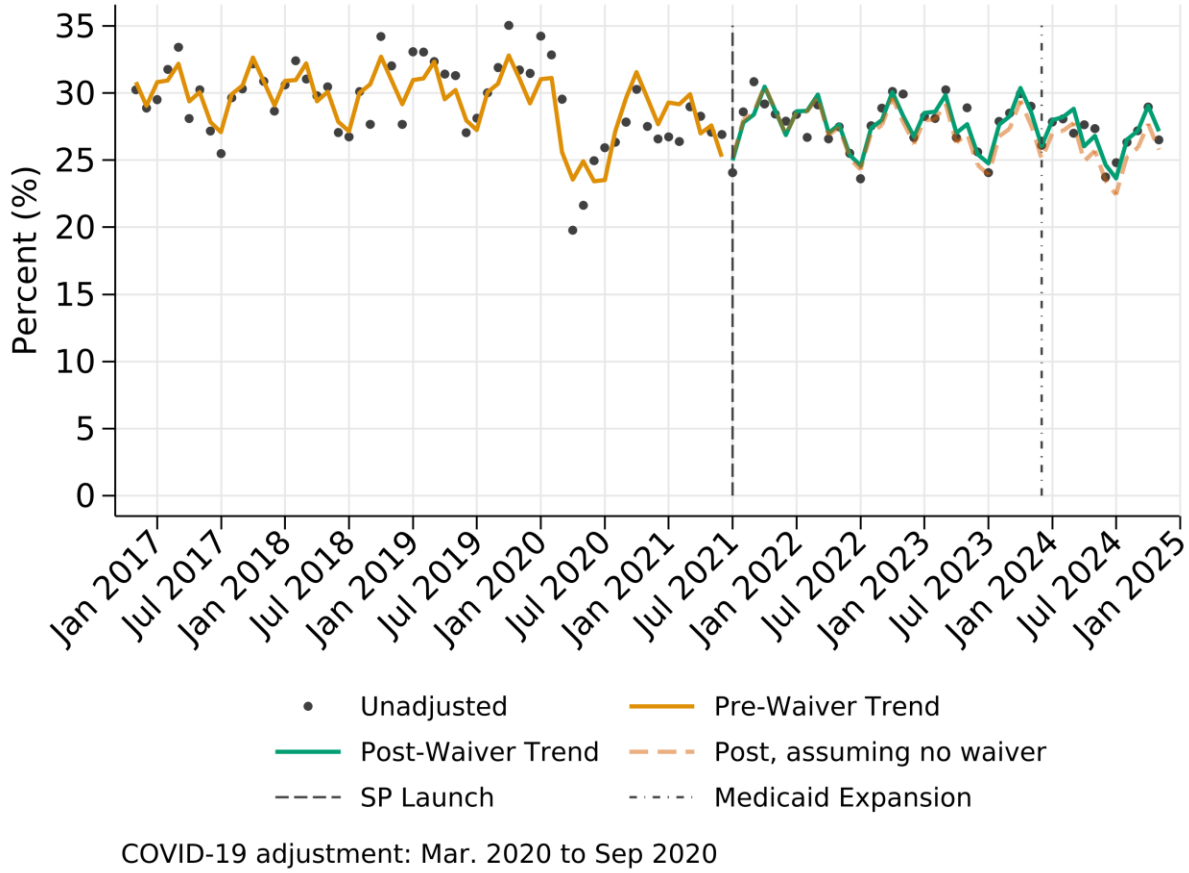
Medicaid Expenditures: Per Member Per Month Medicaid Service Outpatient Expenditures (Figure)

Figure 167: Trends in Medicaid Expenditures: Per Member Per Month Medicaid Service Outpatient Expenditures



Medicaid Expenditures: Proportion of beneficiaries with an Outpatient expenditure (Figure)

Figure 168: Trends in Medicaid Expenditures: Proportion of beneficiaries with an Outpatient expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Proportion of beneficiaries with an Outpatient expenditure (Table)

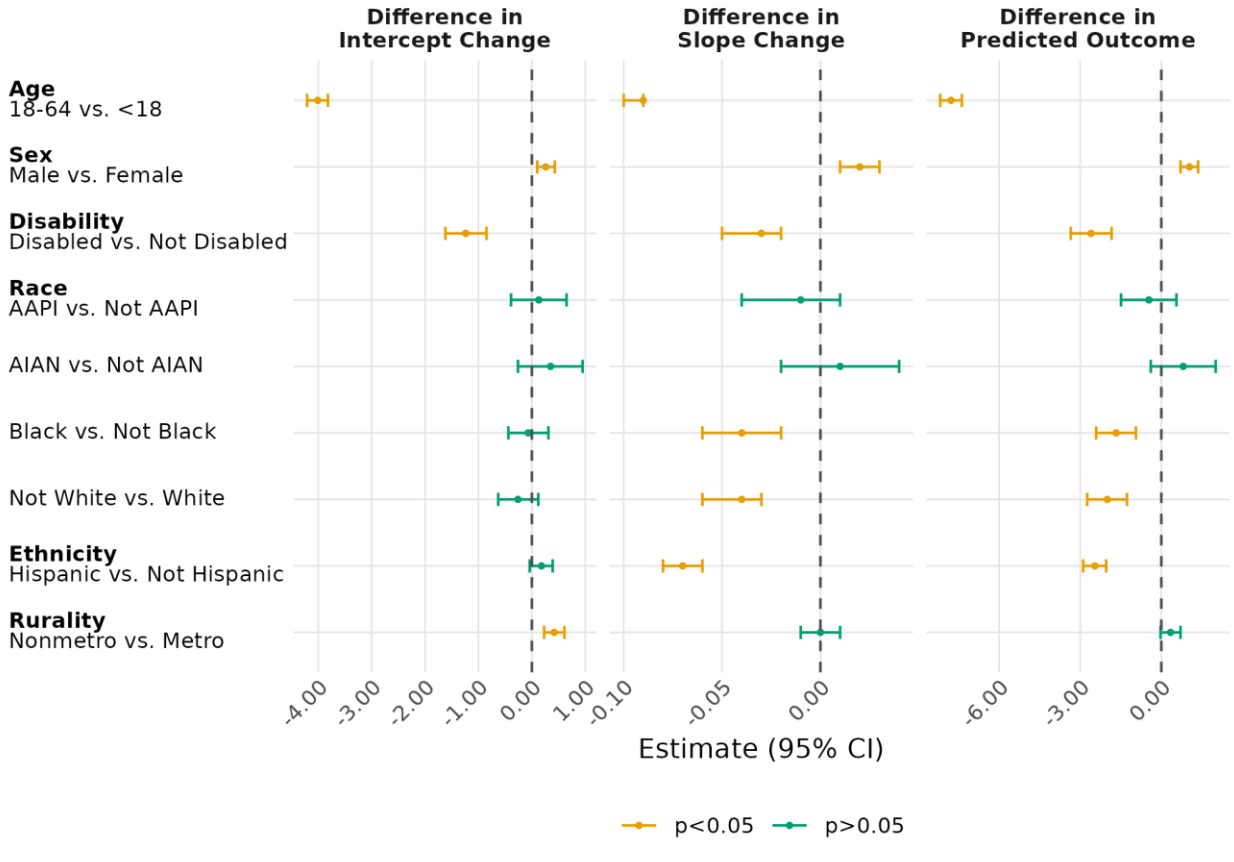
Table 75: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with an Outpatient expenditure

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	26.30* (26.11, 26.49)	26.80* (26.64, 26.96)	0.50* (0.28, 0.72)
Monthly Change	-0.31* (-0.32, -0.30)	-0.25* (-0.26, -0.24)	0.056* (0.045, 0.068)
Predicted Average Outcome Nov 2024	13.95* (13.44, 14.47)	16.70* (16.27, 17.14)	2.75* (2.22, 3.28)
N			32,996,241

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Medicaid Expenditures: Proportion of beneficiaries with an Outpatient expenditure (Contrast Plot)

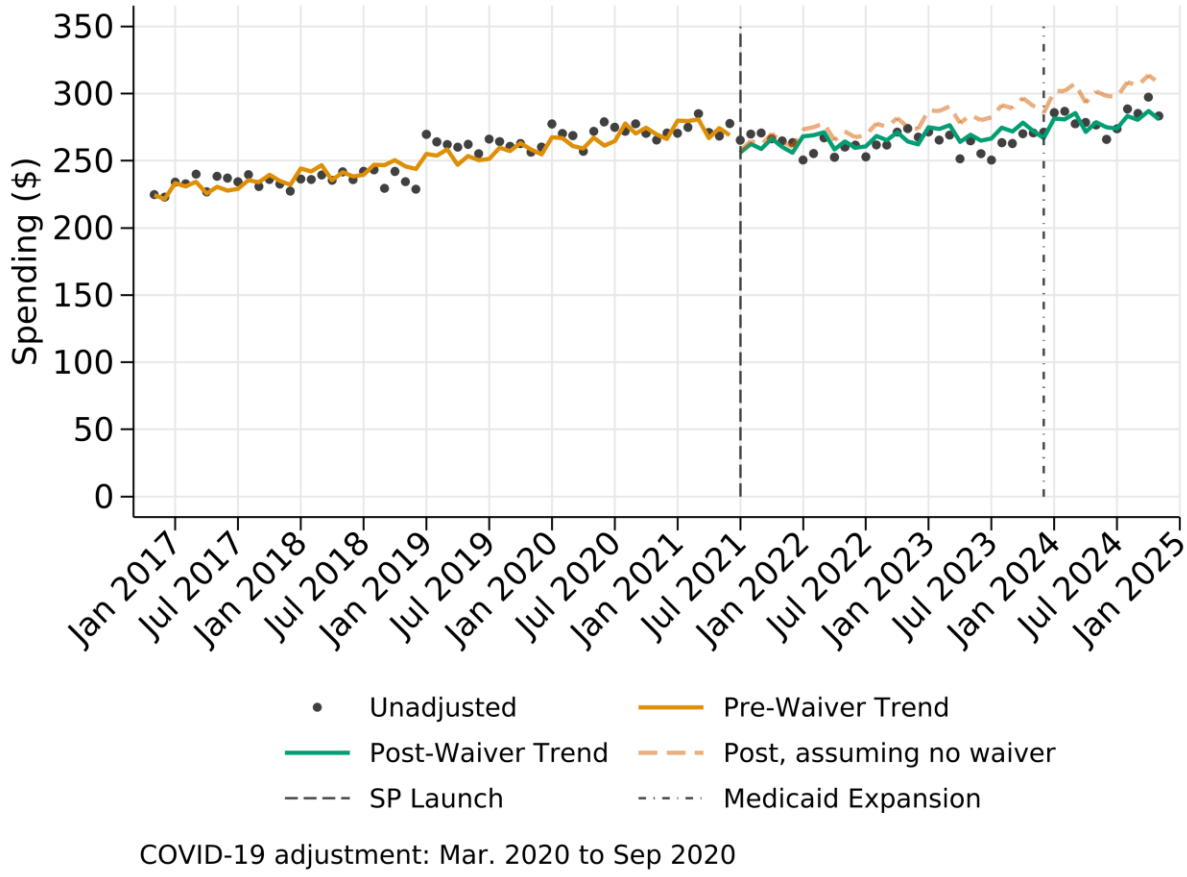
Figure 169: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with an Outpatient expenditure



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient expenditure (Figure)

Figure 170: Trends in Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient expenditure (Table)

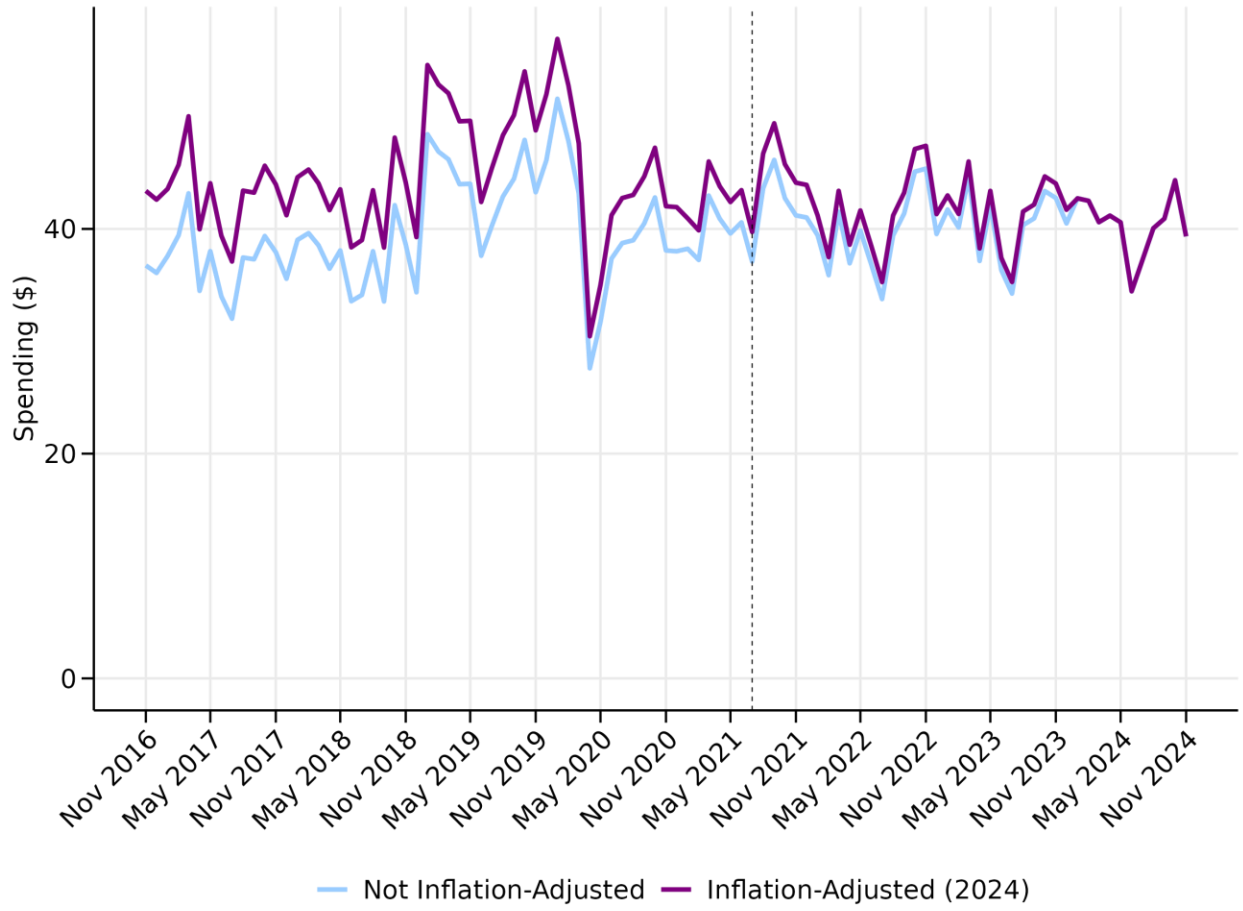
Table 76: Interrupted time series estimates of Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient expenditure

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	266.02* (265.42, 266.62)	251.49* (250.93, 252.06)	-14.52* (-15.16, -13.88)
Monthly Change	1.05* (1.03, 1.06)	0.46* (0.44, 0.48)	-0.59* (-0.61, -0.56)
Predicted Average Outcome Nov 2024	311.32* (310.05, 312.58)	270.42* (269.82, 271.02)	-40.89* (-42.17, -39.61)
N			9,300,059

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

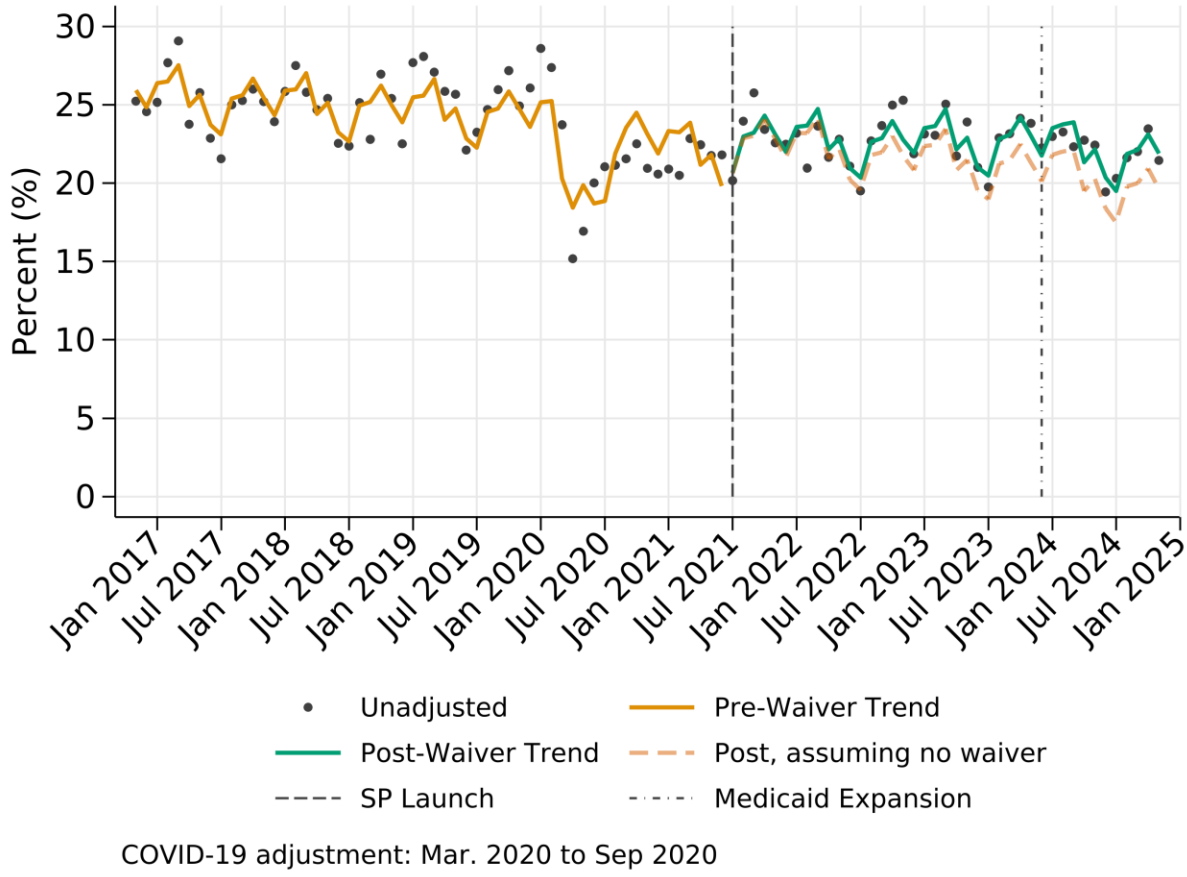
Medicaid Expenditures: Per Member Per Month Medicaid Service Outpatient E&M Expenditures (Figure)

Figure 171: Trends in Medicaid Expenditures: Per Member Per Month Medicaid Service Outpatient E&M Expenditures



Medicaid Expenditures: Proportion of beneficiaries with an Outpatient E&M expenditure (Figure)

Figure 172: Trends in Medicaid Expenditures: Proportion of beneficiaries with an Outpatient E&M expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Proportion of beneficiaries with an Outpatient E&M expenditure (Table)

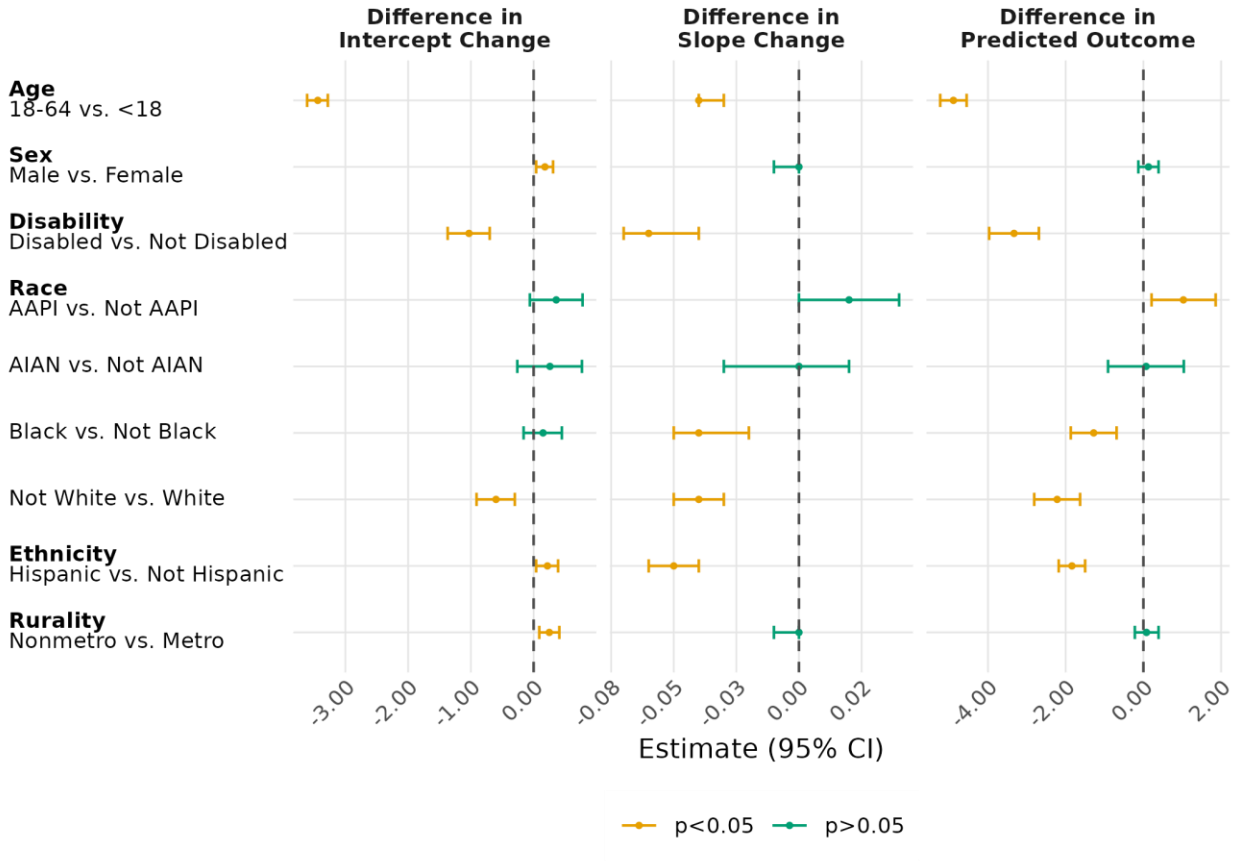
Table 77: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with an Outpatient E&M expenditure

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	20.05* (19.91, 20.20)	21.61* (21.48, 21.74)	1.56* (1.37, 1.74)
Monthly Change	-0.37* (-0.38, -0.36)	-0.29* (-0.30, -0.28)	0.080* (0.072, 0.089)
Predicted Average Outcome Nov 2024	5.12* (4.64, 5.59)	9.89* (9.50, 10.29)	4.78* (4.41, 5.15)
N			32,996,241

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Medicaid Expenditures: Proportion of beneficiaries with an Outpatient E&M expenditure (Contrast Plot)

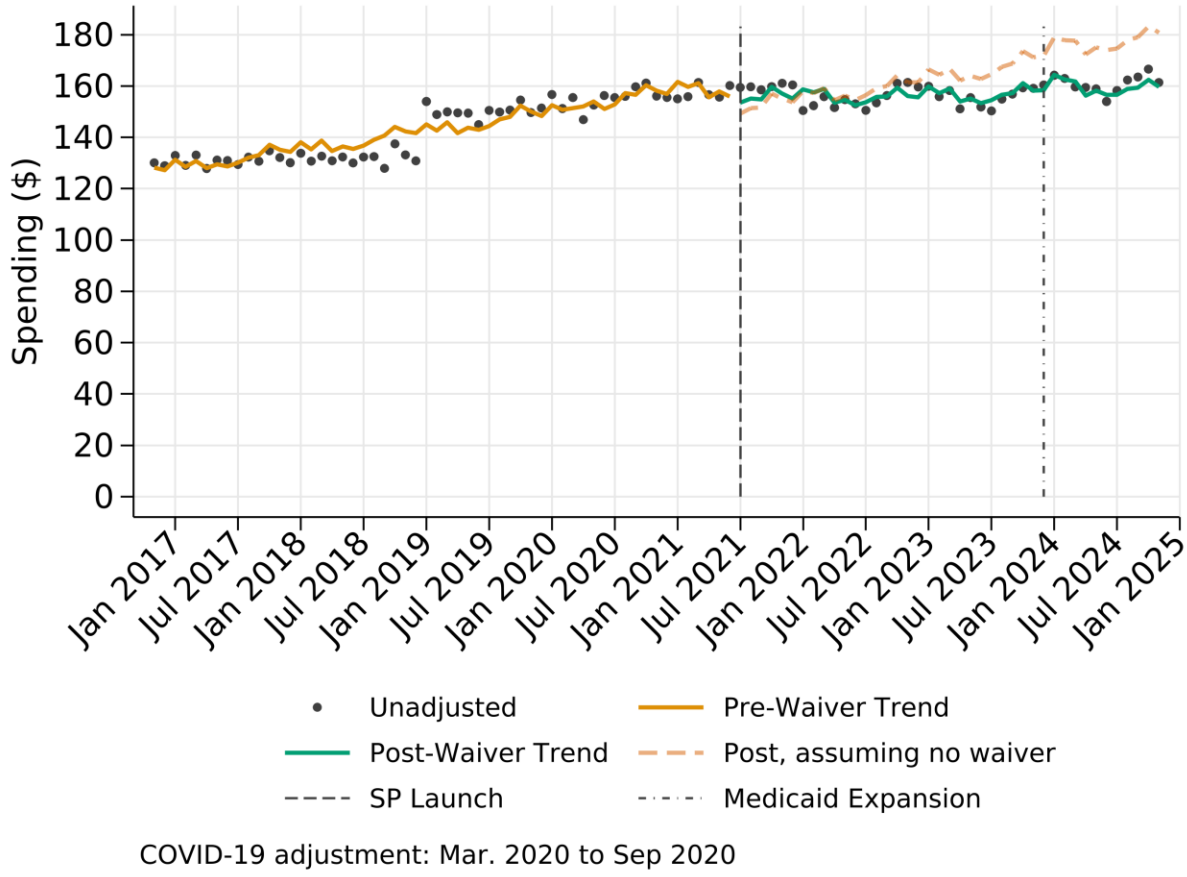
Figure 173: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with an Outpatient E&M expenditure



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient E&M expenditure (Figure)

Figure 174: Trends in Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient E&M expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient E&M expenditure (Table)

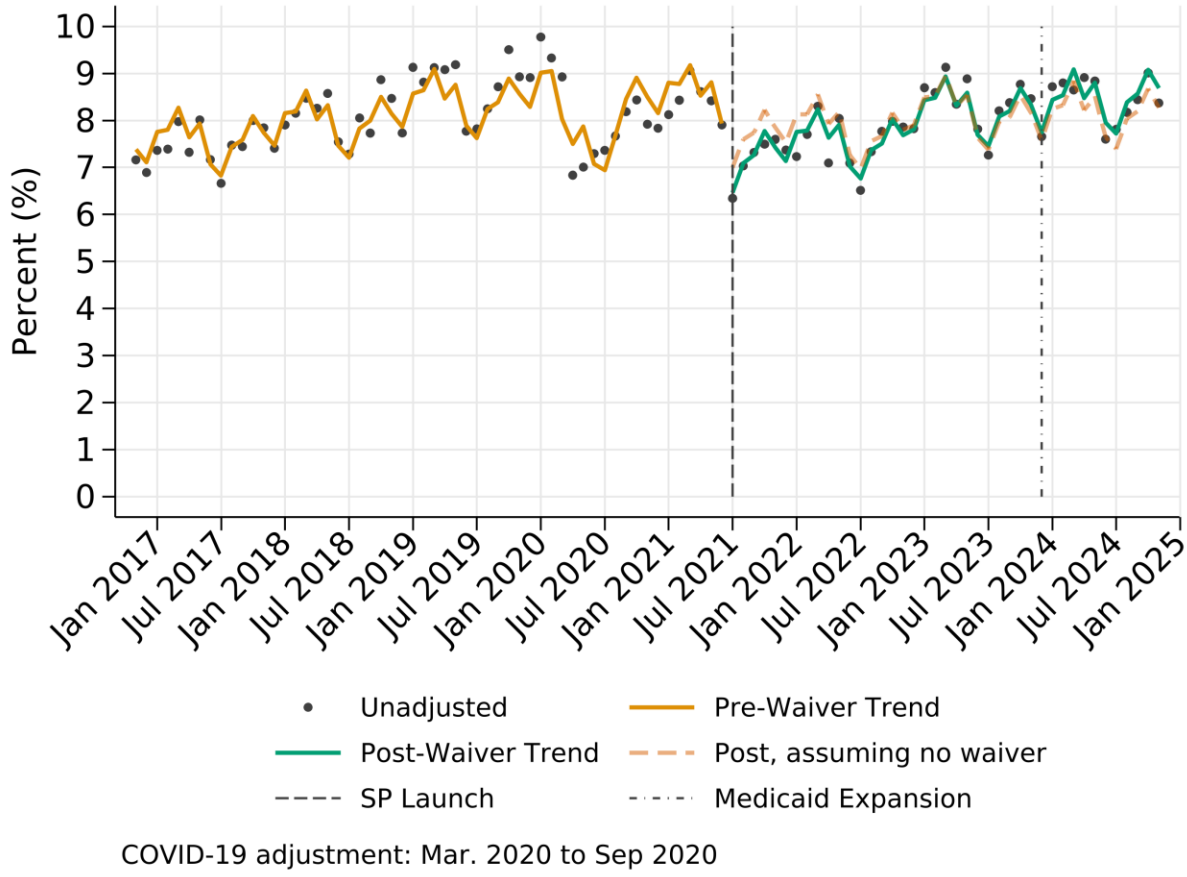
Table 78: Interrupted time series estimates of Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient E&M expenditure

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	158.00* (157.72, 158.28)	154.35* (154.08, 154.63)	-3.65* (-4.00, -3.30)
Monthly Change	0.68* (0.68, 0.69)	0.082* (0.071, 0.092)	-0.60* (-0.62, -0.59)
Predicted Average Outcome Nov 2024	187.87* (187.22, 188.53)	157.65* (157.38, 157.92)	-30.22* (-30.91, -29.53)
N			7,621,692

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Medicaid Expenditures: Proportion of beneficiaries with a behavioral health expenditure ‡ (Figure)

Figure 175: Trends in Medicaid Expenditures: Proportion of beneficiaries with a behavioral health expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Medicaid Expenditures: Proportion of beneficiaries with a behavioral health expenditure ‡ (Table)

Table 79: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with a behavioral health expenditure

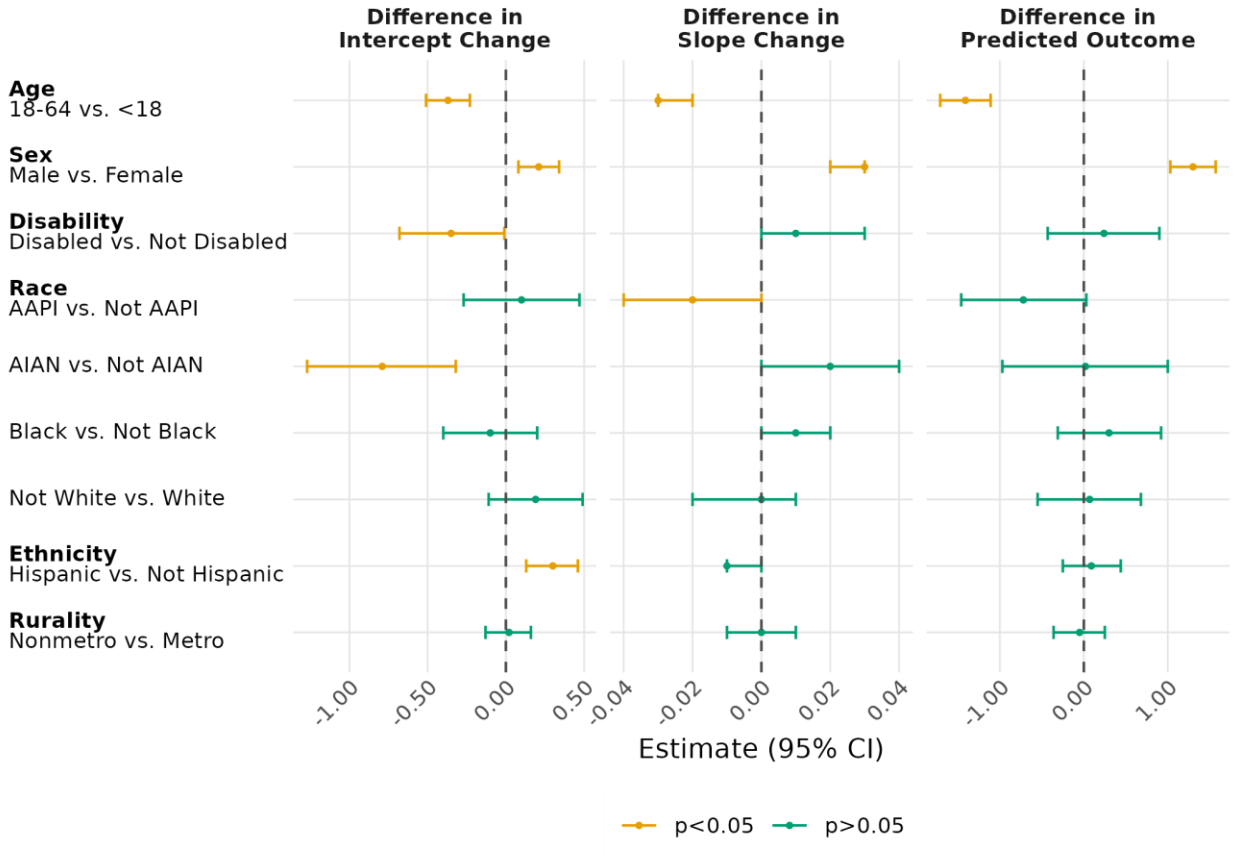
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	8.22* (8.12, 8.31)	7.66* (7.59, 7.74)	-0.55* (-0.68, -0.43)
Monthly Change	0.021* (0.016, 0.026)	0.048* (0.044, 0.053)	0.028* (0.023, 0.032)
Predicted Average Outcome Nov 2024	9.04* (8.76, 9.33)	9.60* (9.43, 9.76)	0.55* (0.32, 0.79)
N			33,310,039

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Medicaid Expenditures: Proportion of beneficiaries with a behavioral health expenditure ‡ (Contrast Plot)

Figure 176: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with a behavioral health expenditure

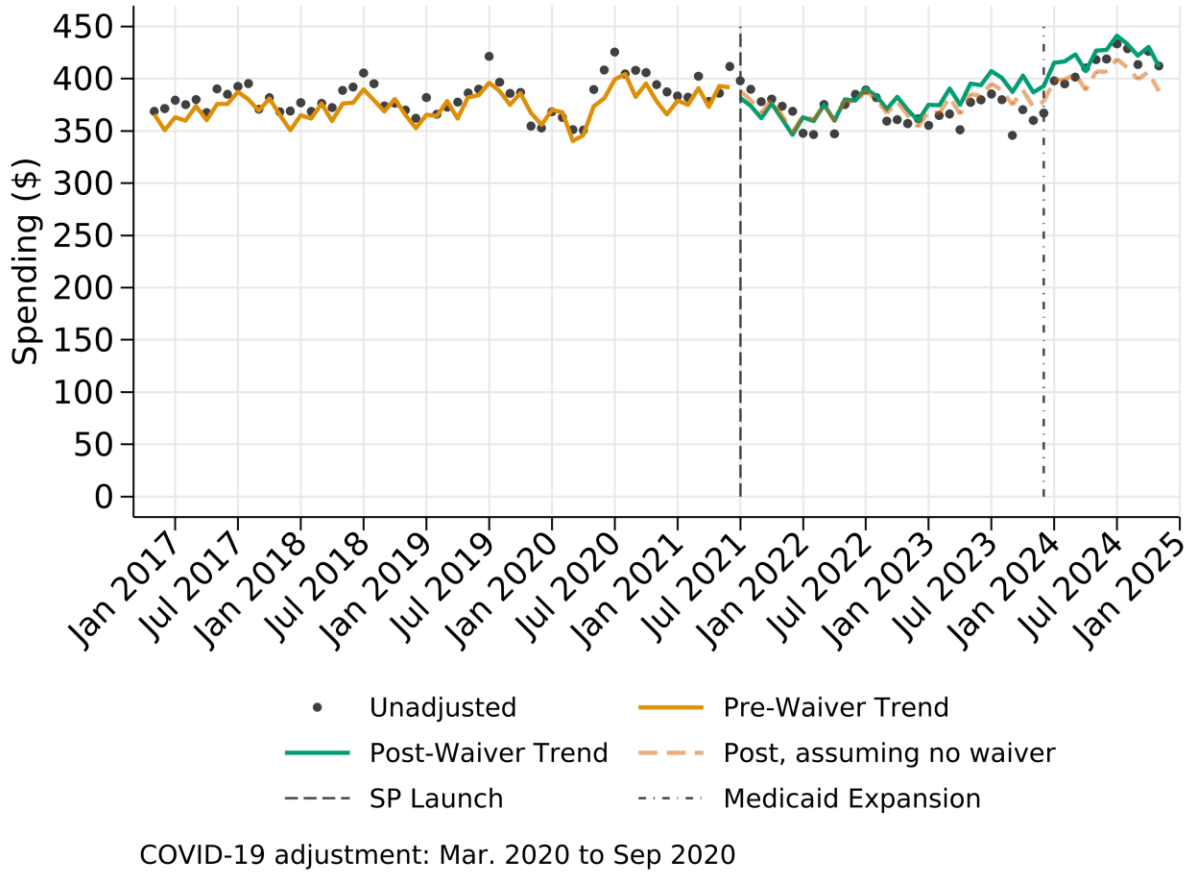


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Medicaid Expenditures: Behavioral health expenditures among beneficiaries with a BH expenditure ‡ (Figure)

Figure 177: Trends in Medicaid Expenditures: Behavioral health expenditures among beneficiaries with a BH expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Medicaid Expenditures: Behavioral health expenditures among beneficiaries with a BH expenditure ‡ (Table)

Table 80: Interrupted time series estimates of Medicaid Expenditures: Behavioral health expenditures among beneficiaries with a BH expenditure

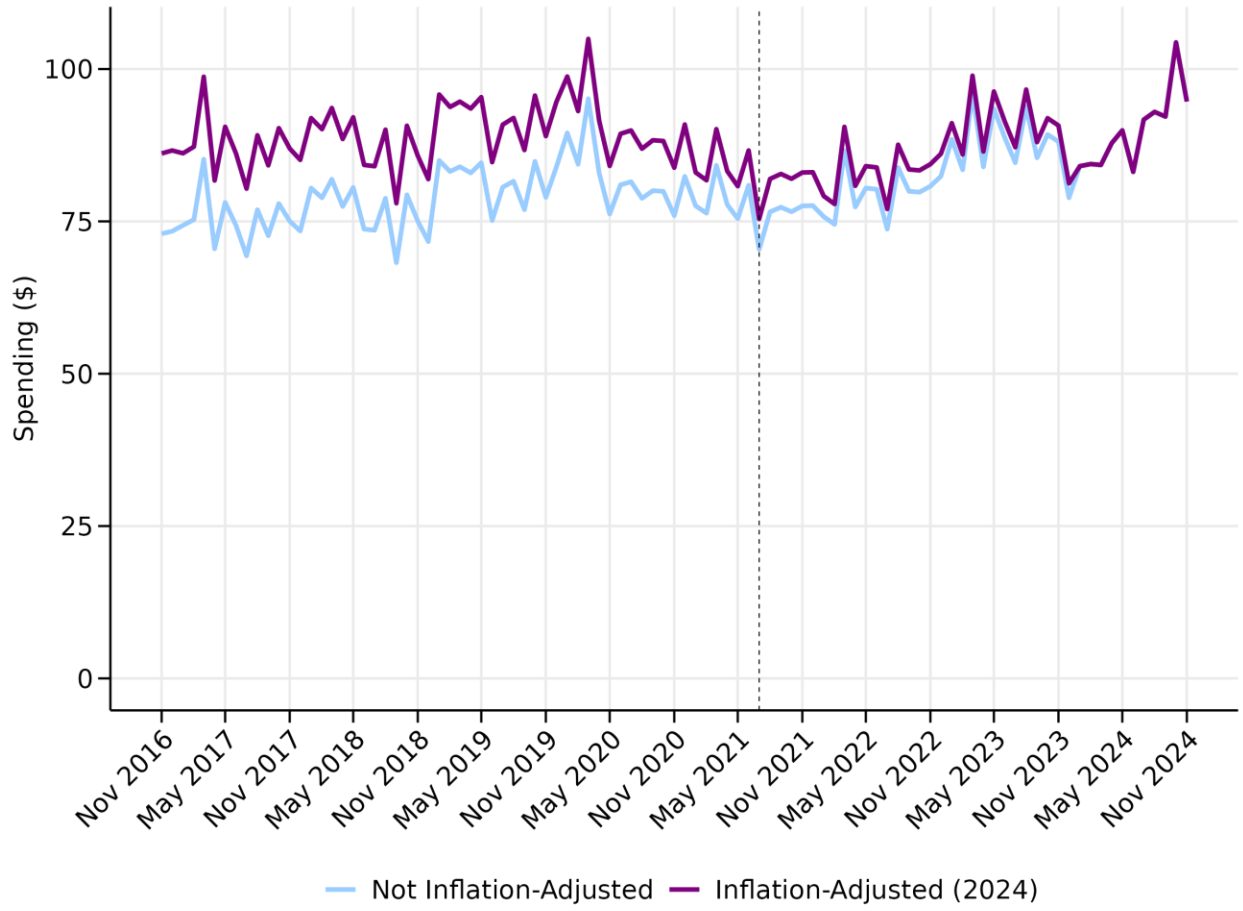
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	386.46* (383.83, 389.09)	388.90* (386.07, 391.73)	2.44 (-0.99, 5.87)
Monthly Change	0.43* (0.36, 0.51)	1.18* (1.07, 1.28)	0.74* (0.61, 0.87)
Predicted Average Outcome Nov 2024	404.24* (398.77, 409.71)	438.90* (435.93, 441.86)	34.66* (28.62, 40.69)
N			2,659,220

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

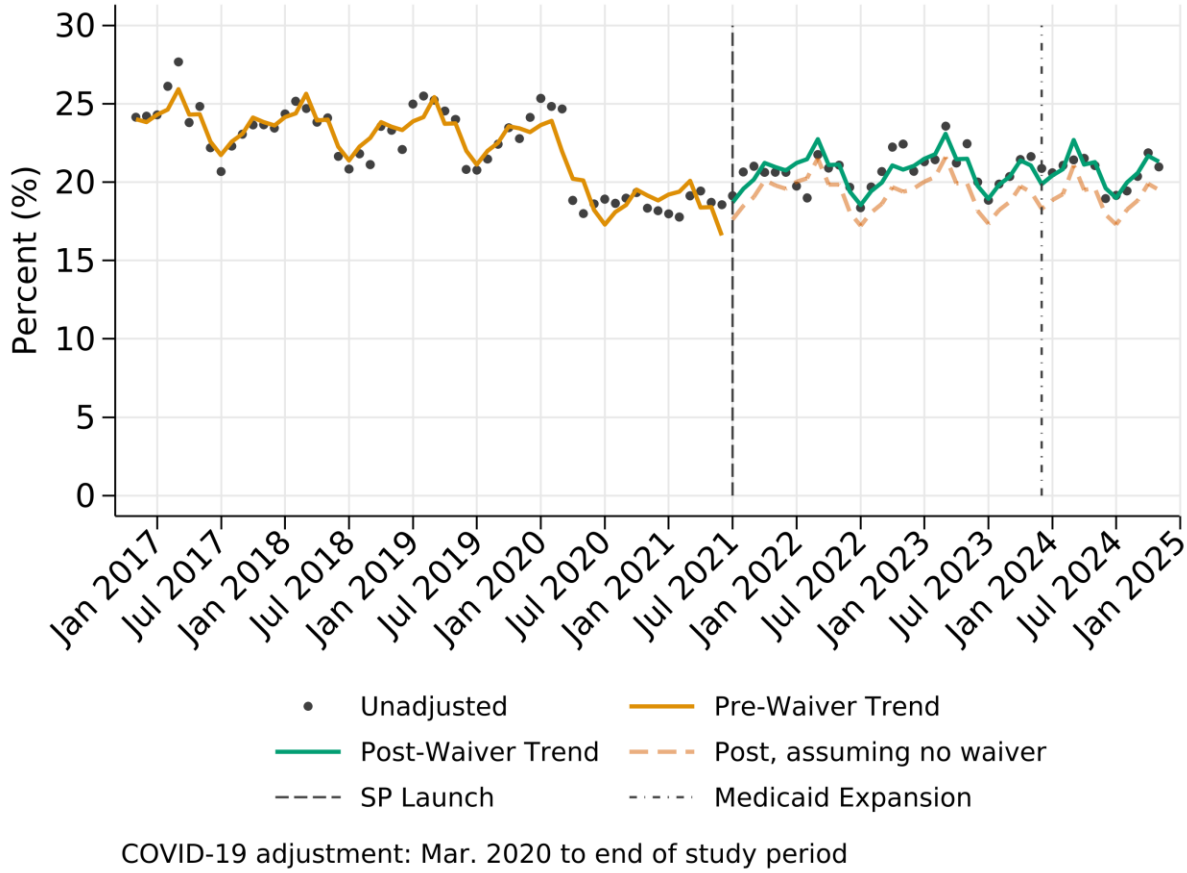
Medicaid Expenditures: Per Member Per Month Medicaid Service Prescription Expenditures (Figure)

Figure 178: Trends in Medicaid Expenditures: Per Member Per Month Medicaid Service Prescription Expenditures



Medicaid Expenditures: Proportion of beneficiaries with a Prescription Expenditure (Figure)

Figure 179: Trends in Medicaid Expenditures: Proportion of beneficiaries with a Prescription Expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Proportion of beneficiaries with a Prescription Expenditure (Table)

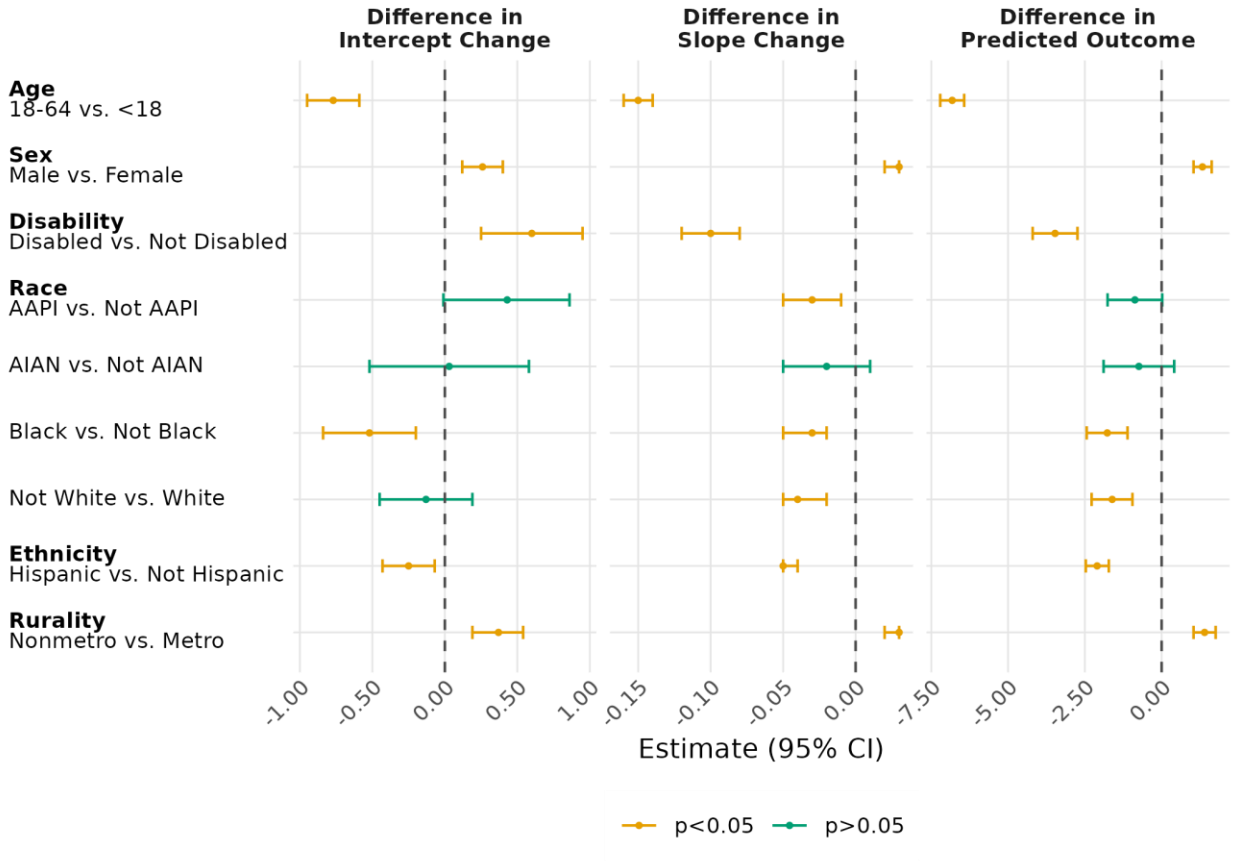
Table 81: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with a Prescription Expenditure

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	18.30* (18.10, 18.51)	21.16* (21.04, 21.27)	2.85* (2.70, 3.00)
Monthly Change	-0.051* (-0.057, -0.045)	-0.011 (-0.029, 0.0069)	0.040* (0.025, 0.056)
Predicted Average Outcome Nov 2024	16.21* (15.57, 16.84)	20.67* (20.38, 20.96)	4.46* (3.76, 5.17)
N			33,015,336

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Medicaid Expenditures: Proportion of beneficiaries with a Prescription Expenditure (Contrast Plot)

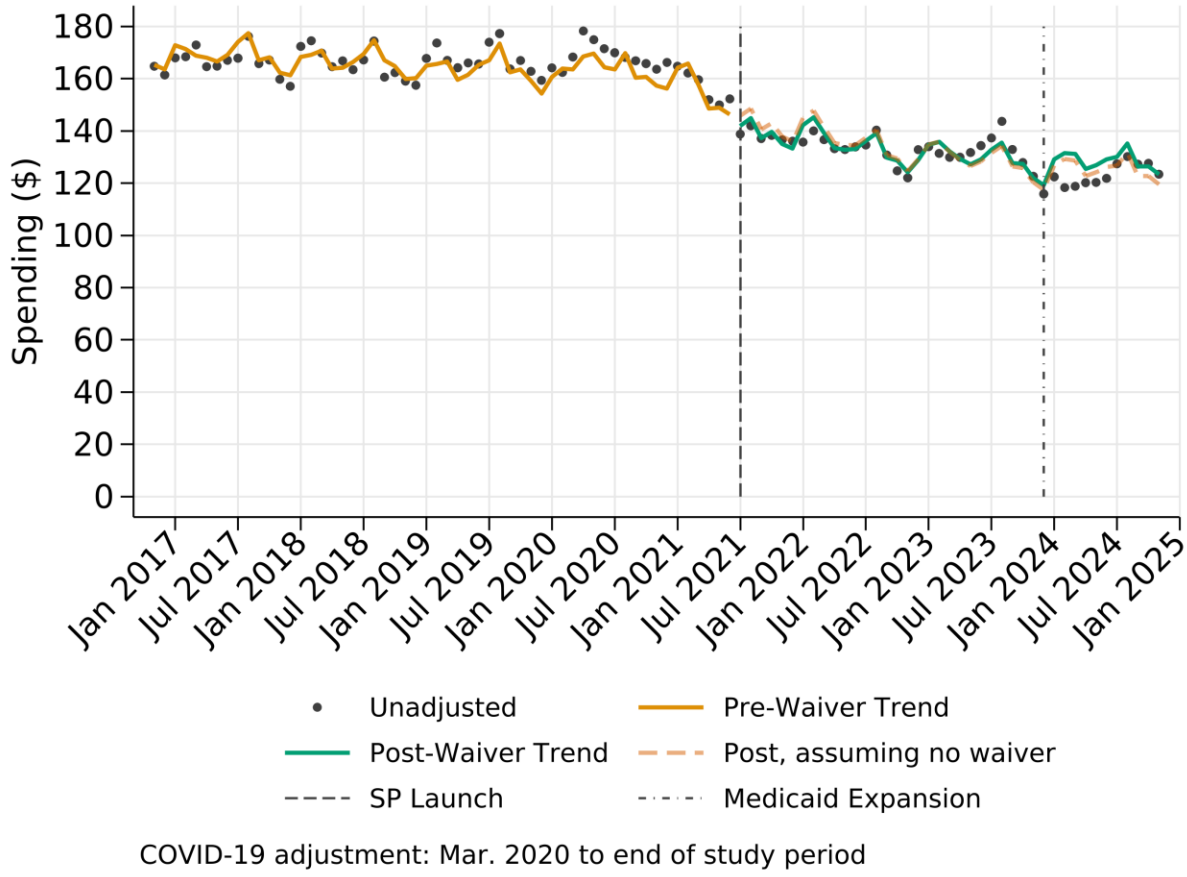
Figure 180: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with a Prescription Expenditure



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had a prescription expenditure (Figure)

Figure 181: Trends in Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had a prescription expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had a prescription expenditure (Table)

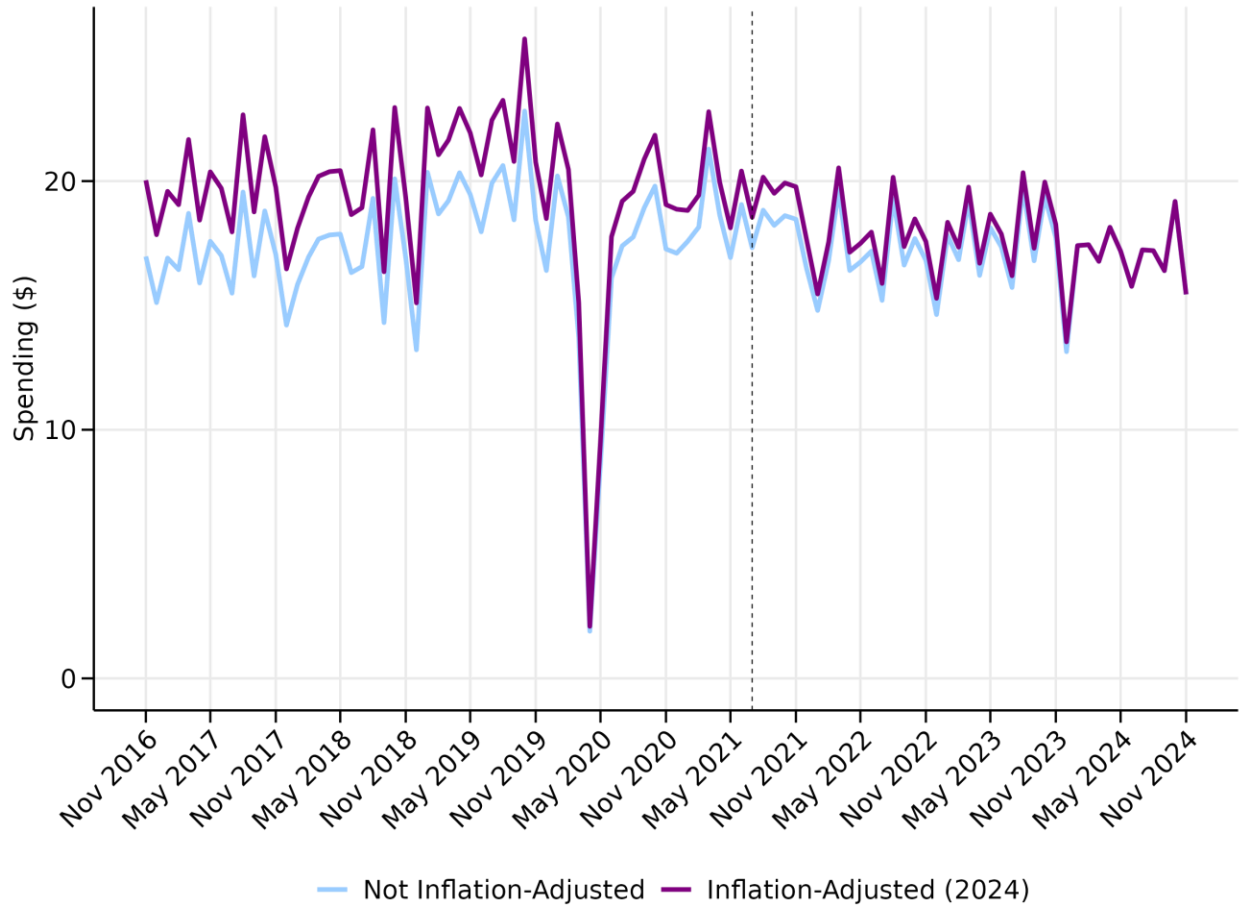
Table 82: Interrupted time series estimates of Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had a prescription expenditure

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	115.97* (115.09, 116.86)	113.03* (112.39, 113.67)	-2.94* (-3.76, -2.12)
Monthly Change	-0.60* (-0.67, -0.53)	-0.42* (-0.44, -0.40)	0.18* (0.11, 0.25)
Predicted Average Outcome Nov 2024	94.18* (91.21, 97.15)	97.30* (96.77, 97.82)	3.12* (0.15, 6.08)
N			6,744,589

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

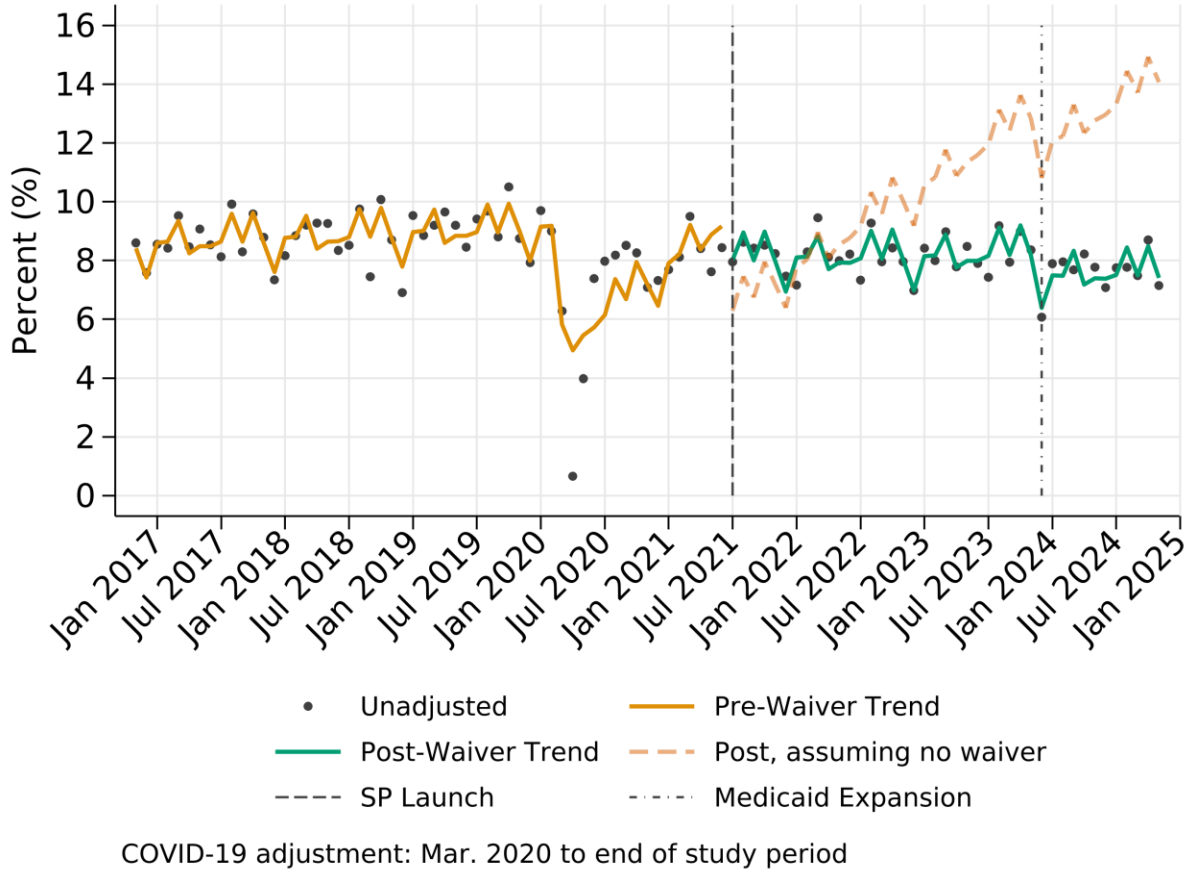
Medicaid Expenditures: Per Member Per Month Medicaid Service Dental Expenditures (Figure)

Figure 182: Trends in Medicaid Expenditures: Per Member Per Month Medicaid Service Dental Expenditures



Medicaid Expenditures: Proportion of beneficiaries with a Dental expenditure (Figure)

Figure 183: Trends in Medicaid Expenditures: Proportion of beneficiaries with a Dental expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Proportion of beneficiaries with a Dental expenditure (Table)

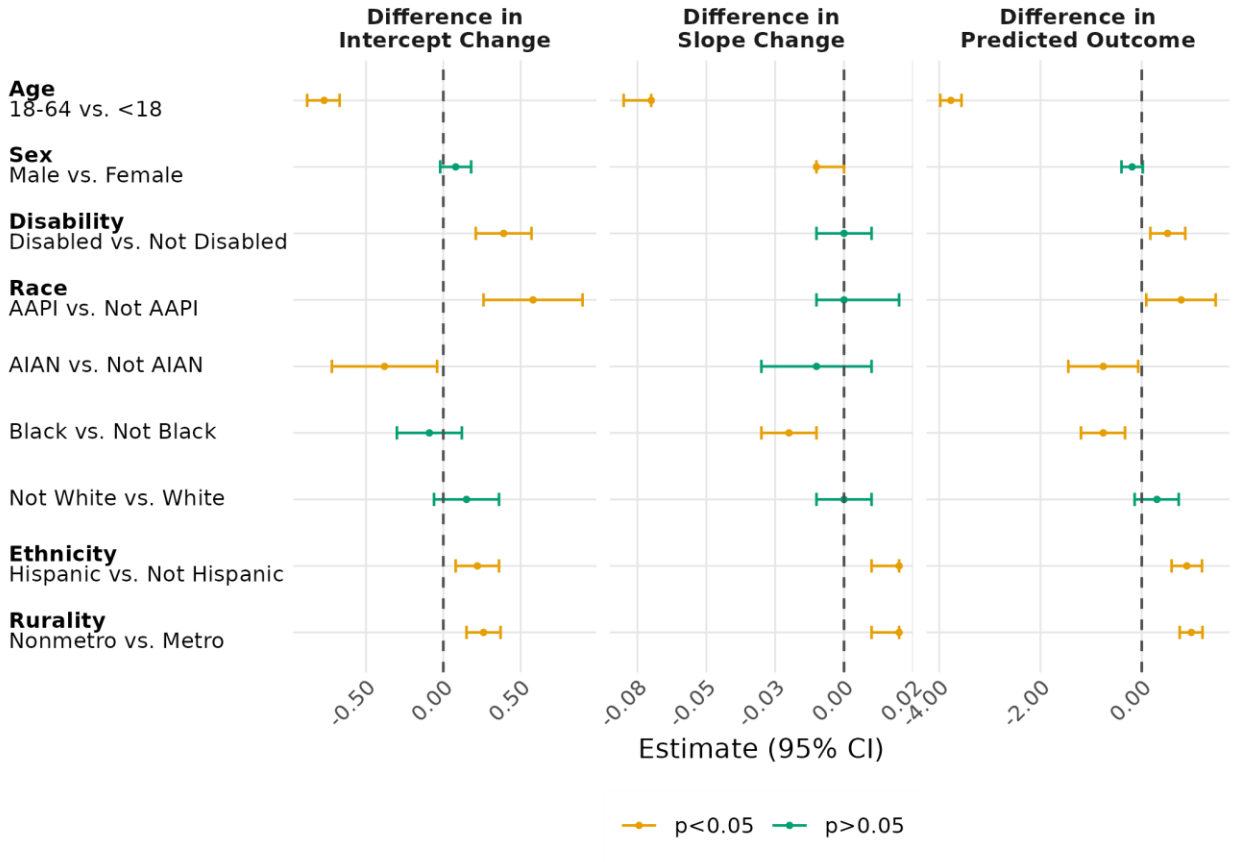
Table 83: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with a Dental expenditure

	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	9.49* (9.37, 9.62)	7.82* (7.72, 7.92)	-1.67* (-1.81, -1.54)
Monthly Change	0.0089* (0.0041, 0.014)	-0.27* (-0.29, -0.26)	-0.28* (-0.30, -0.27)
Predicted Average Outcome Nov 2024	22.27* (21.46, 23.09)	9.33* (9.12, 9.54)	-12.94* (-13.66, -12.22)
N			33,015,336

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Medicaid Expenditures: Proportion of beneficiaries with a Dental expenditure (Contrast Plot)

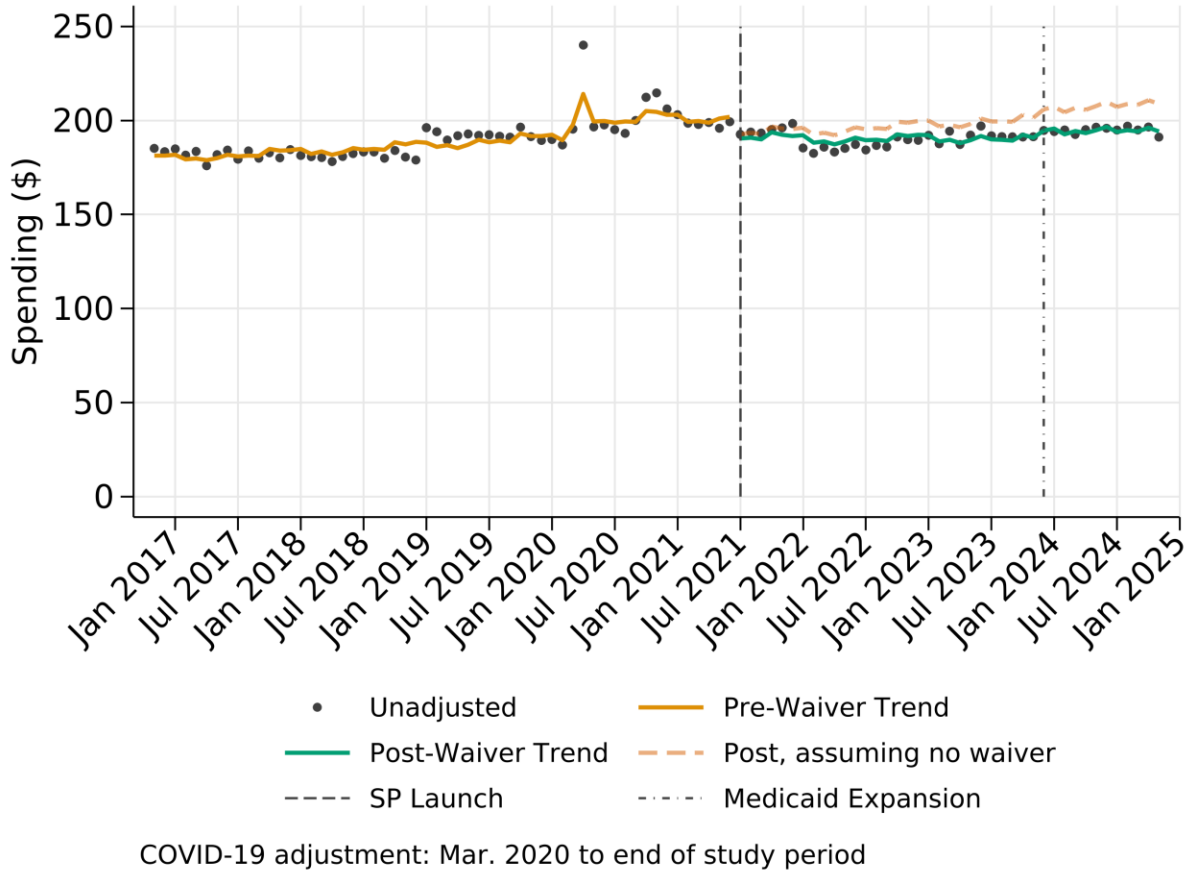
Figure 184: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with a Dental expenditure



Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medicaid Expenditures: Total Medicaid Services Expenditures for beneficiaries who had a Dental expenditure (Figure)

Figure 185: Trends in Medicaid Expenditures: Total Medicaid Services Expenditures for beneficiaries who had a Dental expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Total Medicaid Services Expenditures for beneficiaries who had a Dental expenditure (Table)

Table 84: Interrupted time series estimates of Medicaid Expenditures: Total Medicaid Services Expenditures for beneficiaries who had a Dental expenditure

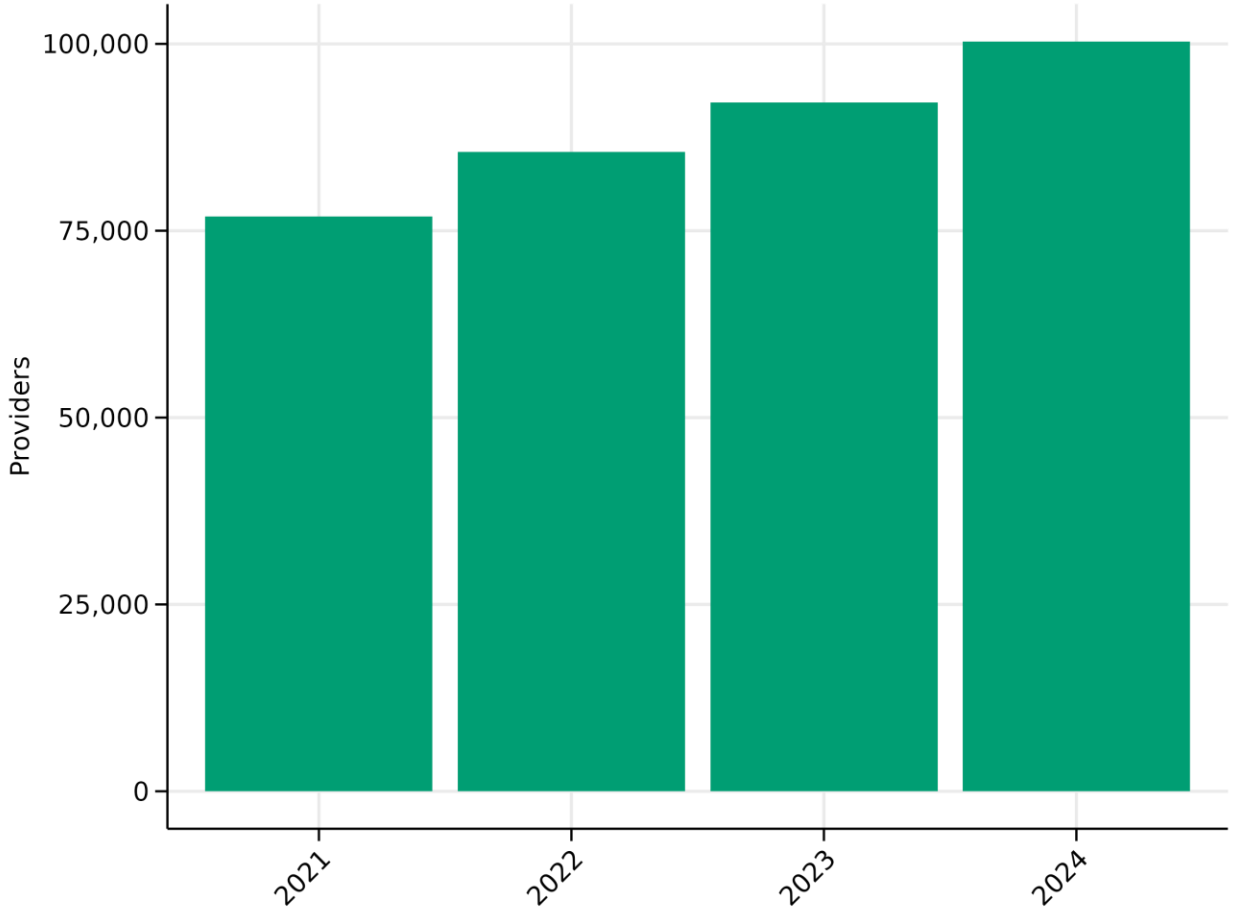
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	202.90* (201.40, 204.40)	192.90* (192.11, 193.68)	-10.00* (-11.69, -8.32)
Monthly Change	0.26* (0.082, 0.43)	-0.053* (-0.085, -0.020)	-0.31* (-0.49, -0.13)
Predicted Average Outcome Nov 2024	213.40* (204.75, 222.04)	190.81* (190.07, 191.54)	-22.59* (-31.27, -13.91)
N			2,683,974

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

Provider Participation in Medicaid

Provider Participation in Medicaid with SP Contracts (Figure)

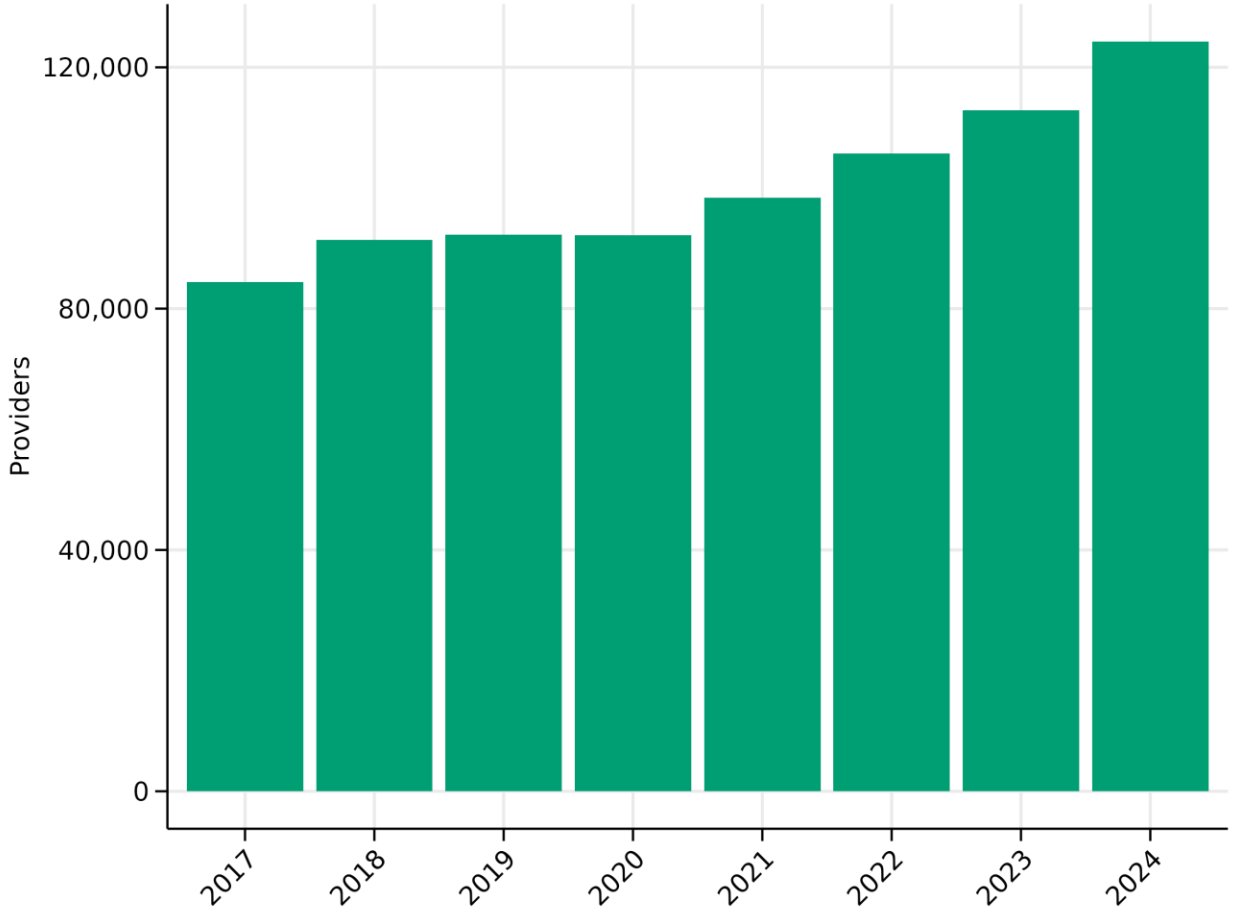
Figure 186: Counts of Provider Participation in Medicaid with SP Contracts



One NPI represents a unique provider.

Total Provider Participation in Medicaid (Figure)

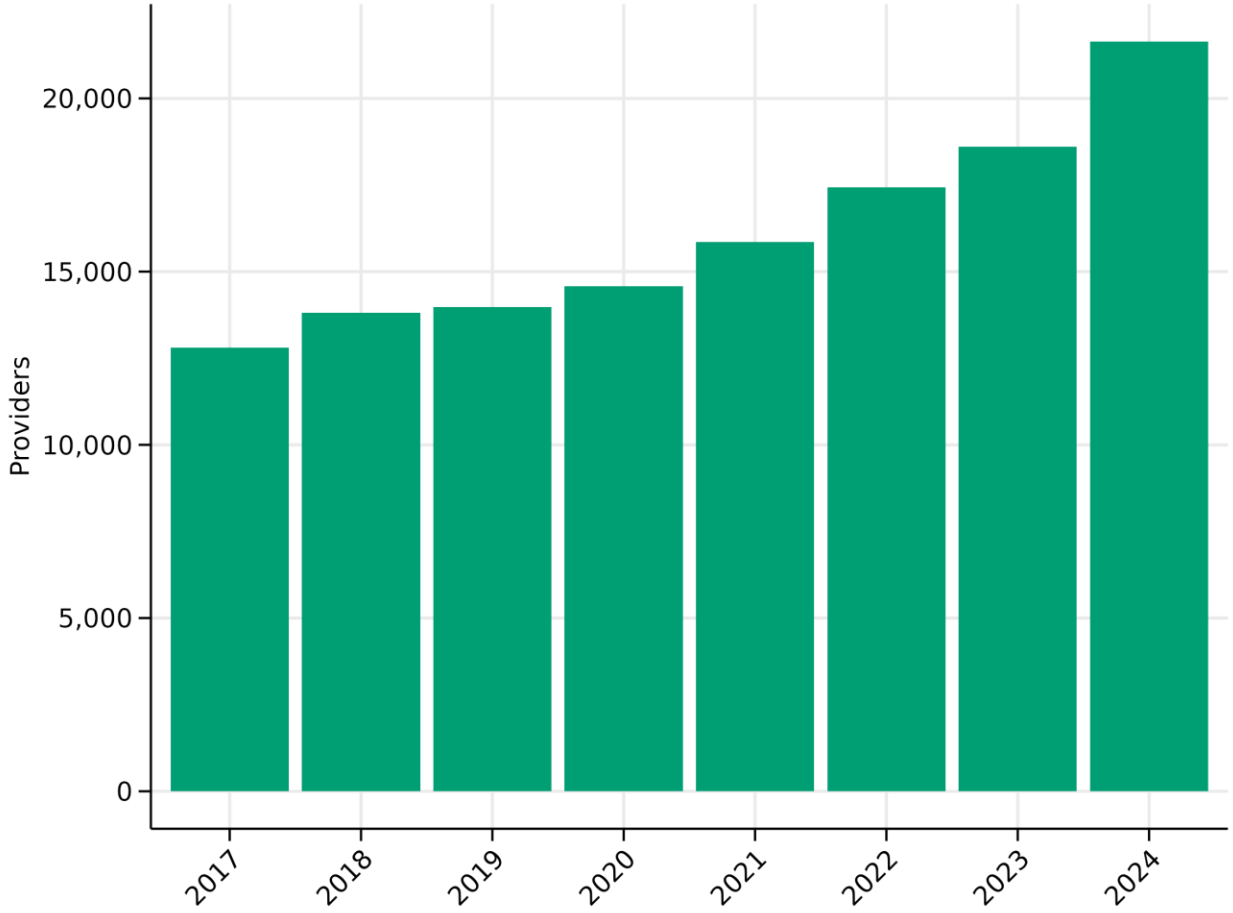
Figure 187: Counts of Total Provider Participation in Medicaid



One NPI represents a unique provider.

Total Mental Health Provider Participation in Medicaid (Figure)

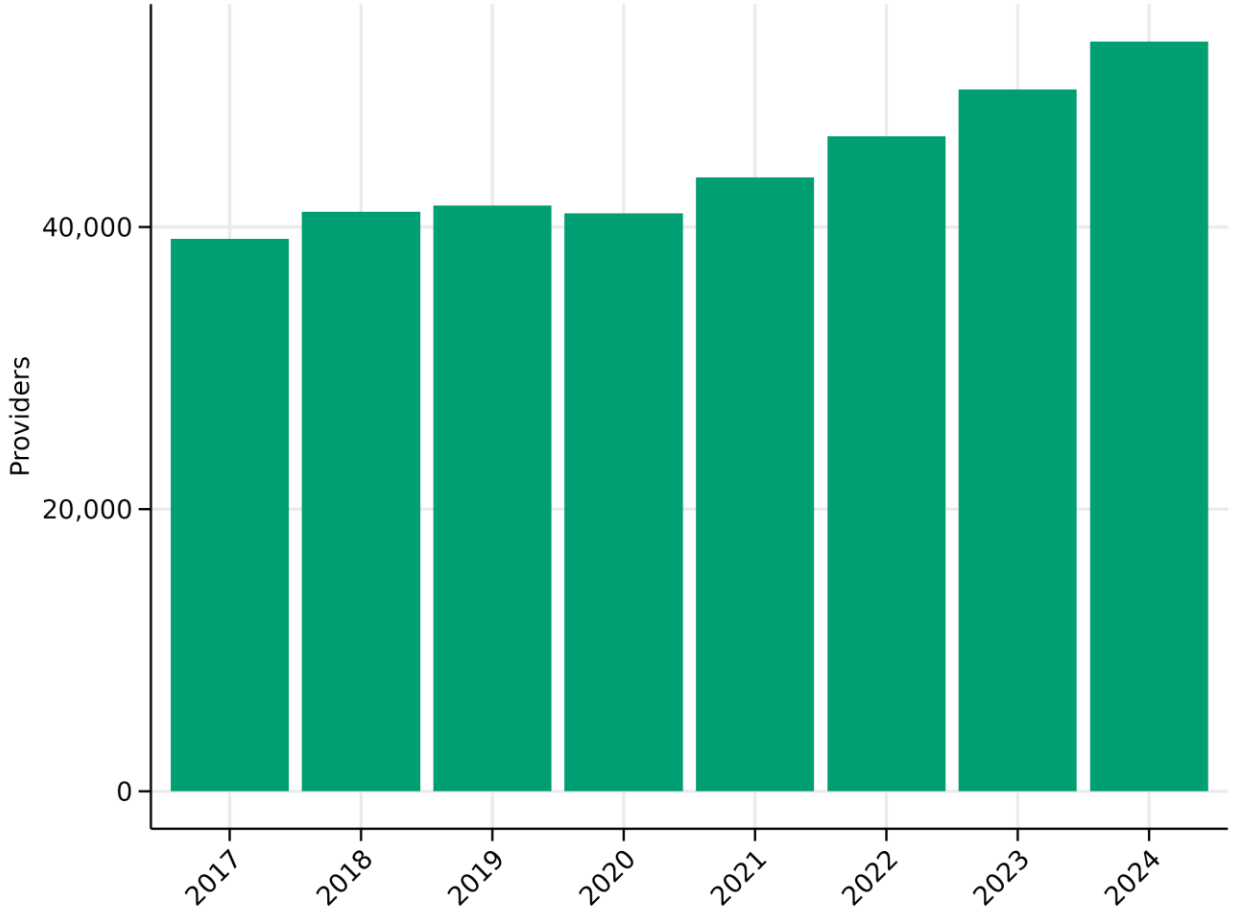
Figure 188: Counts of Total Mental Health Provider Participation in Medicaid



One NPI represents a unique provider.

Total Child and Adolescent Well-Care Visit Provider Participation in Medicaid (Figure)

Figure 189: Counts of Total Child and Adolescent Well-Care Visit Provider Participation in Medicaid

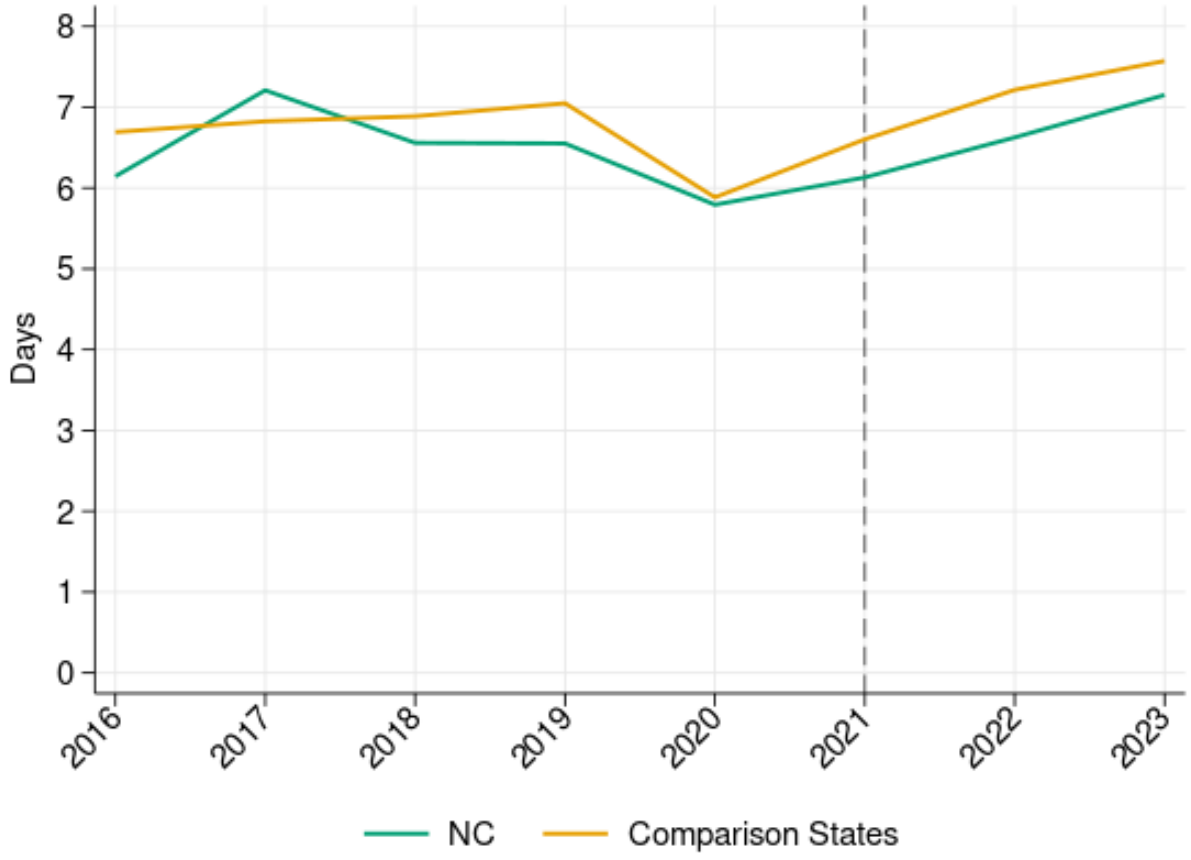


One NPI represents a unique provider.

Unhealthy Days

Poor Physical Health Days in the past 30 days (Figure)

Figure 190: Trends in Self-Reported Poor Physical Health Days in the past 30 days



NA

Poor Physical Health Days in the past 30 days (Table)

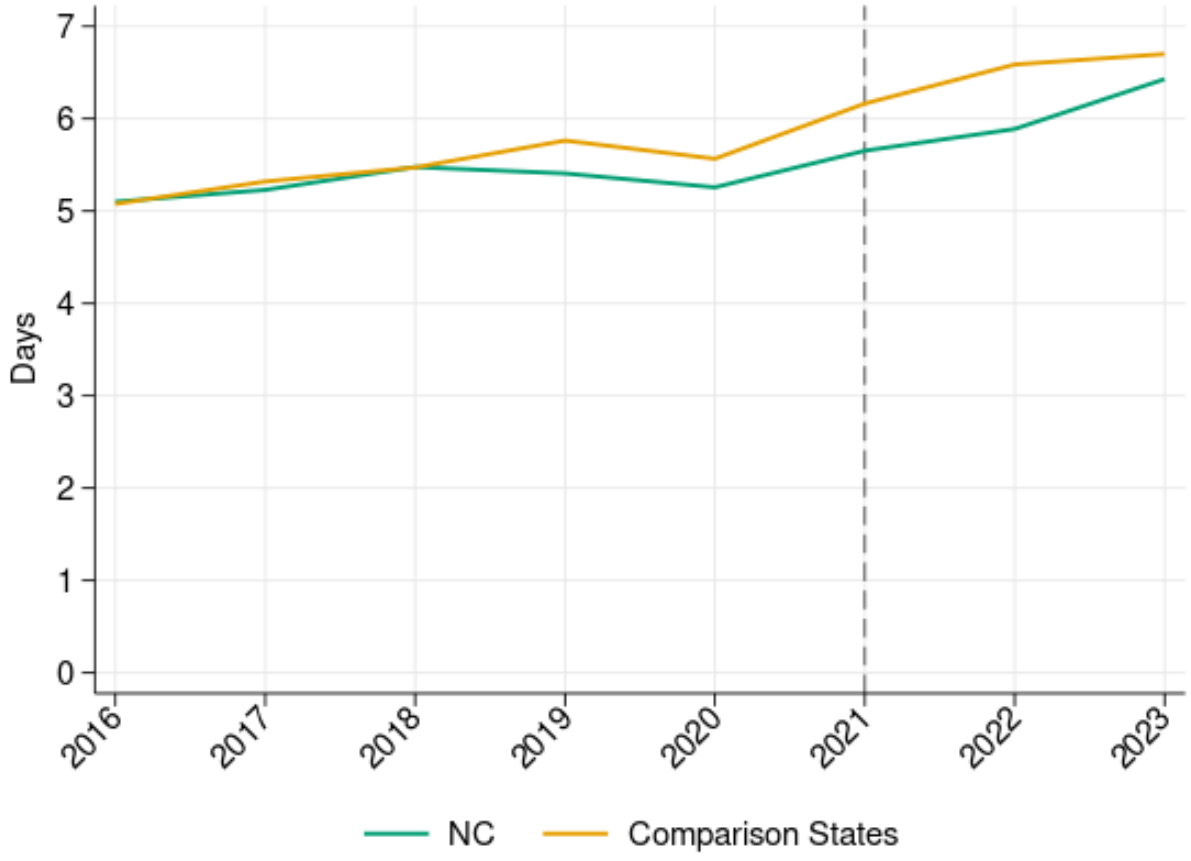
Table 85: Difference-in-Differences Estimates of Self-Reported Poor Physical Health Days in the past 30 days

	Unadjusted	Adjusted
DiD estimate	-0.363 (-0.807,0.080)	-0.277 (-0.680,0.126)
Difference between control and intervention (NC) groups in the pre-intervention period	-0.469* (-0.703,-0.235)	-0.053 (-0.319,0.213)
Difference between pre- and post-intervention periods in control group	0.267* (0.218,0.316)	1.019* (0.686,1.352)
N	886838	886820

NA

Poor Mental Health Days in the past 30 days (Figure)

Figure 191: Trends in Self-Reported Poor Mental Health Days in the past 30 days



NA

Poor Mental Health Days in the past 30 days (Table)

Table 86: Difference-in-Differences Estimates of Self-Reported Poor Mental Health Days in the past 30 days

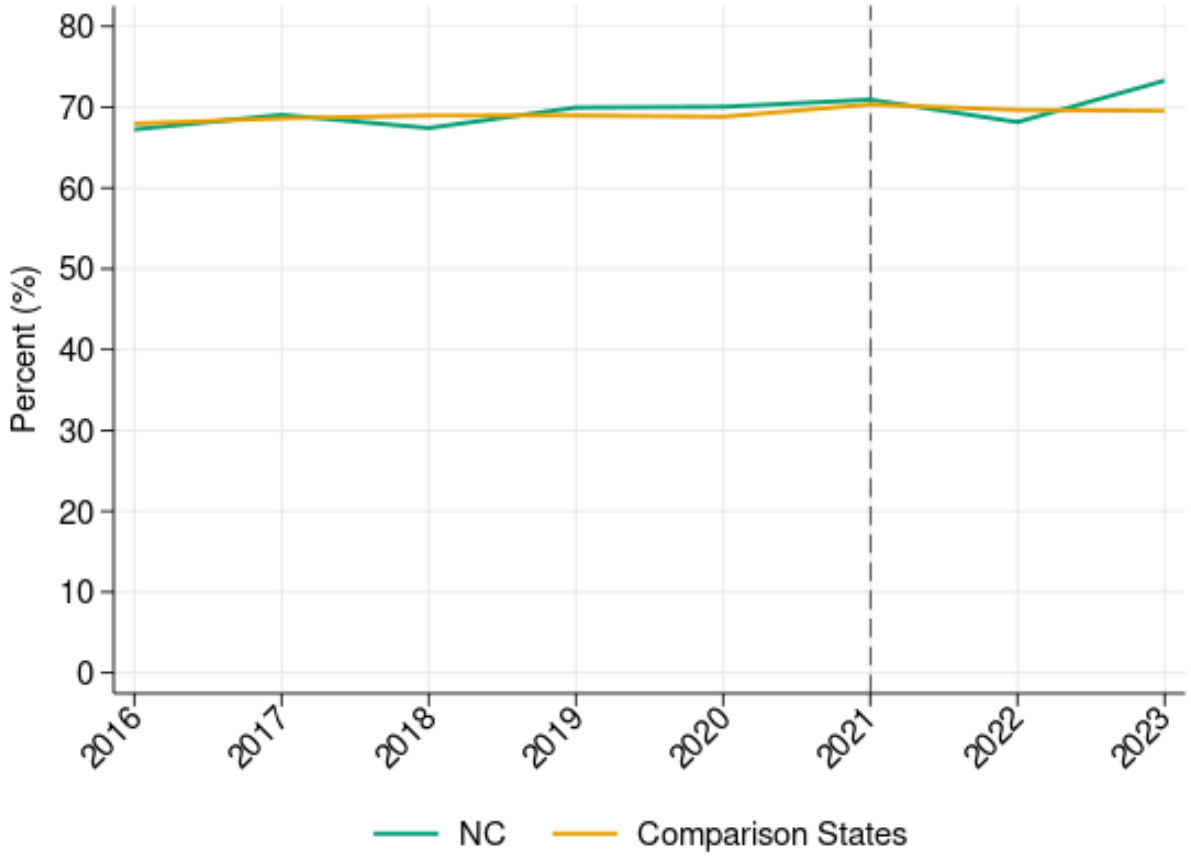
	Unadjusted	Adjusted
DiD estimate	-0.388 (-0.810,0.035)	-0.361 (-0.758,0.035)
Difference between control and intervention (NC) groups in the pre-intervention period	0.081 (-0.137,0.300)	-0.331* (-0.591,-0.072)
Difference between pre- and post-intervention periods in control group	0.872* (0.826,0.917)	1.905* (1.593,2.217)
N	893477	893459

NA

Obesity

Overweight / Obesity (BMI > 25) rate (Figure)

Figure 192: Trends in Self-Reported Overweight / Obesity (BMI > 25) rate



NA

Overweight / Obesity (BMI > 25) rate (Table)

Table 87: Difference-in-Differences Estimates of Self-Reported Overweight / Obesity (BMI > 25) rate

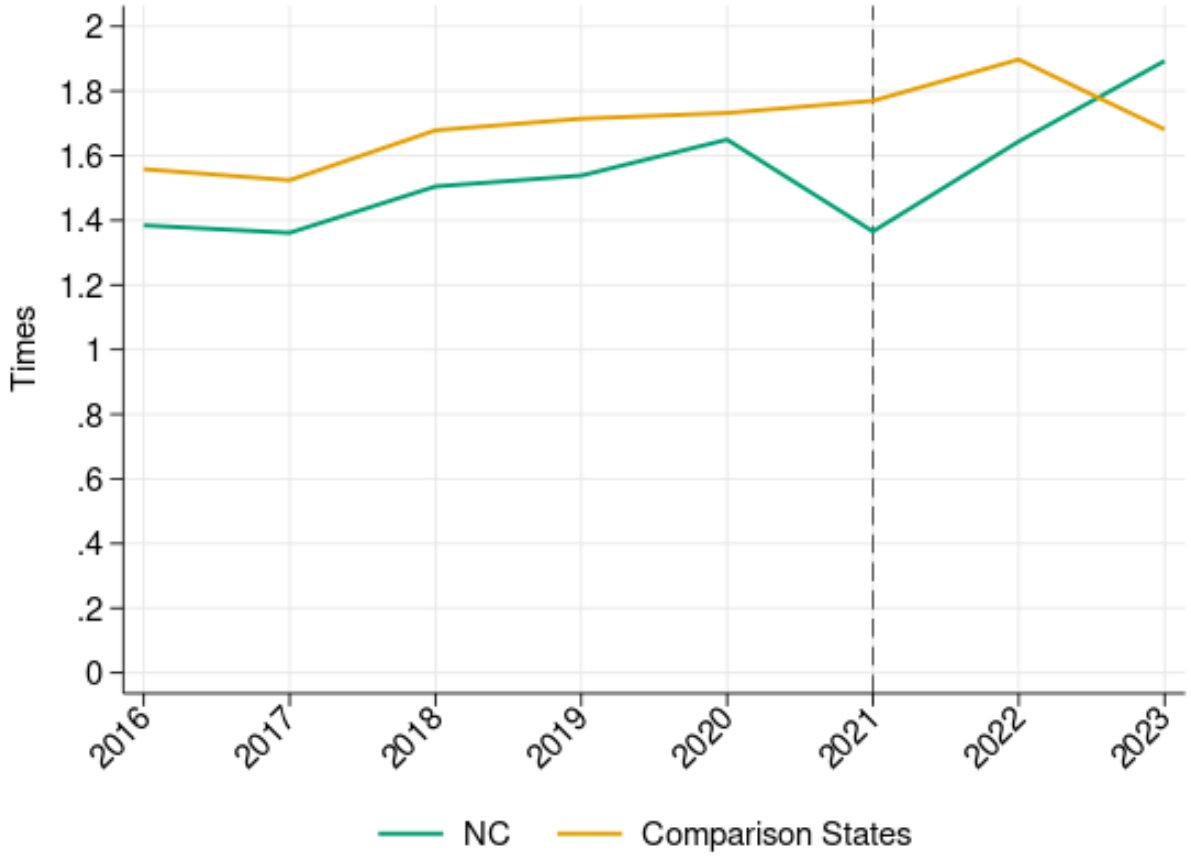
	Unadjusted	Adjusted
DiD estimate	0.005 (-0.015,0.025)	0.008 (-0.012,0.027)
Difference between control and intervention (NC) groups in the pre-intervention period	0.012* (0.001,0.022)	-0.013* (-0.025,-0.000)
Difference between pre- and post-intervention periods in control group	0.013* (0.011,0.016)	0.01 (-0.000,0.037)
N	607584	607570

NA

Alcohol Use

Number of Self-Reported Binge Drinking Episodes in the past 30 days (Figure)

Figure 193: Trends in Self-Reported Number of Self-Reported Binge Drinking Episodes in the past 30 days



NA

Number of Self-Reported Binge Drinking Episodes in the past 30 days (Table)

Table 88: Difference-in-Differences Estimates of Self-Reported Number of Self-Reported Binge Drinking Episodes in the past 30 days

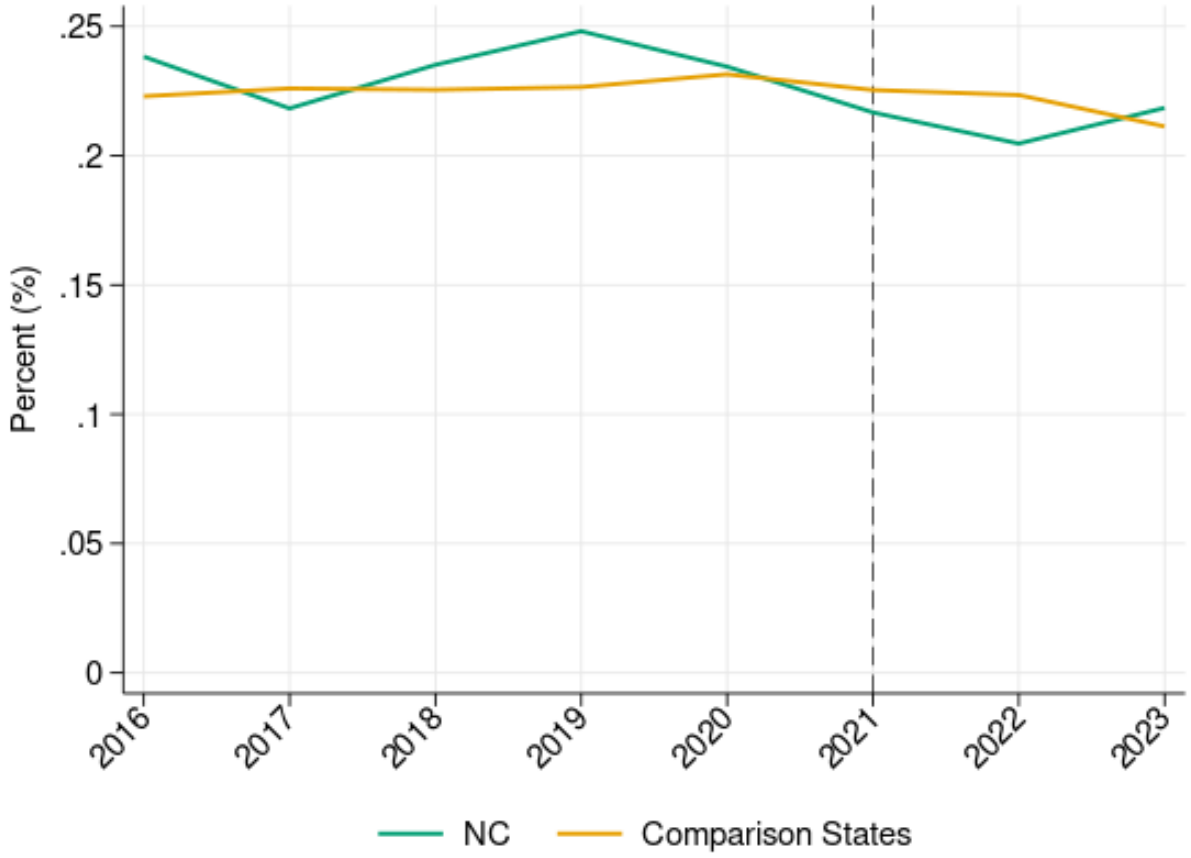
	Unadjusted	Adjusted
DiD estimate	-0.096 (-0.424,0.232)	-0.048 (-0.372,0.276)
Difference between control and intervention (NC) groups in the pre-intervention period	0.008 (-0.166,0.181)	0.034 (-0.181,0.250)
Difference between pre- and post-intervention periods in control group	0.105* (0.066,0.144)	0.137* (0.067,0.207)
N	317753	317747

NA

Tobacco Use

Current Tobacco Use (Figure)

Figure 194: Trends in Self-Reported Current Tobacco Use



NA

Current Tobacco Use (Table)

Table 89: Difference-in-Differences Estimates of Self-Reported Current Tobacco Use

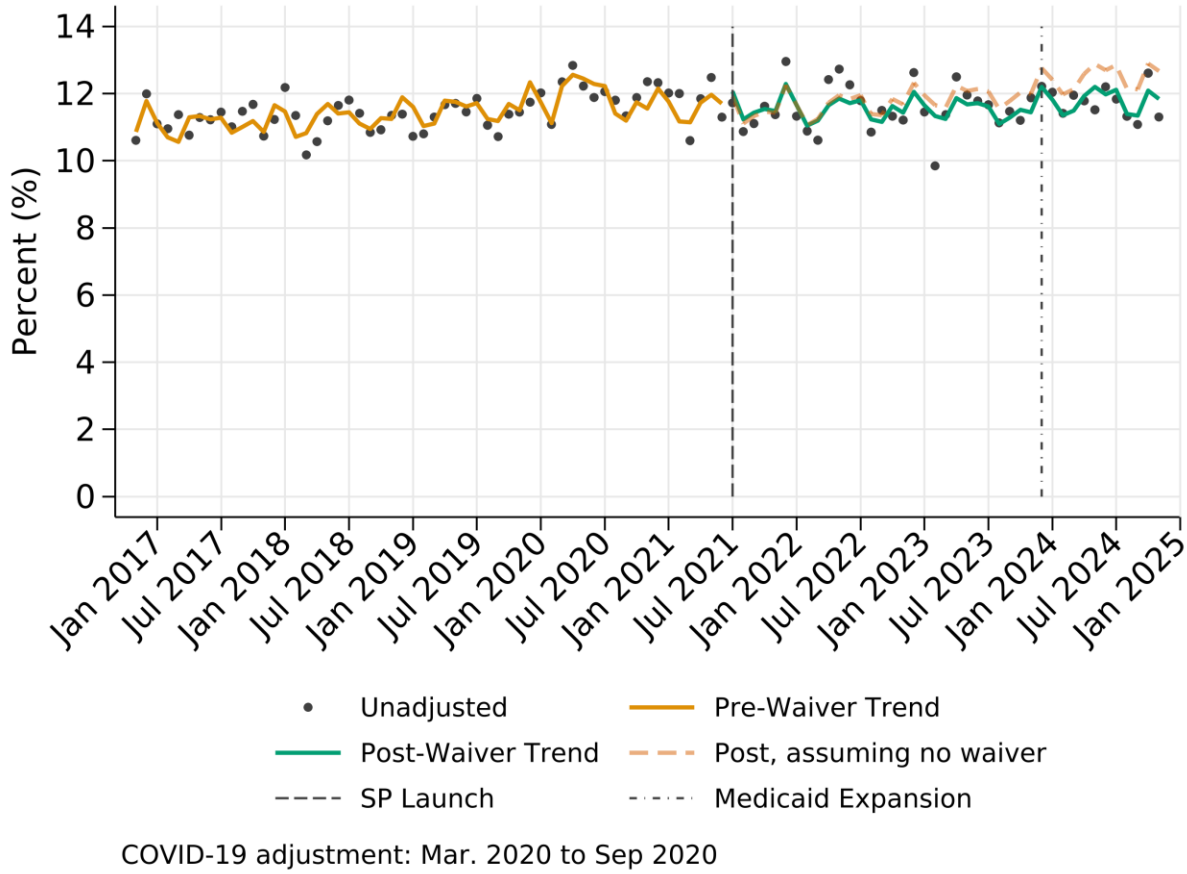
	Unadjusted	Adjusted
DiD estimate	-0.021* (-0.039,-0.003)	-0.017* (-0.034,-0.000)
Difference between control and intervention (NC) groups in the pre-intervention period	0.021* (0.012,0.031)	0.008 (-0.003,0.019)
Difference between pre- and post-intervention periods in control group	-0.017* (-0.019,-0.015)	-0.020* (-0.036,-0.004)
N	627534	627521

NA

Low Birth Weight (LBW)

Low Birth Weight (LBW): Percent of Live Births Weighing Less than 2500 Grams (Figure)

Figure 195: Trends in Low Birth Weight (LBW): Percent of Live Births Weighing Less than 2500 Grams



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 0-64) in the NC Medicaid population as determined in the metric specifications.

Covariates reflect the mother's characteristics. SP attribution was determined by the mother's SP eligibility or enrollment status at the time of delivery.

Low Birth Weight (LBW): Percent of Live Births Weighing Less than 2500 Grams (Table)

Table 90: Interrupted time series estimates of Low Birth Weight (LBW): Percent of Live Births Weighing Less than 2500 Grams

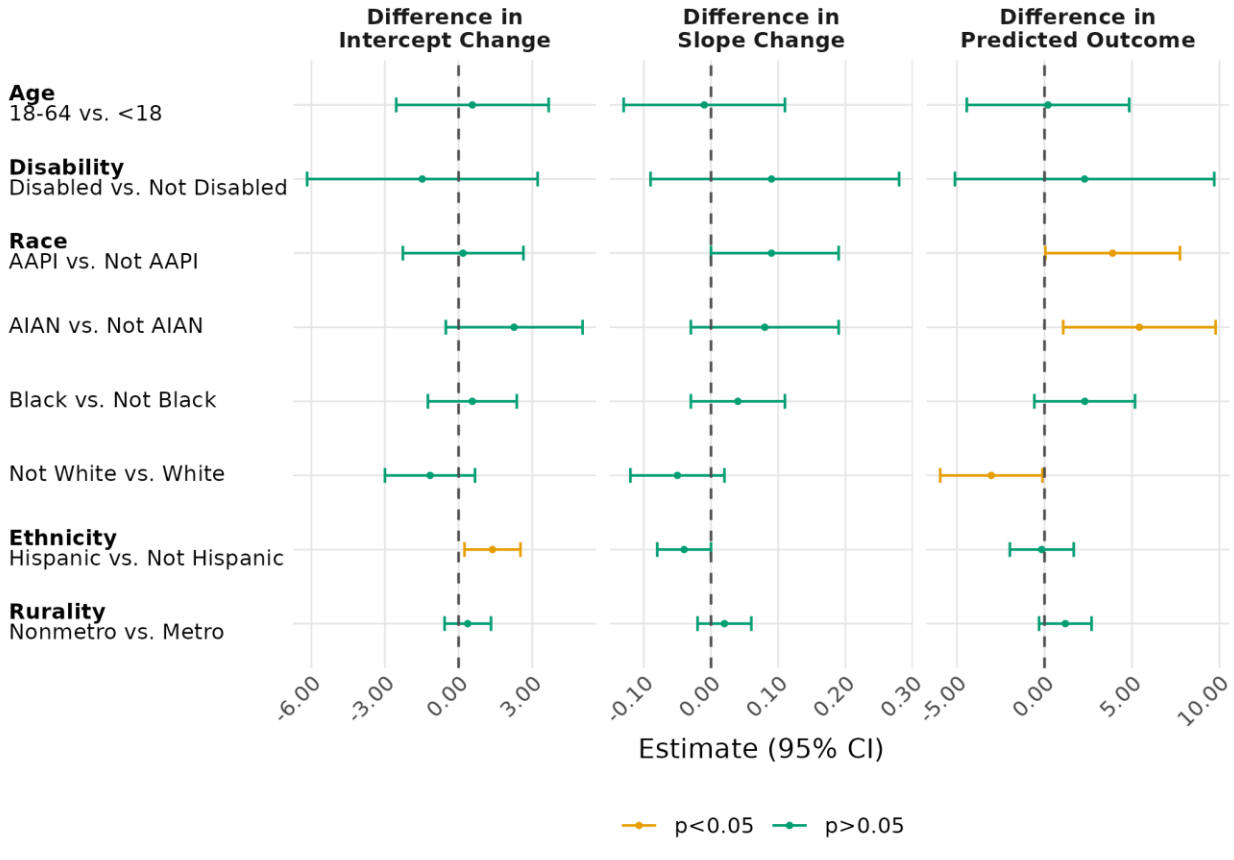
	Baseline	SP Waiver Implementation	Difference
Predicted Average Outcome Jul 2021	11.76* (11.46, 12.05)	11.90* (11.59, 12.21)	0.15 (-0.28, 0.57)
Monthly Change	0.012* (0.0039, 0.021)	-0.012 (-0.026, 0.0013)	-0.025* (-0.040, -0.0087)
Predicted Average Outcome Nov 2024	12.25* (11.64, 12.85)	11.41* (11.09, 11.73)	-0.83* (-1.52, -0.15)
N			397,477

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 0-64) in the NC Medicaid population as determined in the metric specifications.*

Covariates reflect the mother's characteristics. SP attribution was determined by the mother's SP eligibility or enrollment status at the time of delivery.

Low Birth Weight (LBW): Percent of Live Births Weighing Less than 2500 Grams (Contrast Plot)

Figure 196: Comparison groups in Low Birth Weight (LBW): Percent of Live Births Weighing Less than 2500 Grams

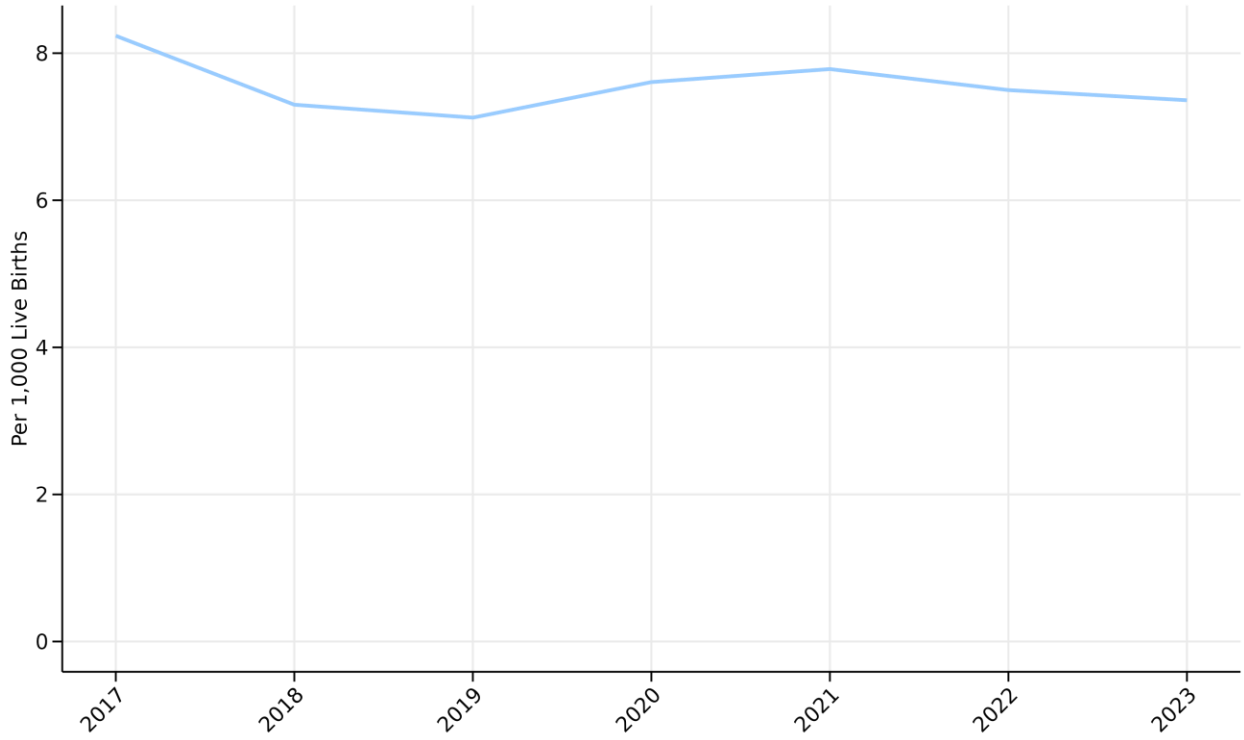


Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
Covariates reflect the mother's characteristics. SP attribution was determined by the mother's SP eligibility or enrollment status at the time of delivery.

Infant Mortality

Infant Mortality: Deaths per 1,000 live births (Figure)

Figure 197: Trends in Infant Mortality: Deaths per 1,000 live births

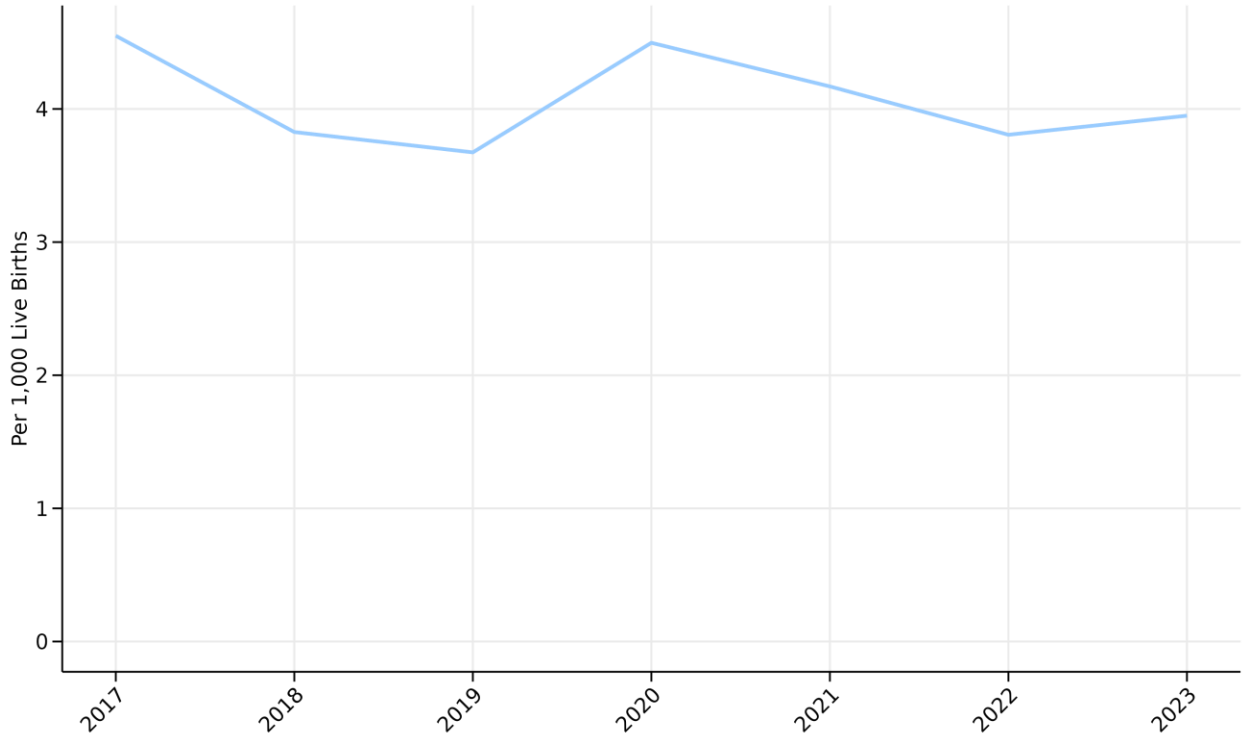


Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a This figure plots unadjusted rates from the metric population.. Estimates were generated from the population of individuals (aged 0-12 months) in the NC Medicaid population as determined in the metric specifications.
Because the majority of infant death occurs within the first month of life, SP attribution was determined by the mother's SP eligibility or enrollment status at the time of delivery. Covariates reflect the child's characteristics.

Neonatal Mortality

Neonatal Mortality: Deaths per 1,000 live births (Figure)

Figure 198: Trends in Neonatal Mortality: Deaths per 1,000 live births

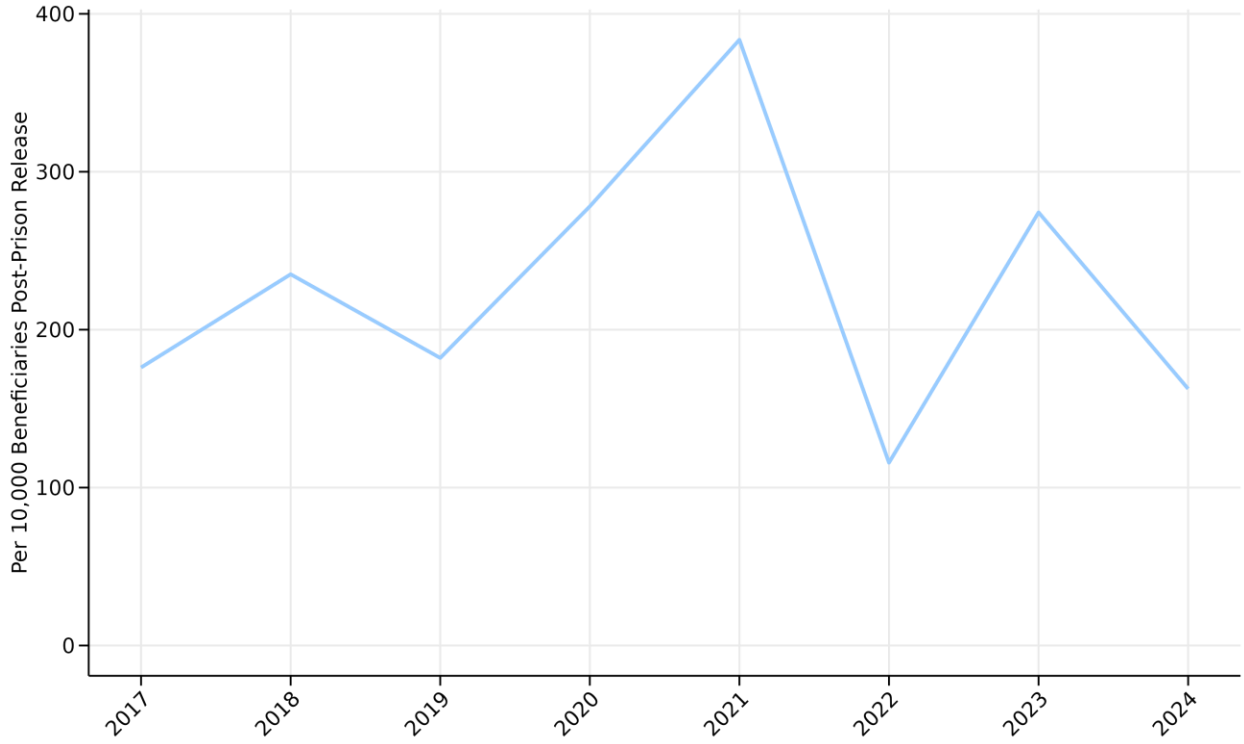


Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a This figure plots unadjusted rates from the metric population.. Estimates were generated from the population of individuals (aged 0-27 days) in the NC Medicaid population as determined in the metric specifications.
SP attribution was determined by the mother's SP eligibility or enrollment status at the time of delivery. Covariates were derived from the child.

Death Rate by Group

Death Rate by Group: Death Rate within 12 months Post-prison Release (Figure)

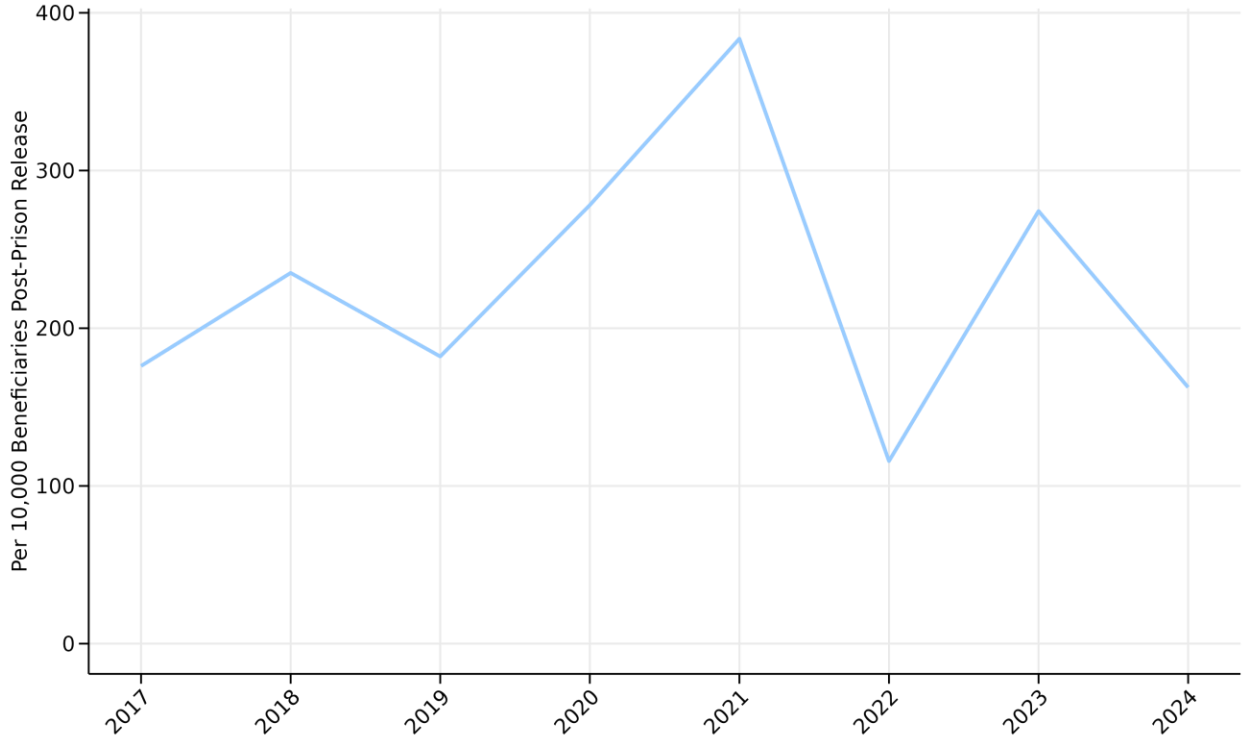
Figure 199: Trends in Death Rate by Group: Death Rate within 12 months Post-prison Release



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a This figure plots unadjusted rates from the metric population.. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.
PRS episodes were included if the member was SP eligible or enrolled for 1+ months during the year (compared to other annual metrics which required 6+ months of eligibility or enrollment in the year).

Death Rate by Group: Death Rate within 12 months Post-prison Release ‡ (Figure)

Figure 200: Trends in Death Rate by Group: Death Rate within 12 months Post-prison Release

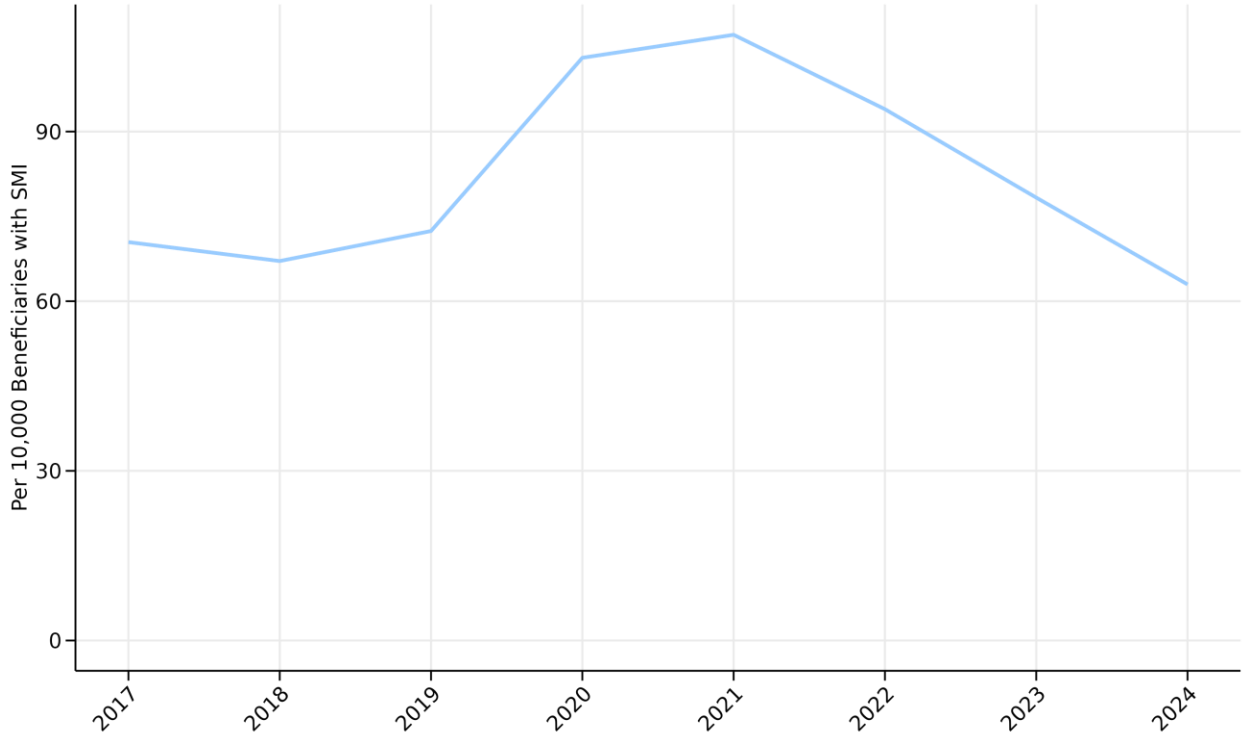


Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a This figure plots unadjusted rates from the metric population.. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method. PRS episodes were included if the member was SP eligible or enrolled for 1+ months during the year (compared to other annual metrics which required 6+ months of eligibility or enrollment in the year).

Death Rate by Group: Death Rate for people ever with an SMI ‡ (Figure)

Figure 201: Trends in Death Rate by Group: Death Rate for people ever with an SMI

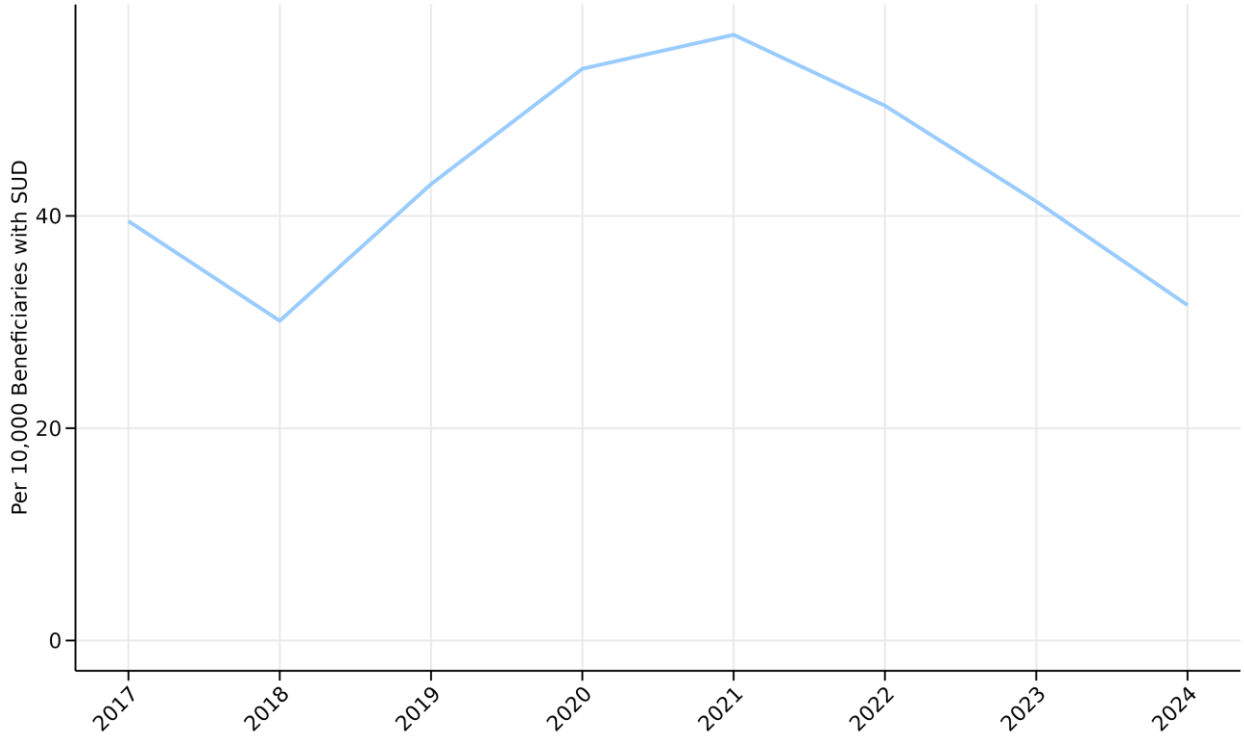


Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a This figure plots unadjusted rates from the metric population.. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Death Rate by Group: Death Rate for SUD Population ‡ (Figure)

Figure 202: Trends in Death Rate by Group: Death Rate for SUD Population



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a This figure plots unadjusted rates from the metric population.. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Death Rate by Group

Table 91: Standard Plan Proxy Sensitivity Analysis: Comparing Estimates of Differences at Study End Point

Measure (Metric Abbreviation)	Estimates from an SP eligible sample defined by:	
	Source data indicator (N = 303,527)	Sheps-engineered SP eligibles (N = 304,575)
Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation	5.06*	6.44*
Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation	6.34*	8.14*
Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days	3.02	6.67*
Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days	0.13	5.51
Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)	-10.18*	-1.94
Follow-Up After Emergency Department Visit for Mental Illness in Adults (FUM-AD): Follow-up with Any Practitioner within 7 Days	-12.24*	-3.25
Follow-Up After Emergency Department Visit for Mental Illness in Adults (FUM-AD): Follow-up with Any Practitioner within 30 Days	-14.74*	-4.99*

Follow-up After Hospitalization for Mental Illness in Adults (FUH-AD): 7 days after discharge with any provider	-11.07*	-1.55
Follow-up After Hospitalization for Mental Illness in Adults (FUH-AD): 30 days after discharge with any provider	-10.17*	3.51
Follow-up After Hospitalization for Mental Illness in Adults (FUH-AD): 7 days after discharge with enhanced service	-2.49*	0.83
Follow-up After Hospitalization for Mental Illness in Adults (FUH-AD): 30 days after discharge with enhanced service	-3.70*	3.06*
Follow-up After Hospitalization for Mental Illness in Adults (FUH-AD): 7 days after discharge with mental health provider	-10.13*	0.5
Follow-up After Hospitalization for Mental Illness in Adults (FUH-AD): 30 days after discharge with mental health provider	-9.47*	7.30*
Follow-up After Hospitalization for Mental Illness in Adults (FUH-AD): 7 days after discharge with primary care provider	-4.56*	-2.63
Follow-up After Hospitalization for Mental Illness in Adults (FUH-AD): 30 days after discharge with primary care provider	-6.61*	1.75

Follow-up After Hospitalization for Mental Illness in Children (FUH-CH): 7 days after discharge with any provider	- 7.89*	- 6.37
Follow-up After Hospitalization for Mental Illness in Children (FUH-CH): 30 days after discharge with any provider	-6.54*	-2.22
Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service (M6)	-3.91*	-0.34
Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment in Adults (IET-AD)	-5.16*	4.09*
Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment in Adults (IET-AD)	-4.99*	2.68*
Initiation of Alcohol Dependence Treatment in Adults (IET-AD)	-8.18*	2.52*
Engagement in Alcohol Dependence Treatment in Adults (IET-AD)	-5.56*	3.41*
Initiation of Other Drug Dependence Treatment in Adults (IET-AD)	-6.97*	2.42*
Engagement in Other Drug Dependence Treatment in Adults (IET-AD)	-6.48*	0.93
Initiation of Opioid Dependence Treatment in Adults (IET-AD)	0.15	8.15*

Engagement in Opioid Dependence Treatment in Adults (IET-AD)	-3.68*	3.68*
Medication Assisted Treatment: OUD population (M12)	2.90	2.57*
Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence in Adults (FUA-AD): Follow-up with Any Practitioner within 7 Days	-9.62*	-4.07*
Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence in Adults (FUA-AD): Follow-up with Any Practitioner within 30 Days	-15.02*	-8.19*
Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD (M32)	-0.033	-4.52*
Incarceration of Adults with Drug Related Charges	-0.08	0.27*
Medicaid Expenditures: Proportion of Beneficiaries with a Behavioral Health Expenditure	-0.11	0.55*
Medicaid Expenditures: Behavioral health expenditures among beneficiaries with a BH expenditure	-$82.19*	$34.66*

**=p <0.05.*

Results presented are differences at study end point.

Source data indicator and Sheps-engineered SP eligibles are, respectively, referred to as "DHB SP proxy eligibles" and "Sheps SP proxy eligibles" throughout the report.

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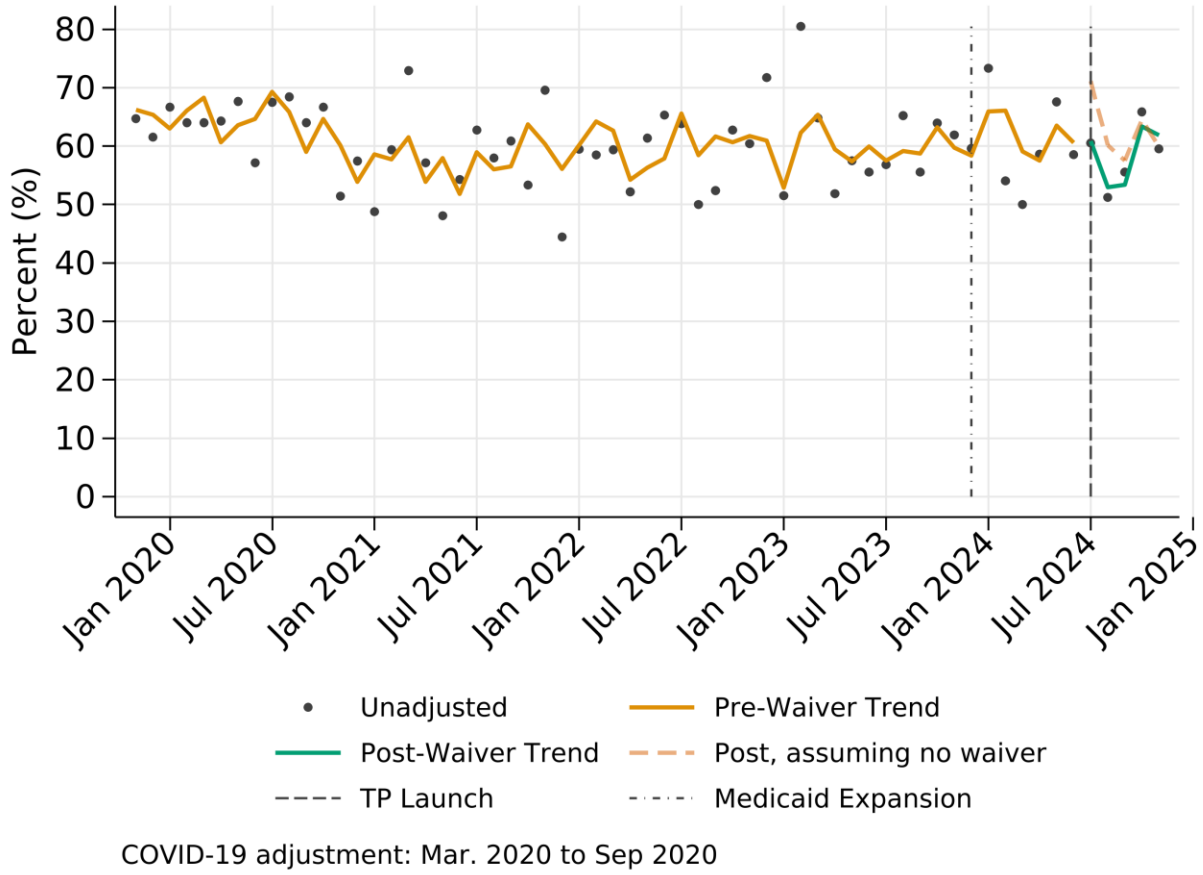
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Appendix B: Tailored Plan Measures

Childhood Immunization Status (CIS)

Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2 (Figure)

Figure 1: Trends in Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 1-2) in the NC Medicaid population as determined in the metric specifications.

Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2 (Table)

Table 1: Interrupted time series estimates of Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2

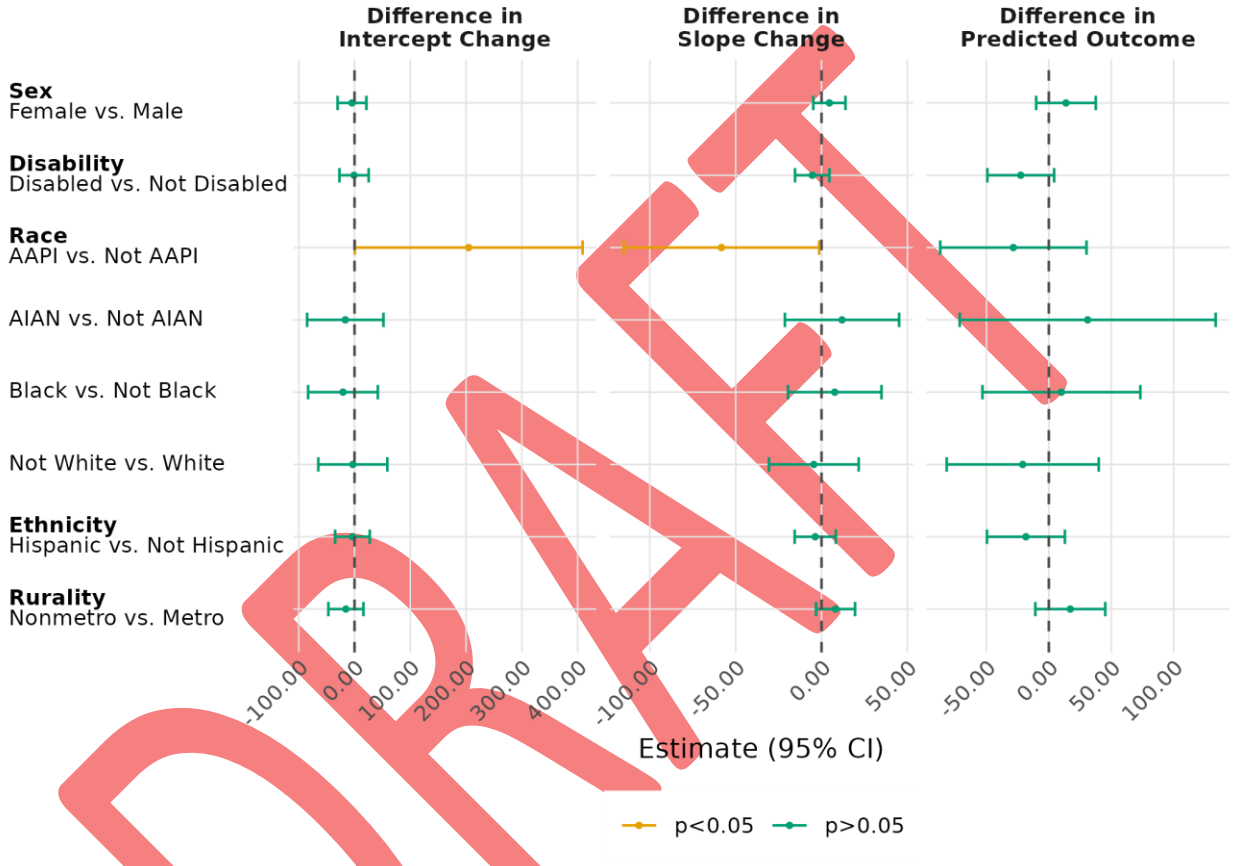
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	54.10* (43.84, 64.36)	43.85* (27.83, 59.88)	-10.25 (-24.60, 4.10)
Monthly Change	-0.51 (-1.23, 0.21)	2.53 (-2.63, 7.70)	3.05 (-2.09, 8.19)
Predicted Average Outcome Nov 2024	53.68* (42.37, 64.98)	55.62* (40.23, 71.00)	1.94 (-11.46, 15.33)
N			2,521

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 1-2) in the NC Medicaid population as determined in the metric specifications.*

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Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2 (Contrast Plot)

Figure 2: Comparison groups in Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2



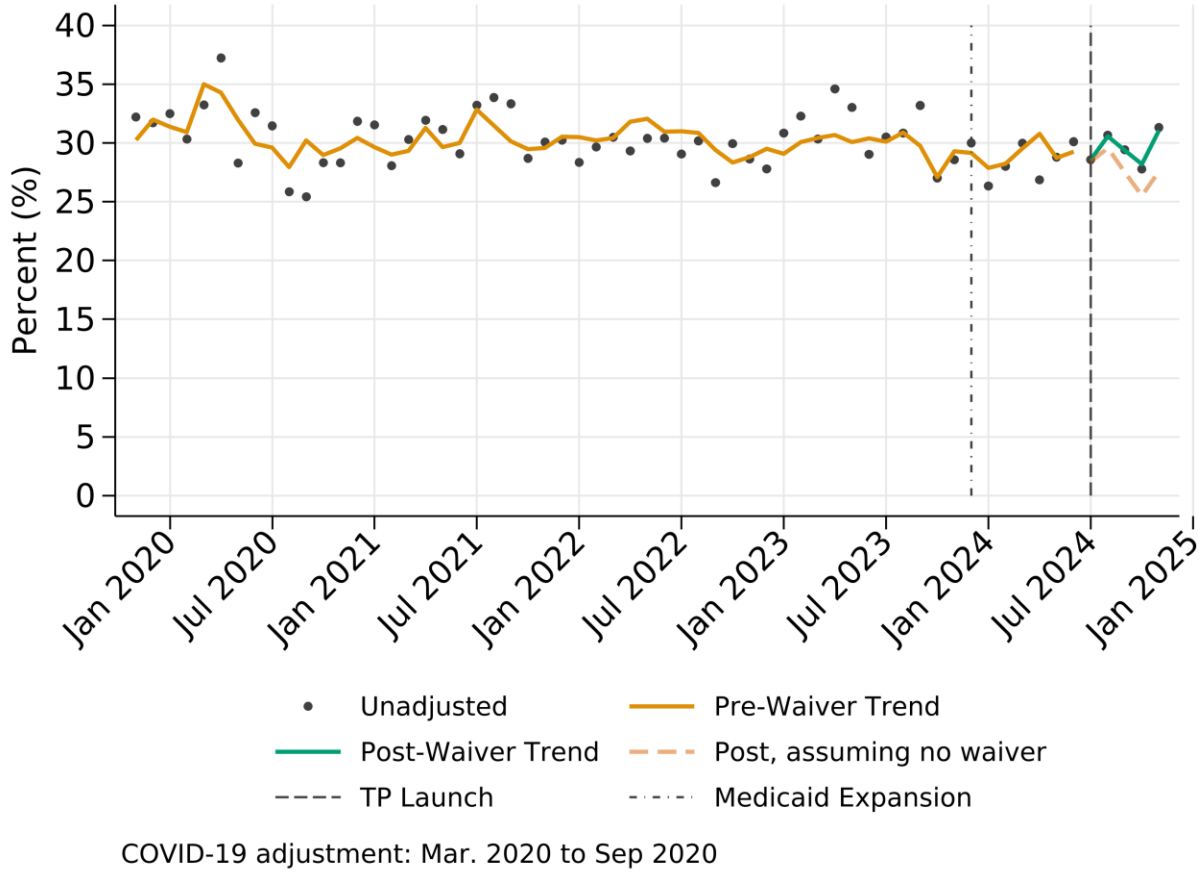
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Immunizations for Adolescents (IMA)

Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13 (Figure)

Figure 3: Trends in Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 12-13) in the NC Medicaid population as determined in the metric specifications.

Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13 (Table)

Table 2: Interrupted time series estimates of Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13

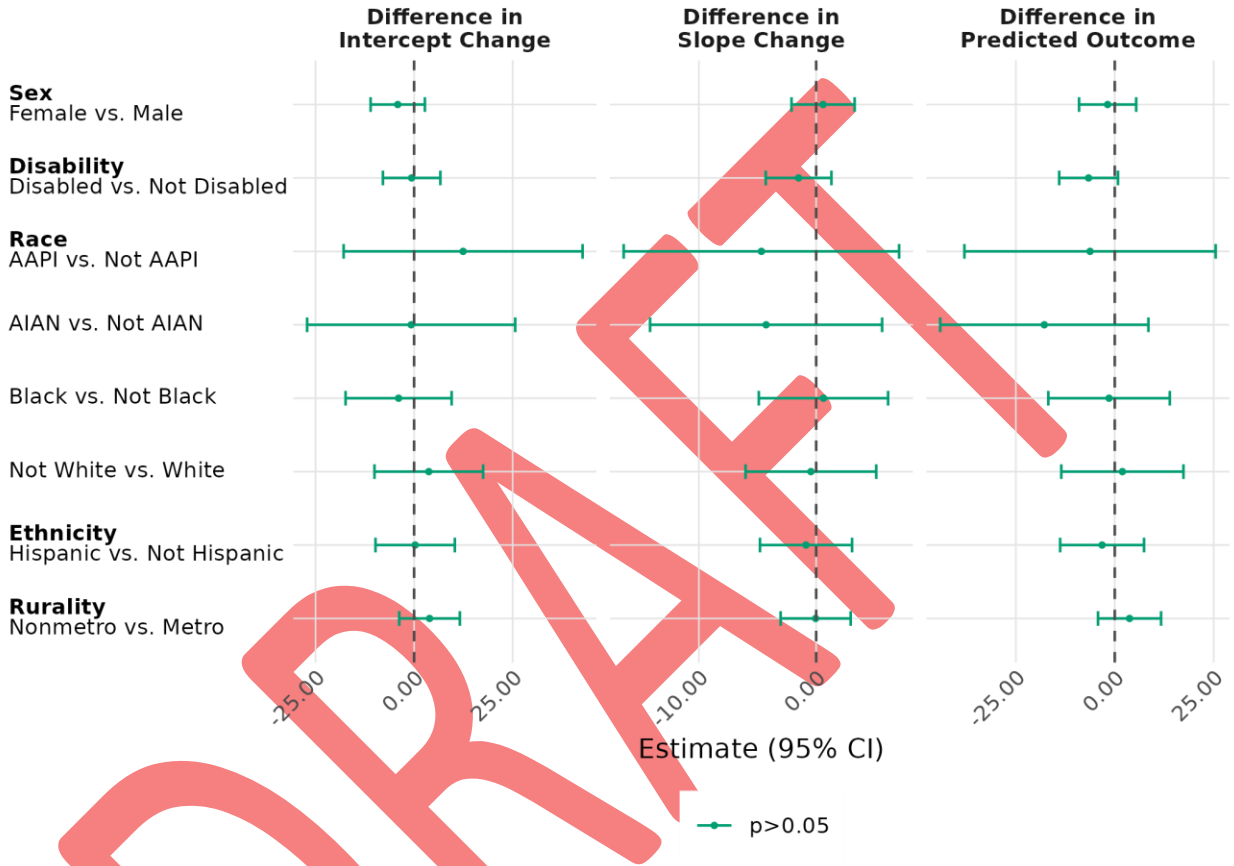
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	28.53* (25.66, 31.40)	28.70* (24.38, 33.03)	0.17 (-3.63, 3.97)
Monthly Change	-0.048 (-0.26, 0.17)	0.79 (-0.65, 2.22)	0.84 (-0.59, 2.27)
Predicted Average Outcome Nov 2024	28.27* (25.11, 31.44)	31.79* (27.43, 36.15)	3.51 (-0.37, 7.40)
N			26,863

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 12-13) in the NC Medicaid population as determined in the metric specifications.*

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Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13 (Contrast Plot)

Figure 4: Comparison groups in Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13



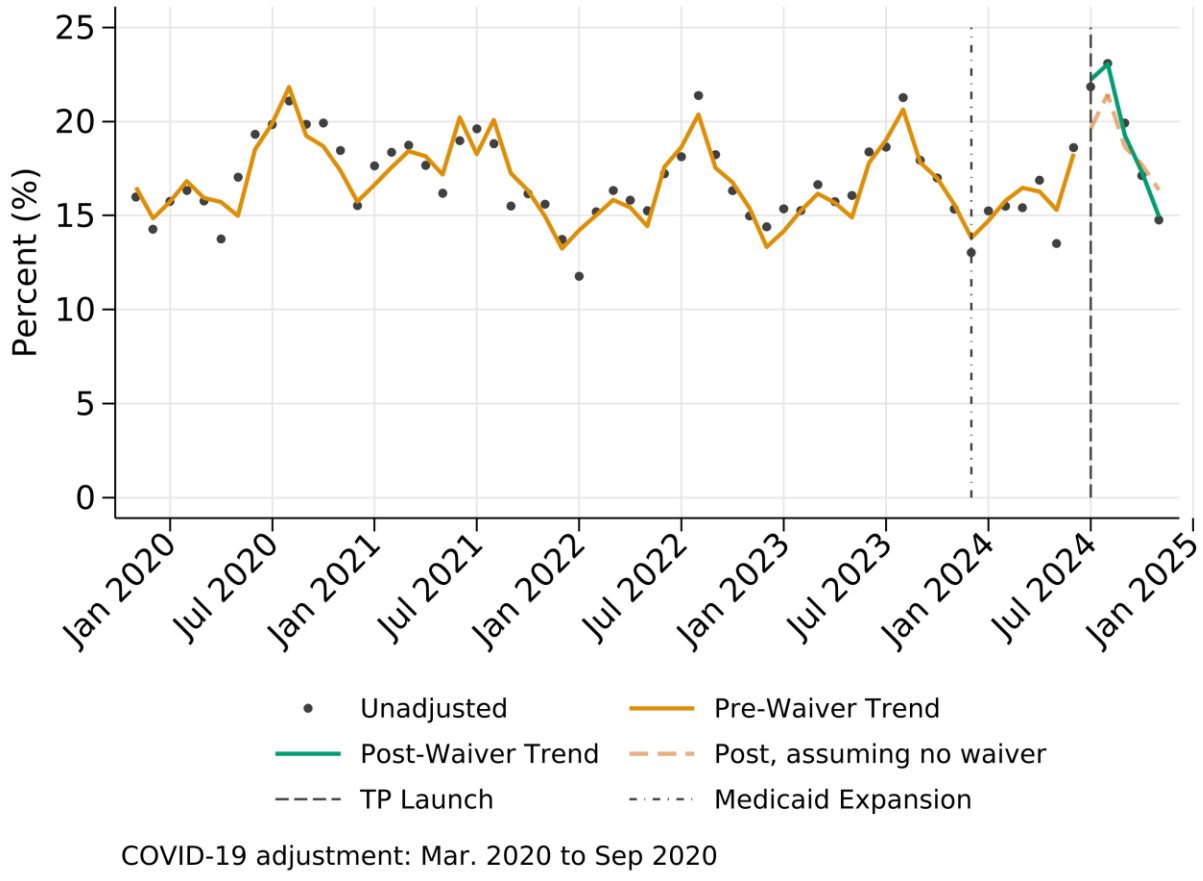
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC)

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation (Figure)

Figure 5: Trends in Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation (Table)

Table 3: Interrupted time series estimates of Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation

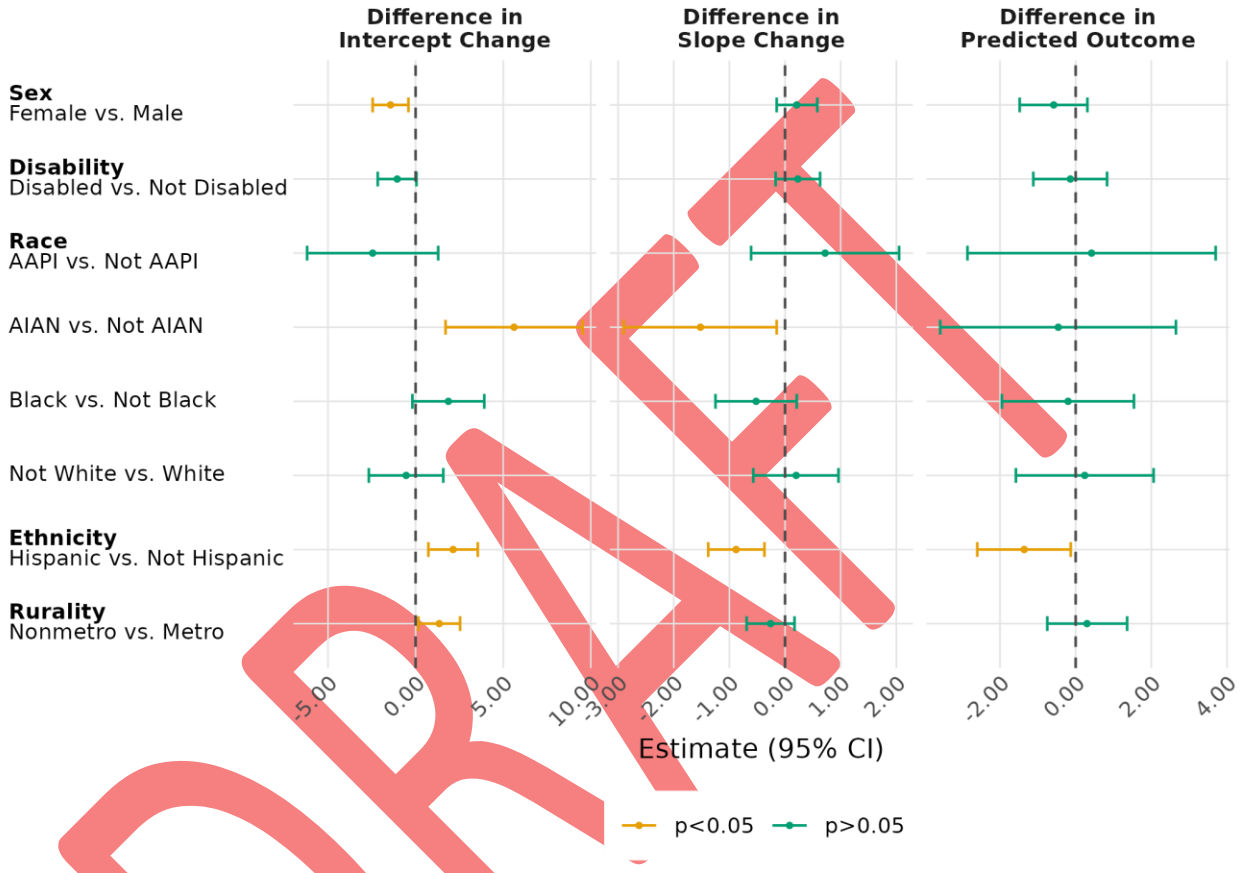
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	17.80* (17.46, 18.14)	20.41* (19.82, 21.01)	2.61* (2.07, 3.16)
Monthly Change	0.044* (0.017, 0.071)	-0.96* (-1.15, -0.77)	-1.00* (-1.19, -0.81)
Predicted Average Outcome Nov 2024	17.95* (17.58, 18.33)	16.55* (16.03, 17.07)	-1.40* (-1.87, -0.94)
N			1,065,646

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.*

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Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation (Contrast Plot)

Figure 6: Comparison groups in Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation

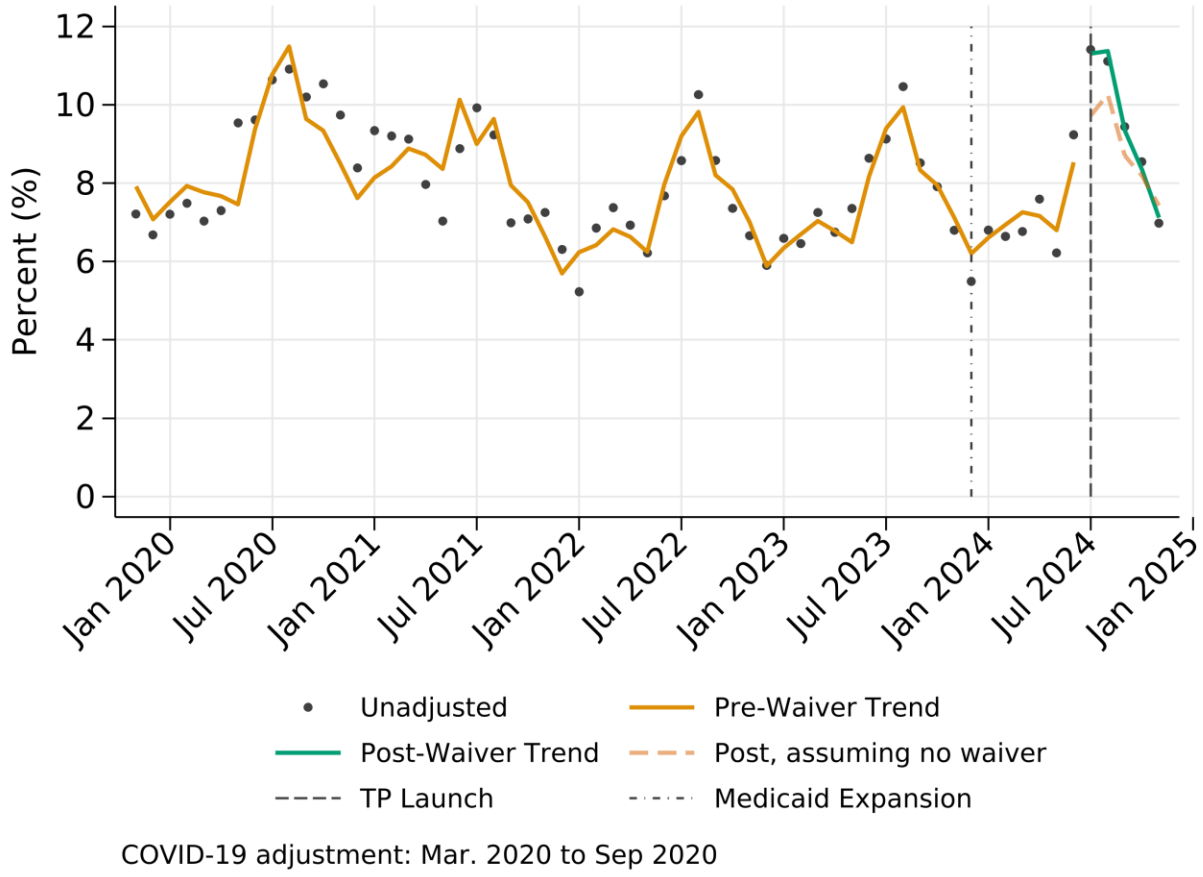


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition (Figure)

Figure 7: Trends in Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition (Table)

Table 4: Interrupted time series estimates of Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition

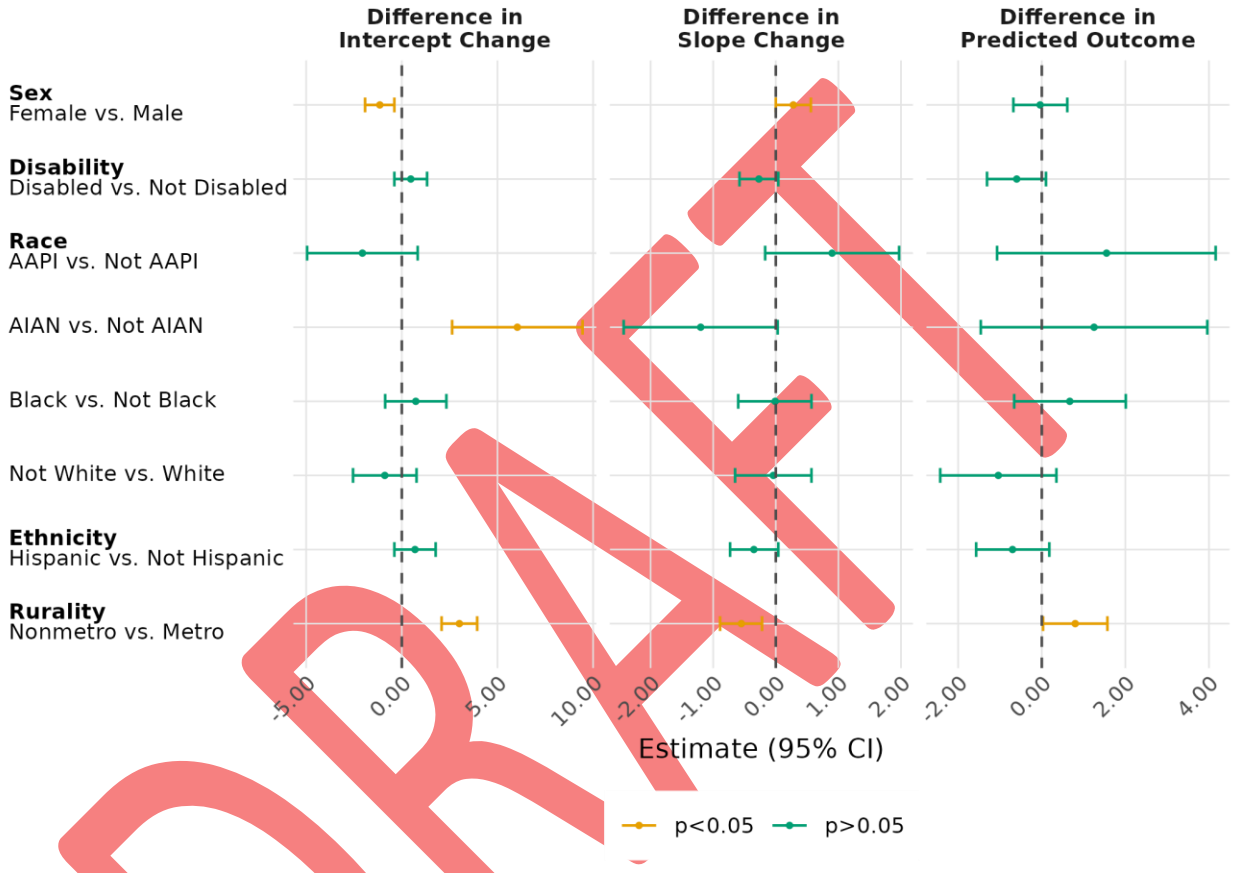
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	8.54* (8.30, 8.77)	10.13* (9.69, 10.56)	1.59* (1.18, 2.00)
Monthly Change	0.037* (0.019, 0.056)	-0.44* (-0.58, -0.29)	-0.47* (-0.62, -0.33)
Predicted Average Outcome Nov 2024	8.64* (8.39, 8.90)	8.33* (7.96, 8.71)	-0.31 (-0.64, 0.026)
N			1,065,646

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.*

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Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition (Contrast Plot)

Figure 8: Comparison groups in Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition



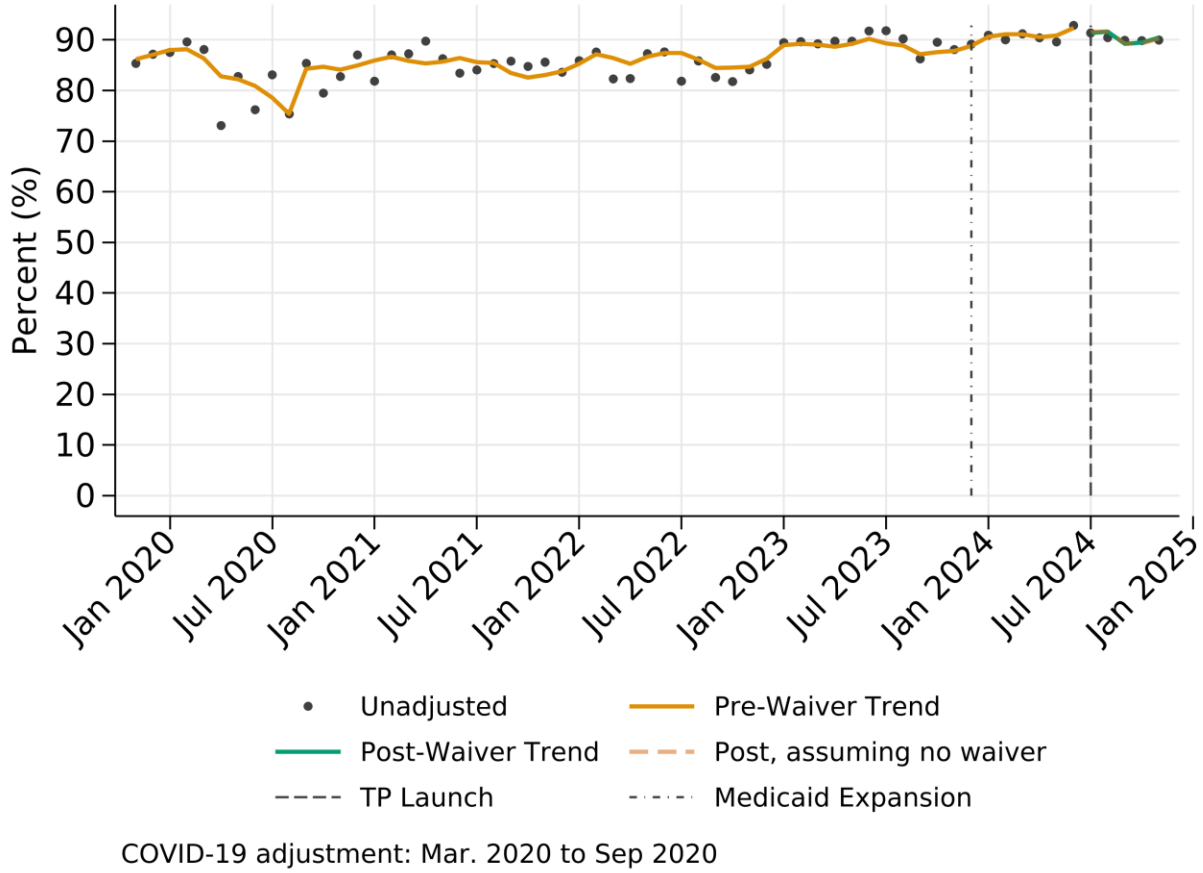
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Appropriate Testing for Pharyngitis

Appropriate Testing for Pharyngitis (Figure)

Figure 9: Trends in Appropriate Testing for Pharyngitis



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3-99) in the NC Medicaid population as determined in the metric specifications.

Appropriate Testing for Pharyngitis (Table)

Table 5: Interrupted time series estimates of Appropriate Testing for Pharyngitis

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	88.66* (87.18, 90.13)	88.39* (85.29, 91.49)	-0.27 (-3.26, 2.72)
Monthly Change	-0.15 (-0.30, 0.011)	-0.017 (-1.06, 1.03)	0.13 (-0.91, 1.17)
Predicted Average Outcome Nov 2024	89.10* (87.46, 90.74)	89.35* (86.87, 91.83)	0.25 (-2.13, 2.63)
N			30,891

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3-99) in the NC Medicaid population as determined in the metric specifications.*

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Appropriate Testing for Pharyngitis (Contrast Plot)

Figure 10: Comparison groups in Appropriate Testing for Pharyngitis



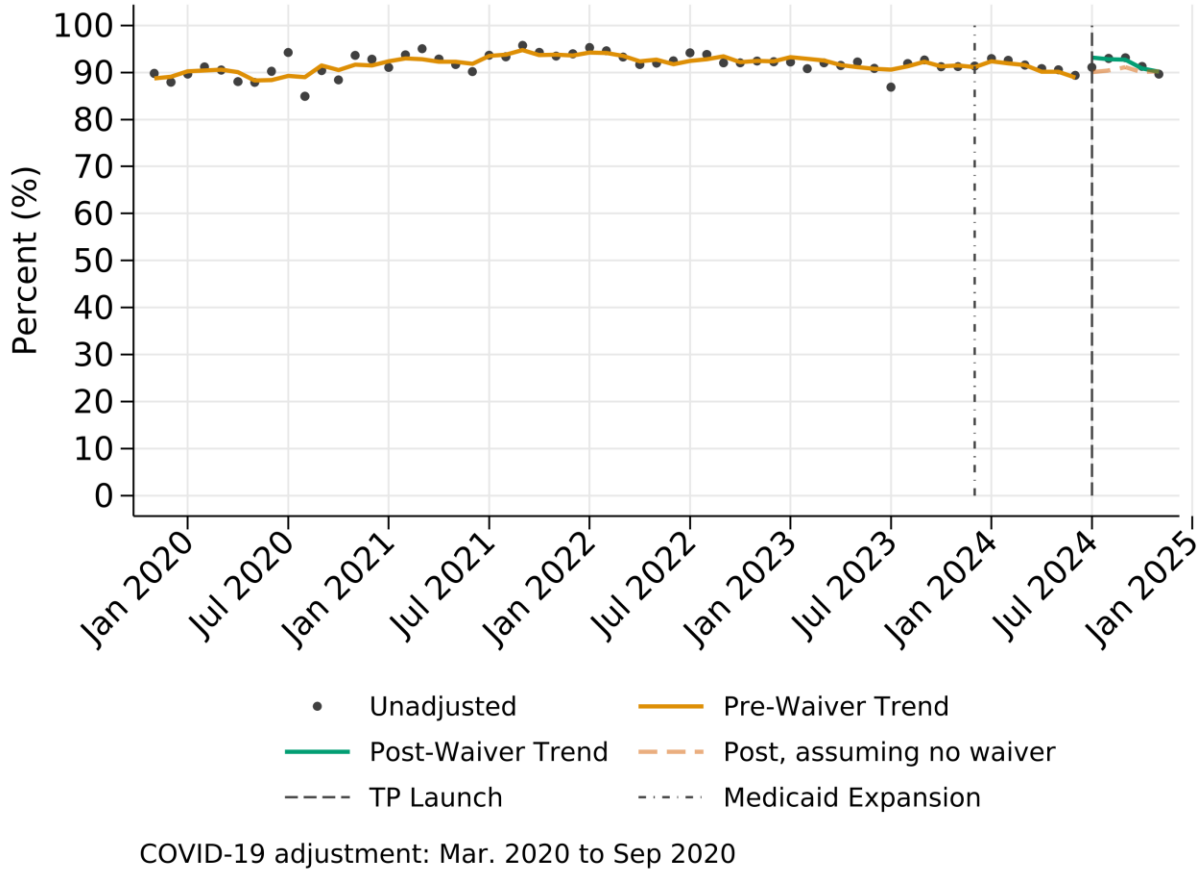
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Appropriate Treatment for Upper Respiratory Infection

Appropriate Treatment for Upper Respiratory Infection (Figure)

Figure 11: Trends in Appropriate Treatment for Upper Respiratory Infection



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3 months-18) in the NC Medicaid population as determined in the metric specifications.

Appropriate Treatment for Upper Respiratory Infection (Table)

Table 6: Interrupted time series estimates of Appropriate Treatment for Upper Respiratory Infection

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	92.40* (91.46, 93.33)	95.53* (93.32, 97.74)	3.13* (0.95, 5.31)
Monthly Change	0.21* (0.12, 0.31)	-0.58 (-1.33, 0.17)	-0.79* (-1.54, -0.047)
Predicted Average Outcome Nov 2024	92.21* (91.17, 93.24)	92.16* (90.56, 93.76)	-0.044 (-1.57, 1.48)
N			53,529

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 3 months-18) in the NC Medicaid population as determined in the metric specifications.*

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Appropriate Treatment for Upper Respiratory Infection (Contrast Plot)

Figure 12: Comparison groups in Appropriate Treatment for Upper Respiratory Infection



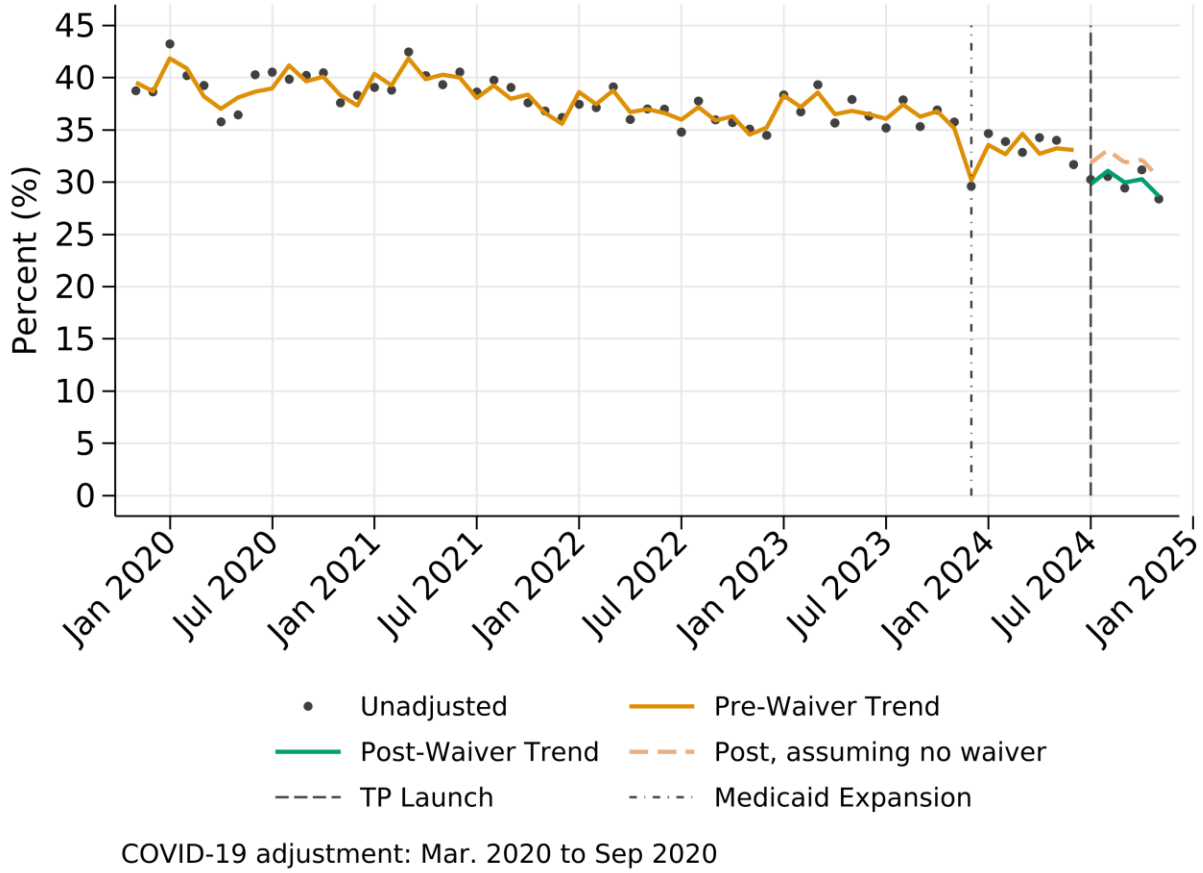
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Access to Preventive/Ambulatory Health Services (AAP)

Access to Preventive/Ambulatory Health Services (AAP) (Figure)

Figure 13: Trends in Access to Preventive/Ambulatory Health Services (AAP)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 20+) in the NC Medicaid population as determined in the metric specifications.

Access to Preventive/Ambulatory Health Services (AAP) (Table)

Table 7: Interrupted time series estimates of Access to Preventive/Ambulatory Health Services (AAP)

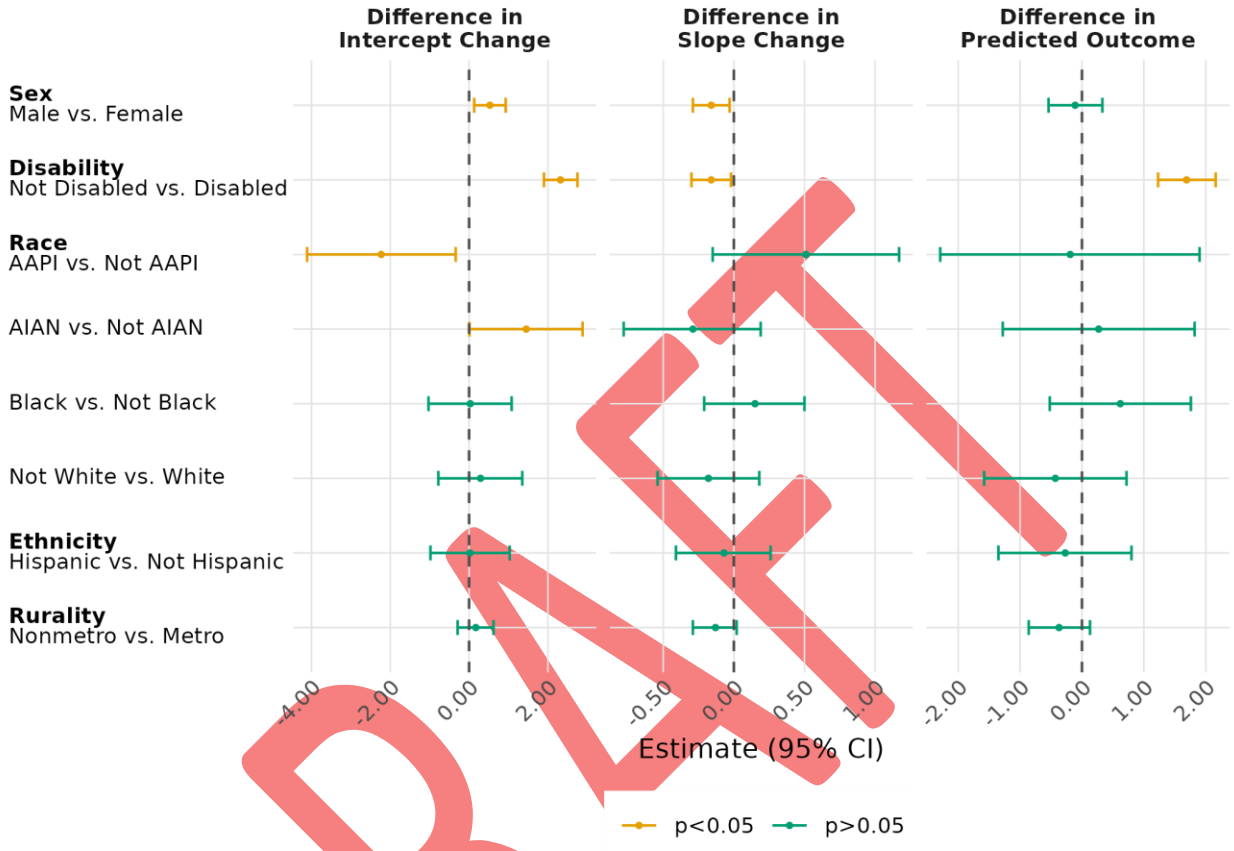
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	36.11* (35.63, 36.58)	33.34* (32.77, 33.91)	-2.76* (-3.18, -2.35)
Monthly Change	-0.0002 (-0.033, 0.033)	0.015 (-0.087, 0.12)	0.016 (-0.081, 0.11)
Predicted Average Outcome Nov 2024	35.97* (35.43, 36.51)	33.27* (32.63, 33.91)	-2.70* (-3.07, -2.33)
N			5,690,162

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 20+) in the NC Medicaid population as determined in the metric specifications.*

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Access to Preventive/Ambulatory Health Services (AAP) (Contrast Plot)

Figure 14: Comparison groups in Access to Preventive/Ambulatory Health Services (AAP)



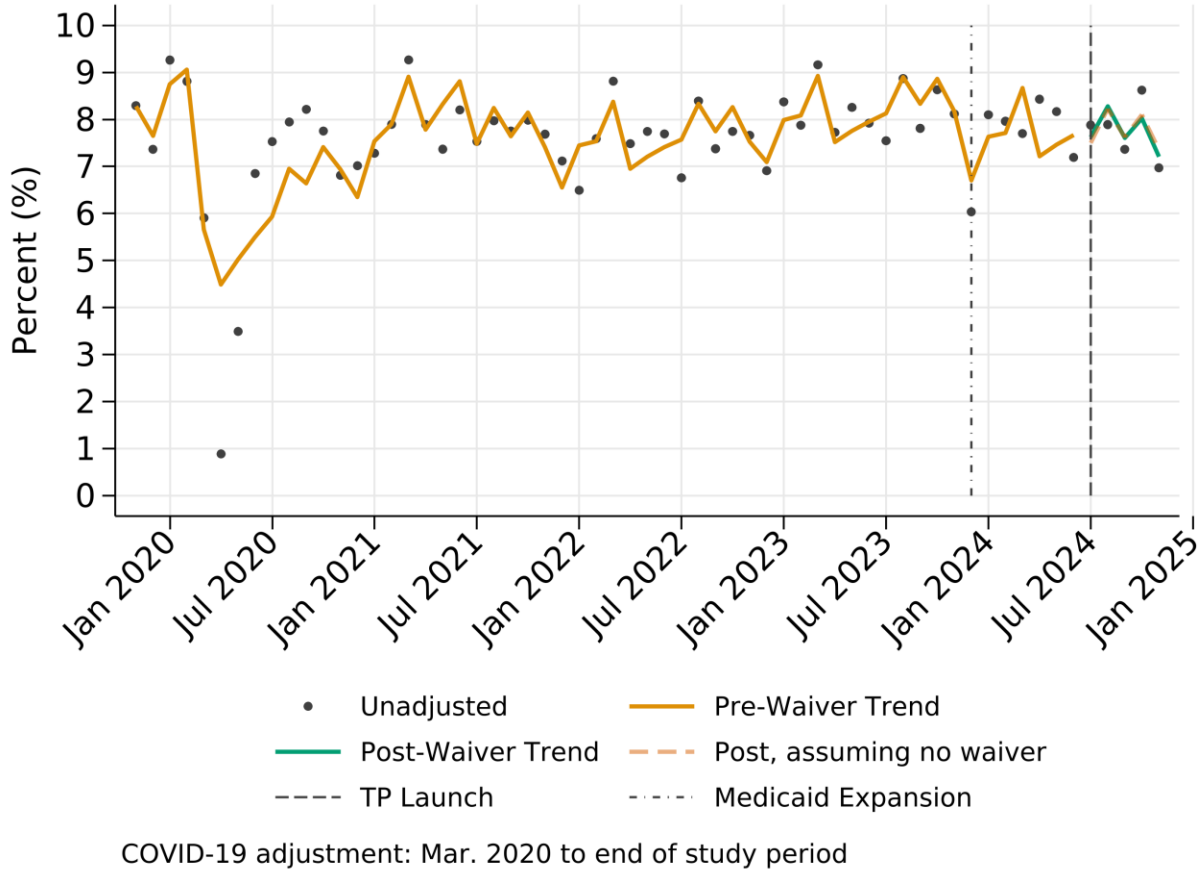
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Monthly Dental Visit (ADV)

Monthly Dental Visit (ADV) (Figure)

Figure 15: Trends in Monthly Dental Visit (ADV)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-64) in the NC Medicaid population as determined in the metric specifications.

Monthly Dental Visit (ADV) (Table)

Table 8: Interrupted time series estimates of Monthly Dental Visit (ADV)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	10.92* (10.59, 11.25)	11.03* (10.62, 11.44)	0.11 (-0.22, 0.44)
Monthly Change	0.22* (0.068, 0.37)	0.15 (-0.025, 0.33)	-0.068 (-0.17, 0.036)
Predicted Average Outcome Nov 2024	11.24* (10.86, 11.61)	11.08* (10.67, 11.48)	-0.16 (-0.38, 0.059)
N			2,160,166

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-64) in the NC Medicaid population as determined in the metric specifications.*

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Monthly Dental Visit (ADV) (Contrast Plot)

Figure 16: Comparison groups in Monthly Dental Visit (ADV)



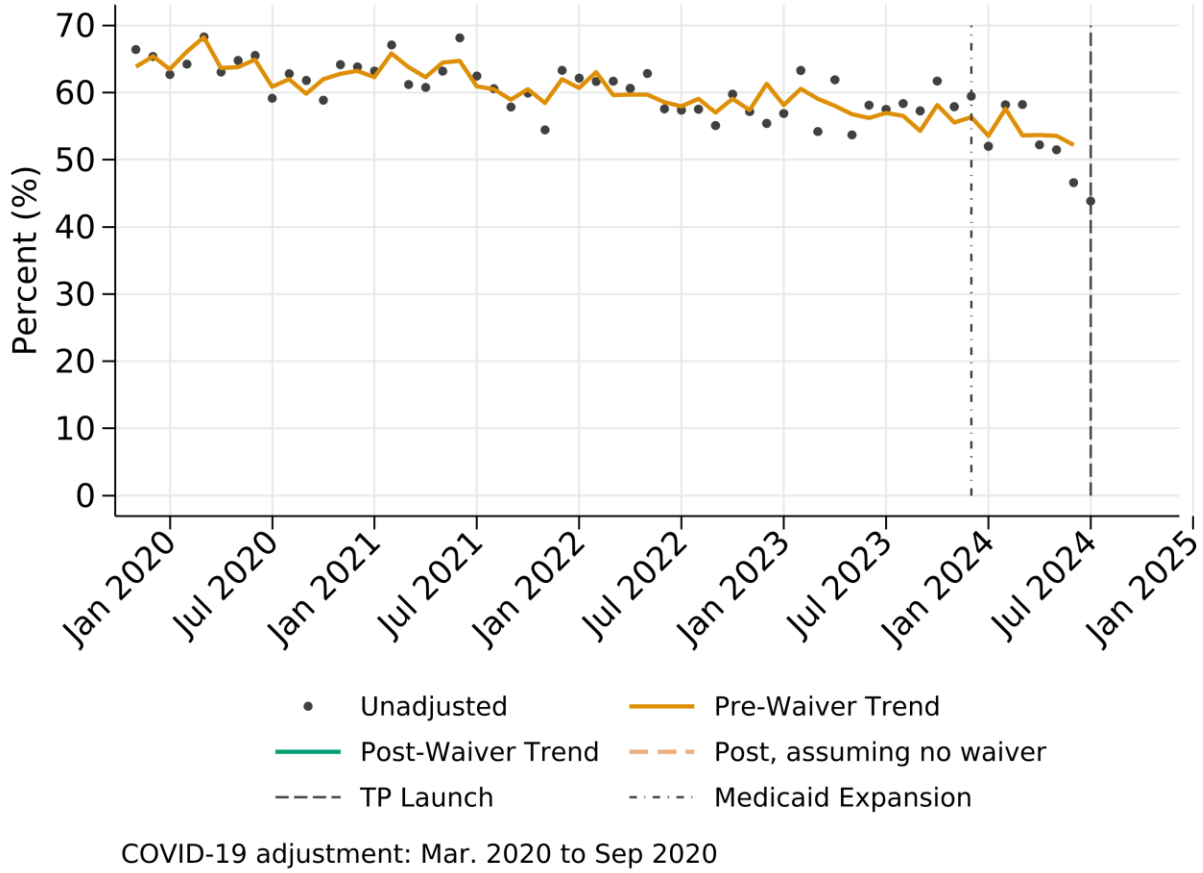
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Women's Preventive Care

Women's Preventive Care: Screening for Pregnancy Risk (Figure)

Figure 17: Trends in Women's Preventive Care: Screening for Pregnancy Risk



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 14-44) in the NC Medicaid population as determined in the metric specifications.

Pregnancy risk screening ideally occurs at the first prenatal visit (first trimester or within 42 days of later enrollment). TP attribution was assigned based on TP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment, consistent with program guidelines.

Women's Preventive Care: Screening for Pregnancy Risk (Table)

Table 9: Interrupted time series estimates of Women's Preventive Care: Screening for Pregnancy Risk

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	[[character]]	[[character]]	[[character]]
Monthly Change	[[character]]	[[character]]	[[character]]
N			[[character]]

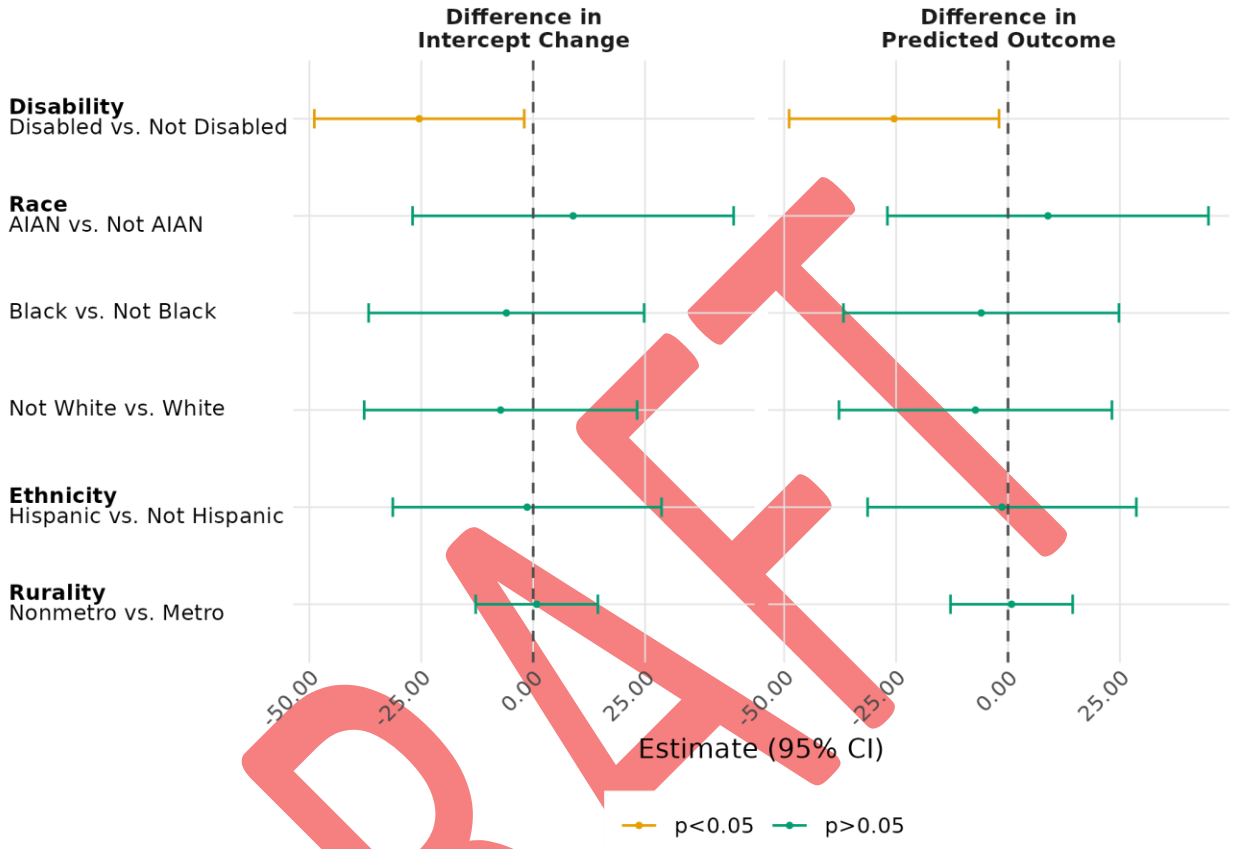
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 14-44) in the NC Medicaid population as determined in the metric specifications.*

Pregnancy risk screening ideally occurs at the first prenatal visit (first trimester or within 42 days of later enrollment). TP attribution was assigned based on TP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment, consistent with program guidelines.

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Women's Preventive Care: Screening for Pregnancy Risk (Contrast Plot)

Figure 18: Comparison groups in Women's Preventive Care: Screening for Pregnancy Risk



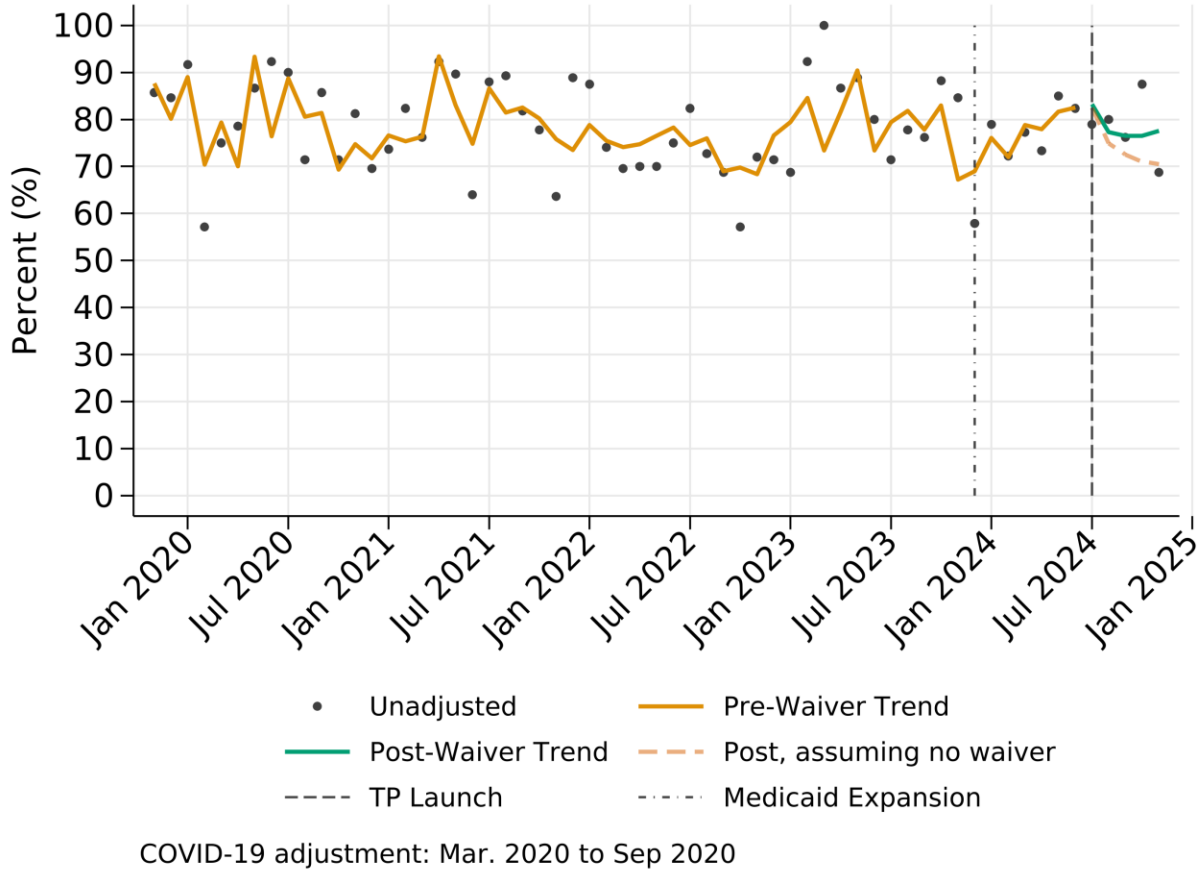
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
Pregnancy risk screening ideally occurs at the first prenatal visit (first trimester or within 42 days of later enrollment). TP attribution was assigned based on TP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment, consistent with program guidelines.

Prenatal and Postpartum Care (PPC)

Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for members under 21 (Figure)

Figure 19: Trends in Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for members under 21



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 0-20) in the NC Medicaid population as determined in the metric specifications.

TP attribution was assigned based on TP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.

Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for members under 21 (Table)

Table 10: Interrupted time series estimates of Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for members under 21

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	70.58* (58.19, 82.97)	71.32* (53.33, 89.31)	0.74 (-14.67, 16.16)
Monthly Change	-0.55 (-1.37, 0.26)	1.04 (-5.05, 7.13)	1.59 (-4.52, 7.70)
Predicted Average Outcome Nov 2024	69.95* (56.29, 83.60)	77.06* (57.83, 96.29)	7.11 (-10.51, 24.73)
N			1,132

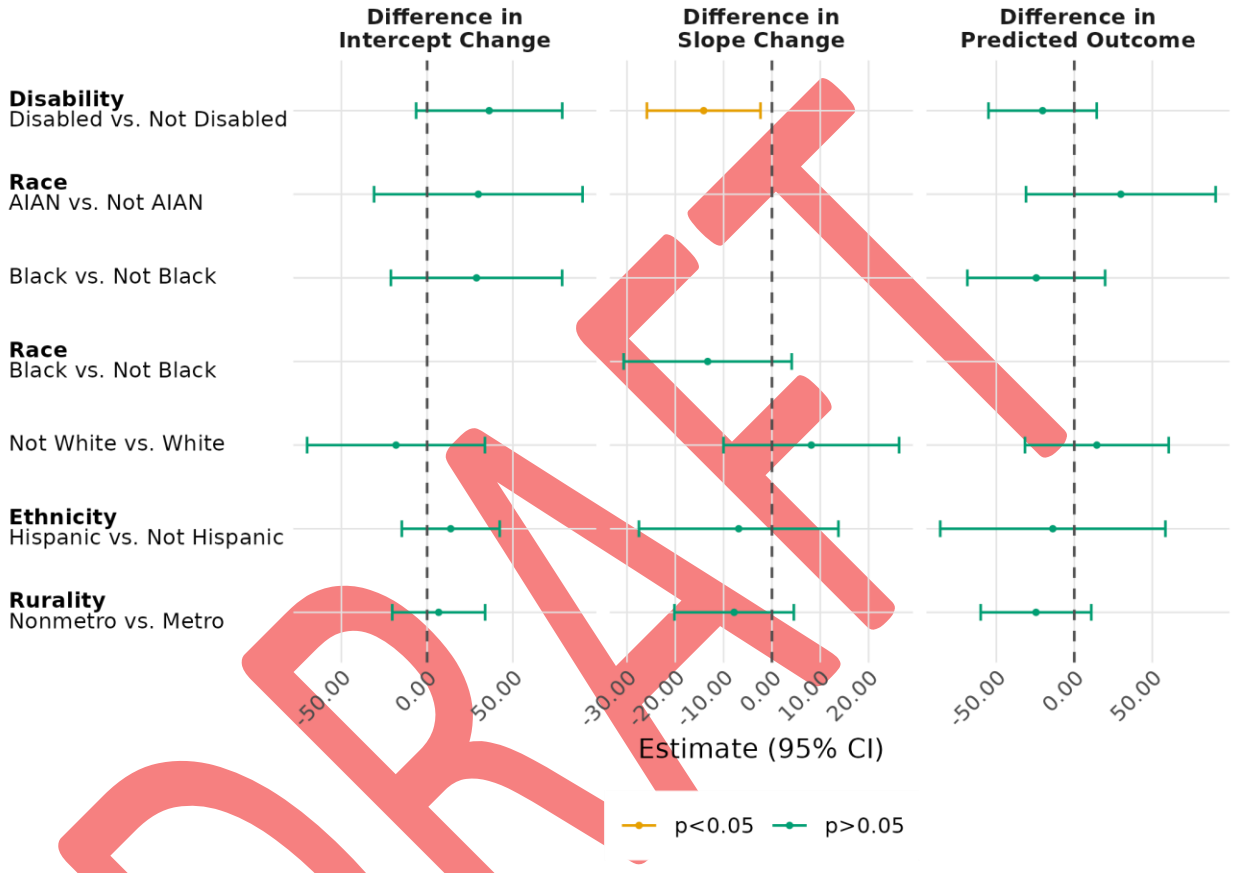
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 0-20) in the NC Medicaid population as determined in the metric specifications.*

TP attribution was assigned based on TP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.

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Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for members under 21 (Contrast Plot)

Figure 20: Comparison groups in Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for members under 21

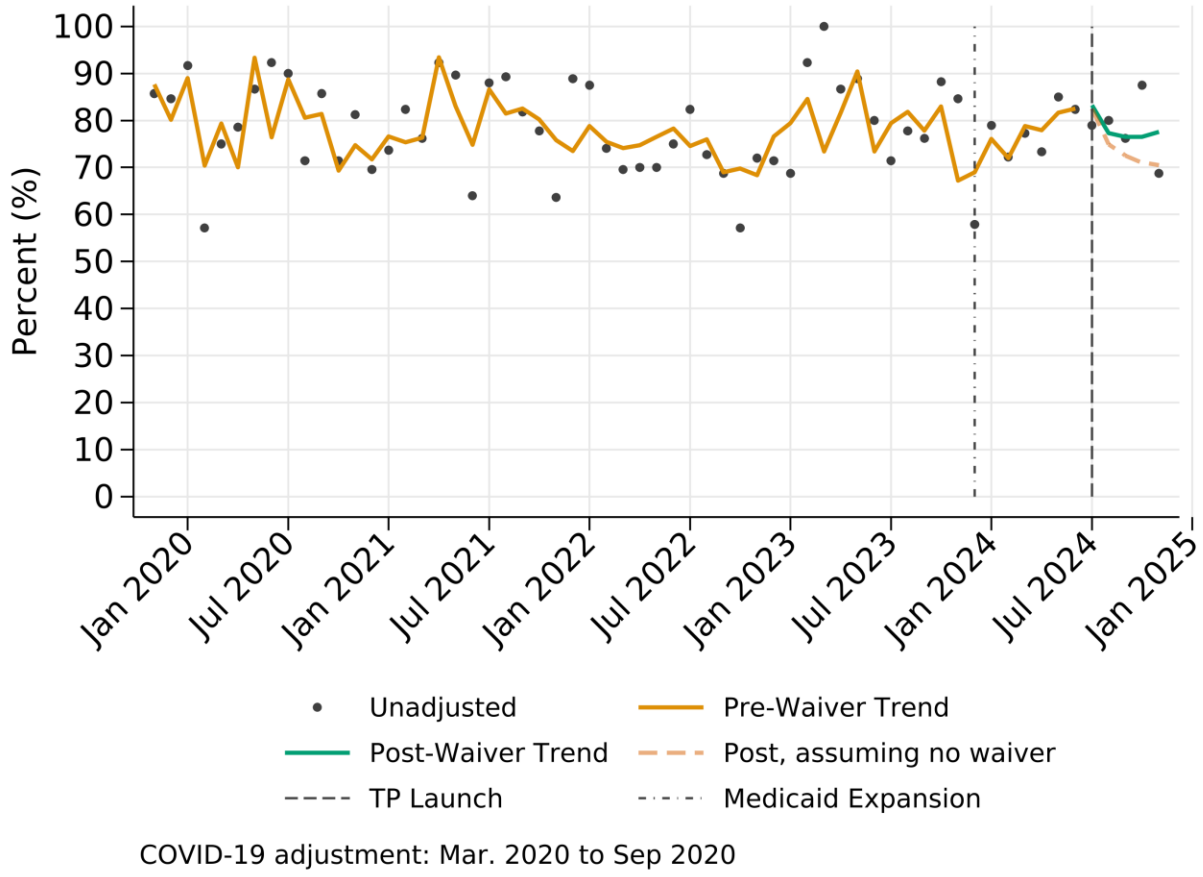


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
TP attribution was assigned based on TP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.

Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older (Figure)

Figure 21: Trends in Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-64) in the NC Medicaid population as determined in the metric specifications.

TP attribution was assigned based on TP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.

Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older (Table)

Table 11: Interrupted time series estimates of Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	70.58* (58.19, 82.97)	71.32* (53.33, 89.31)	0.74 (-14.67, 16.16)
Monthly Change	-0.55 (-1.37, 0.26)	1.04 (-5.05, 7.13)	1.59 (-4.52, 7.70)
Predicted Average Outcome Nov 2024	69.95* (56.29, 83.60)	77.06* (57.83, 96.29)	7.11 (-10.51, 24.73)
N			1,132

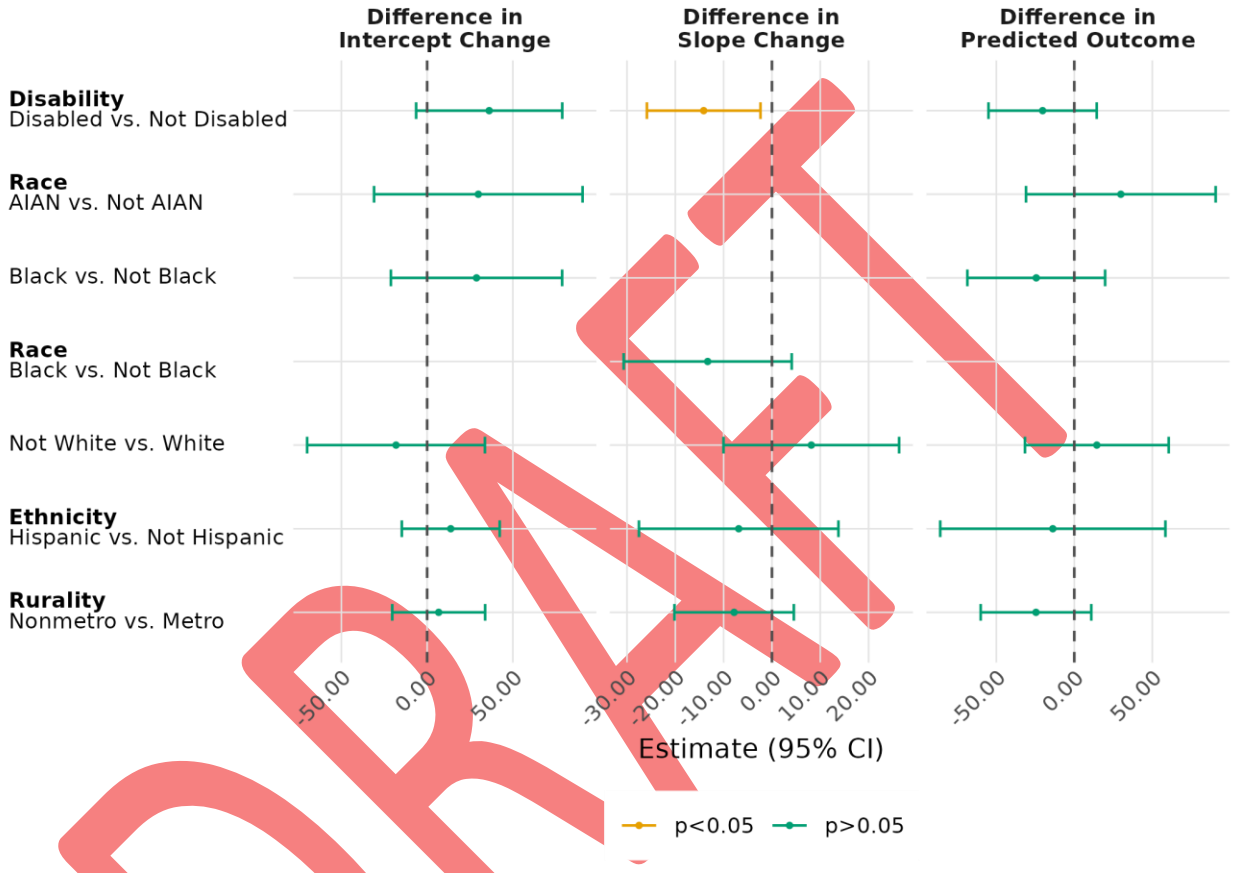
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-64) in the NC Medicaid population as determined in the metric specifications.*

TP attribution was assigned based on TP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.

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Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older (Contrast Plot)

Figure 22: Comparison groups in Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older

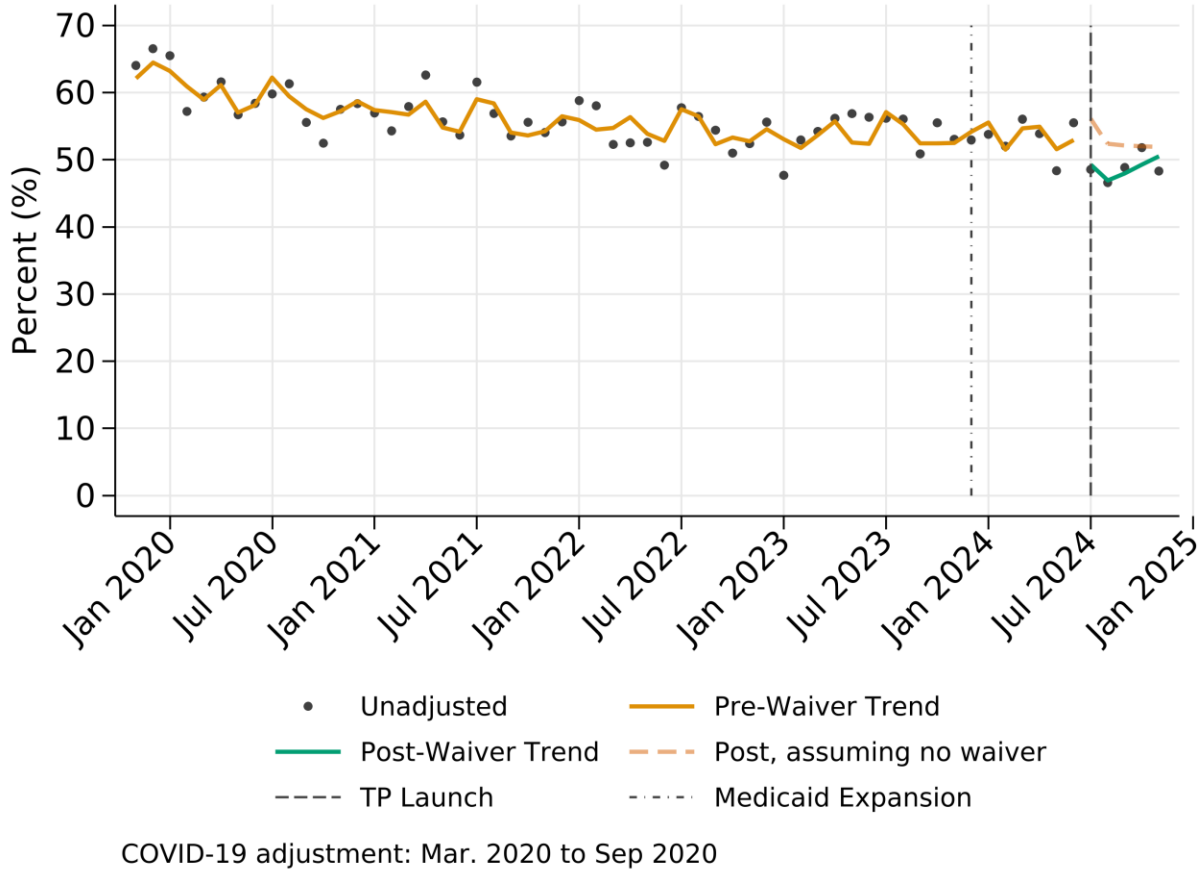


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
TP attribution was assigned based on TP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.

Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21 (Figure)

Figure 23: Trends in Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged under 21) in the NC Medicaid population as determined in the metric specifications.

The Medicaid Expansion population has been excluded.

Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21 (Table)

Table 12: Interrupted time series estimates of Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	49.66* (45.58, 53.73)	42.86* (36.11, 49.61)	-6.80* (-12.93, -0.67)
Monthly Change	-0.37* (-0.63, -0.12)	0.98 (-1.39, 3.34)	1.35 (-1.01, 3.71)
Predicted Average Outcome Nov 2024	49.01* (44.52, 53.50)	47.62* (40.70, 54.53)	-1.40 (-7.75, 4.96)
N			17,887

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged under 21) in the NC Medicaid population as determined in the metric specifications.*
The Medicaid Expansion population has been excluded.

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Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21 (Contrast Plot)

Figure 24: Comparison groups in Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21

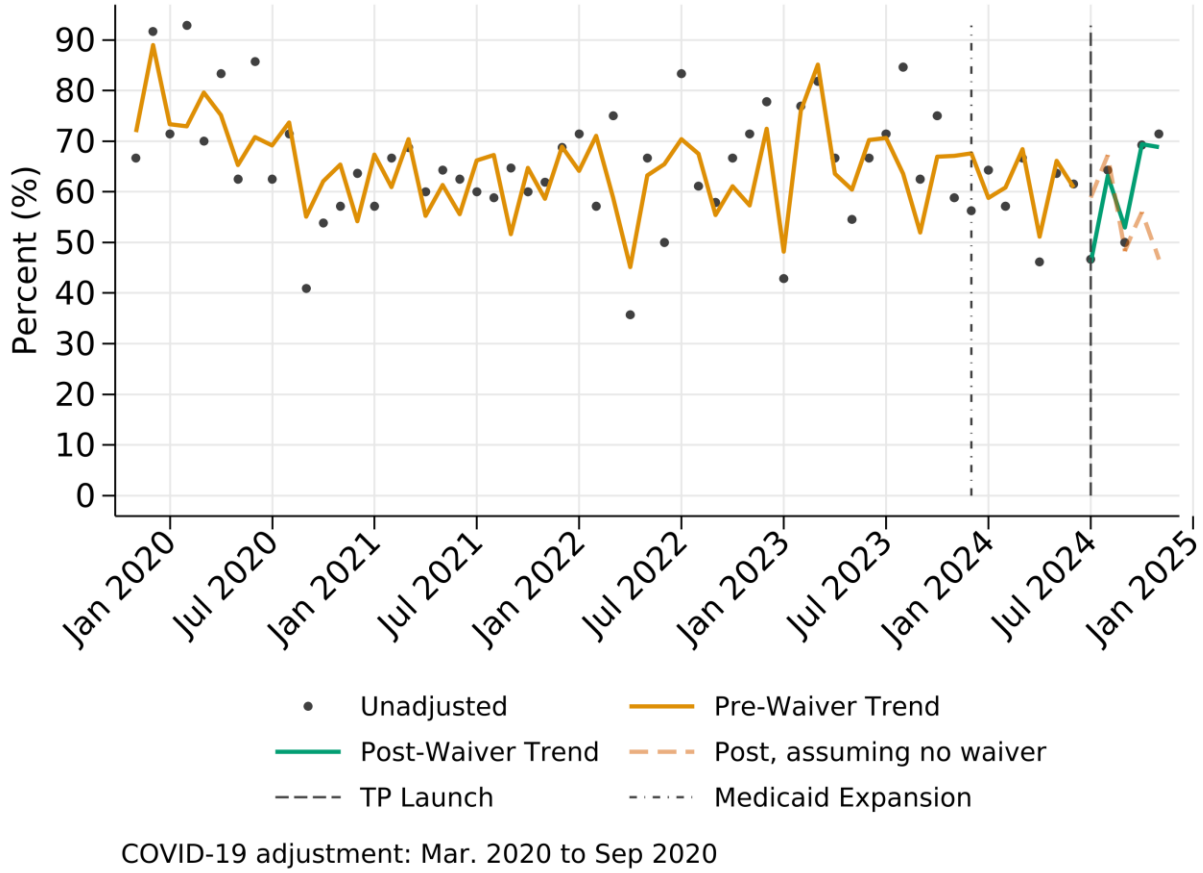


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+ (Figure)

Figure 25: Trends in Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21+) in the NC Medicaid population as determined in the metric specifications.

The Medicaid Expansion population has been excluded.

Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+ (Table)

Table 13: Interrupted time series estimates of Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	49.25* (32.00, 66.51)	36.42* (7.52, 65.32)	-12.84 (-39.83, 14.16)
Monthly Change	-0.92 (-2.06, 0.22)	7.82 (-2.45, 18.10)	8.75 (-1.54, 19.03)
Predicted Average Outcome Nov 2024	47.83* (28.79, 66.86)	69.98* (41.09, 98.86)	22.15 (-5.37, 49.66)
N			844

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21+) in the NC Medicaid population as determined in the metric specifications.*
The Medicaid Expansion population has been excluded.

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Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+ (Contrast Plot)

Figure 26: Comparison groups in Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+



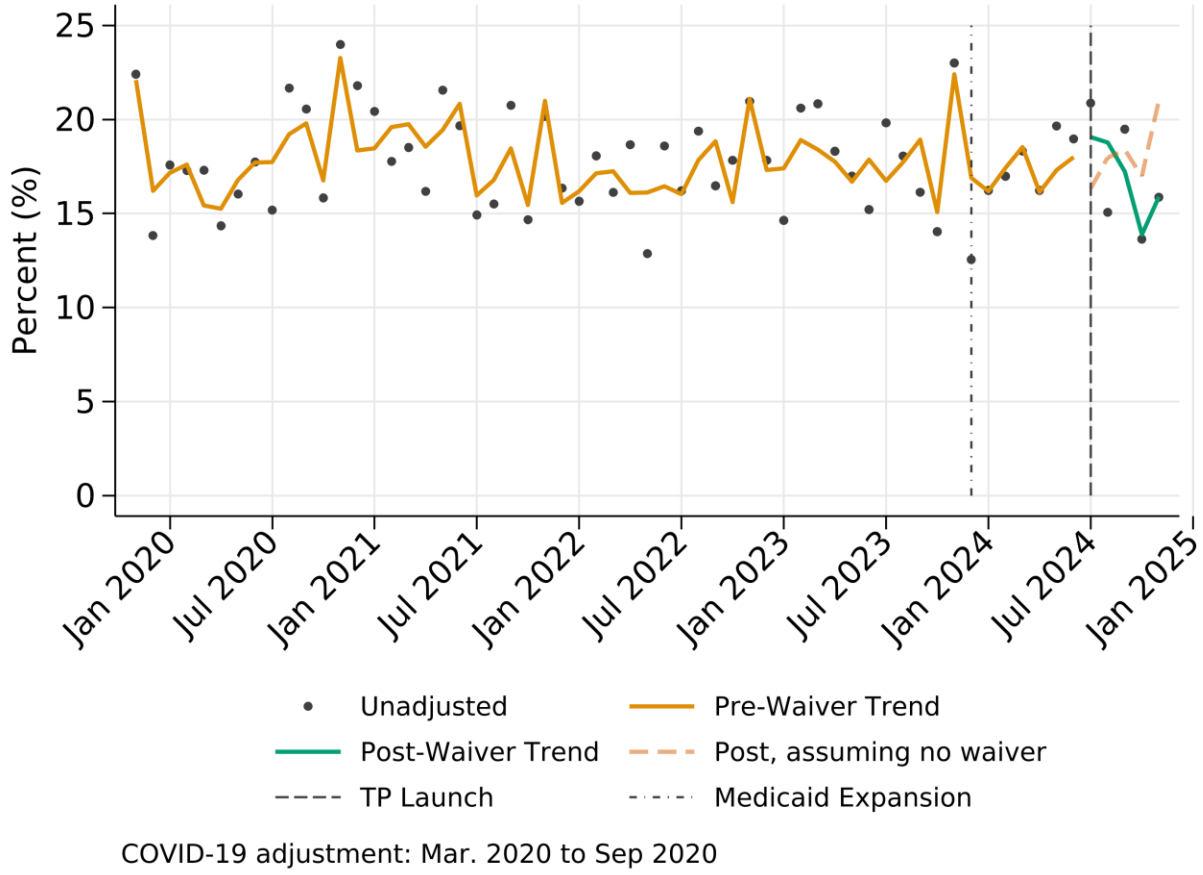
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

Contraceptive Care: Postpartum (CCP)

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 3 days of delivery (Figure)

Figure 27: Trends in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 3 days of delivery



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 3 days of delivery (Table)

Table 14: Interrupted time series estimates of Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 3 days of delivery

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	19.74* (16.46, 23.03)	22.48* (17.28, 27.68)	2.74 (-1.88, 7.35)
Monthly Change	0.13 (-0.084, 0.34)	-1.82* (-3.53, -0.11)	-1.95* (-3.66, -0.25)
Predicted Average Outcome Nov 2024	19.89* (16.28, 23.50)	14.82* (9.64, 20.00)	-5.07* (-9.66, -0.48)
N			17,534

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.*

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Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 3 days of delivery (Contrast Plot)

Figure 28: Comparison groups in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 3 days of delivery

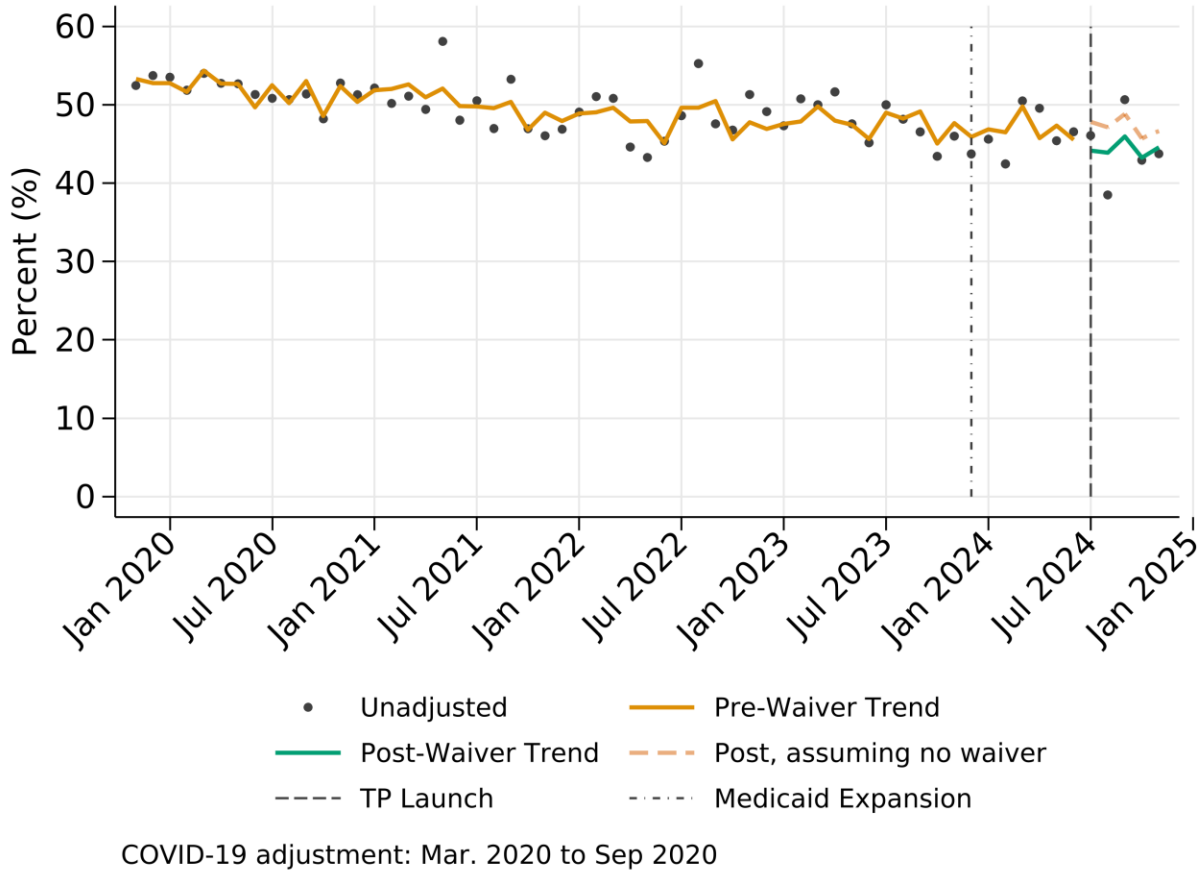


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 90 days of delivery (Figure)

Figure 29: Trends in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 90 days of delivery



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 90 days of delivery (Table)

Table 15: Interrupted time series estimates of Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 90 days of delivery

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	47.32* (42.98, 51.65)	43.67* (36.86, 50.49)	-3.64 (-9.69, 2.40)
Monthly Change	-0.087 (-0.37, 0.19)	0.30 (-1.98, 2.59)	0.39 (-1.89, 2.67)
Predicted Average Outcome Nov 2024	47.06* (42.28, 51.83)	44.98* (38.01, 51.94)	-2.08 (-8.33, 4.17)
N			17,534

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.*

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Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 90 days of delivery (Contrast Plot)

Figure 30: Comparison groups in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a most or moderately effective within 90 days of delivery

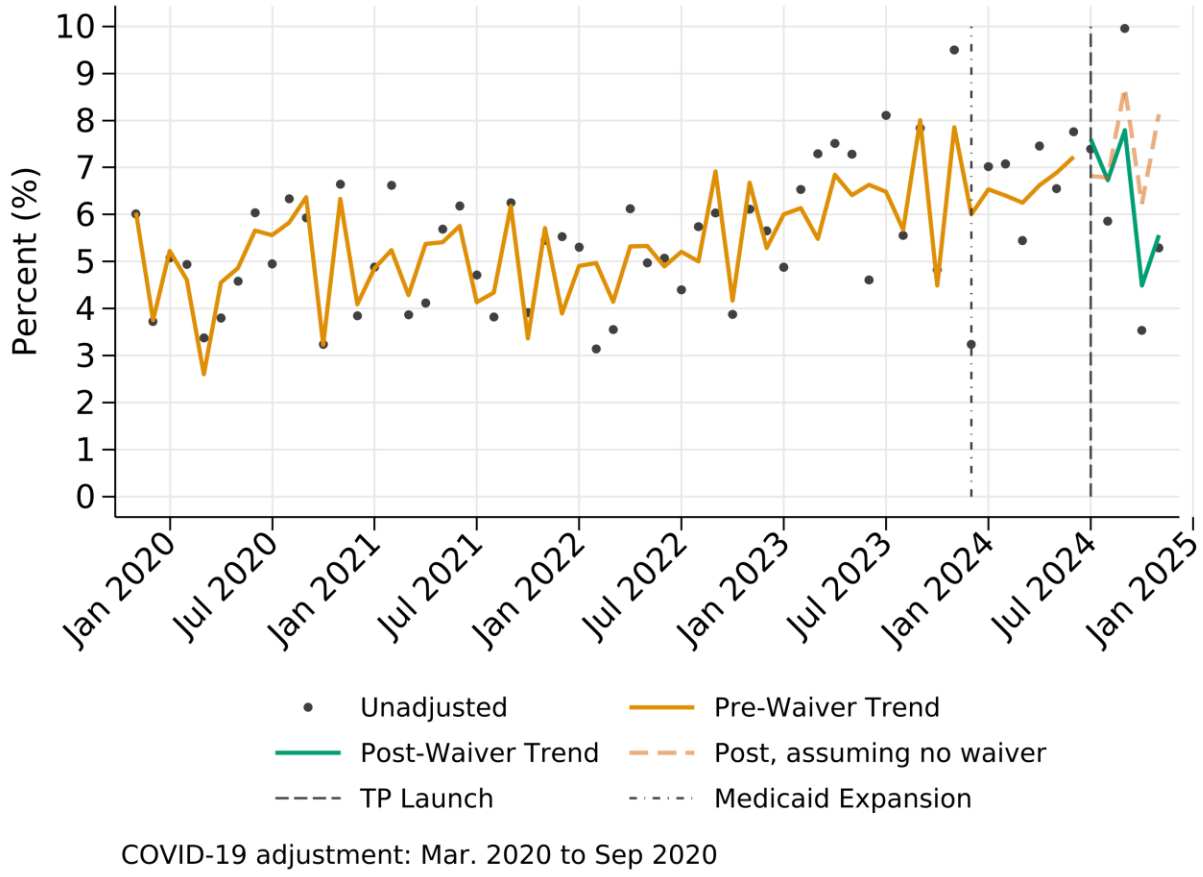


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery (Figure)

Figure 31: Trends in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery (Table)

Table 16: Interrupted time series estimates of Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	6.79* (4.85, 8.73)	7.57* (4.32, 10.82)	0.78 (-2.20, 3.75)
Monthly Change	0.039 (-0.084, 0.16)	-0.80 (-1.87, 0.28)	-0.84 (-1.91, 0.24)
Predicted Average Outcome Nov 2024	6.99* (4.86, 9.13)	4.42* (1.27, 7.57)	-2.57 (-5.46, 0.32)
N			17,534

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.*

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Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery (Contrast Plot)

Figure 32: Comparison groups in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 3 days of delivery

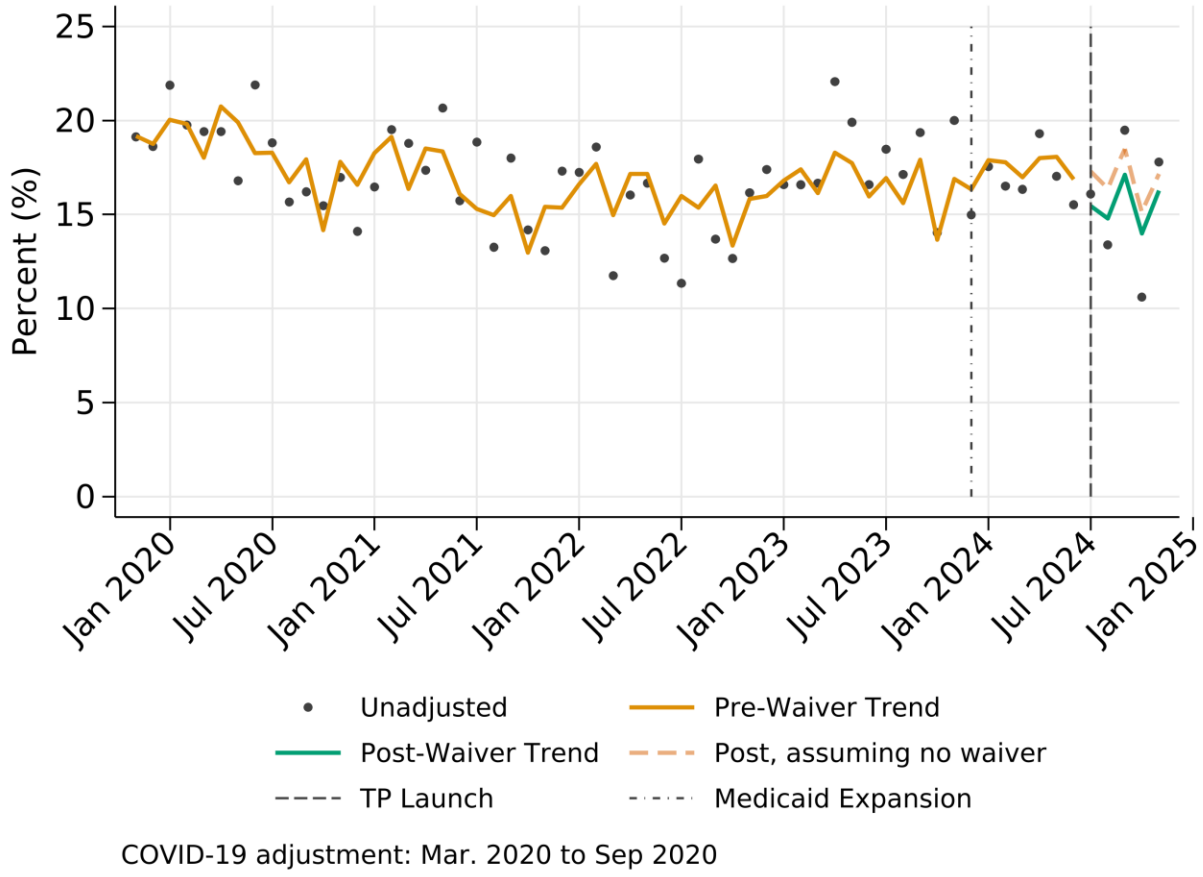


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 90 days of delivery (Figure)

Figure 33: Trends in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 90 days of delivery



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.

Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 90 days of delivery (Table)

Table 17: Interrupted time series estimates of Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 90 days of delivery

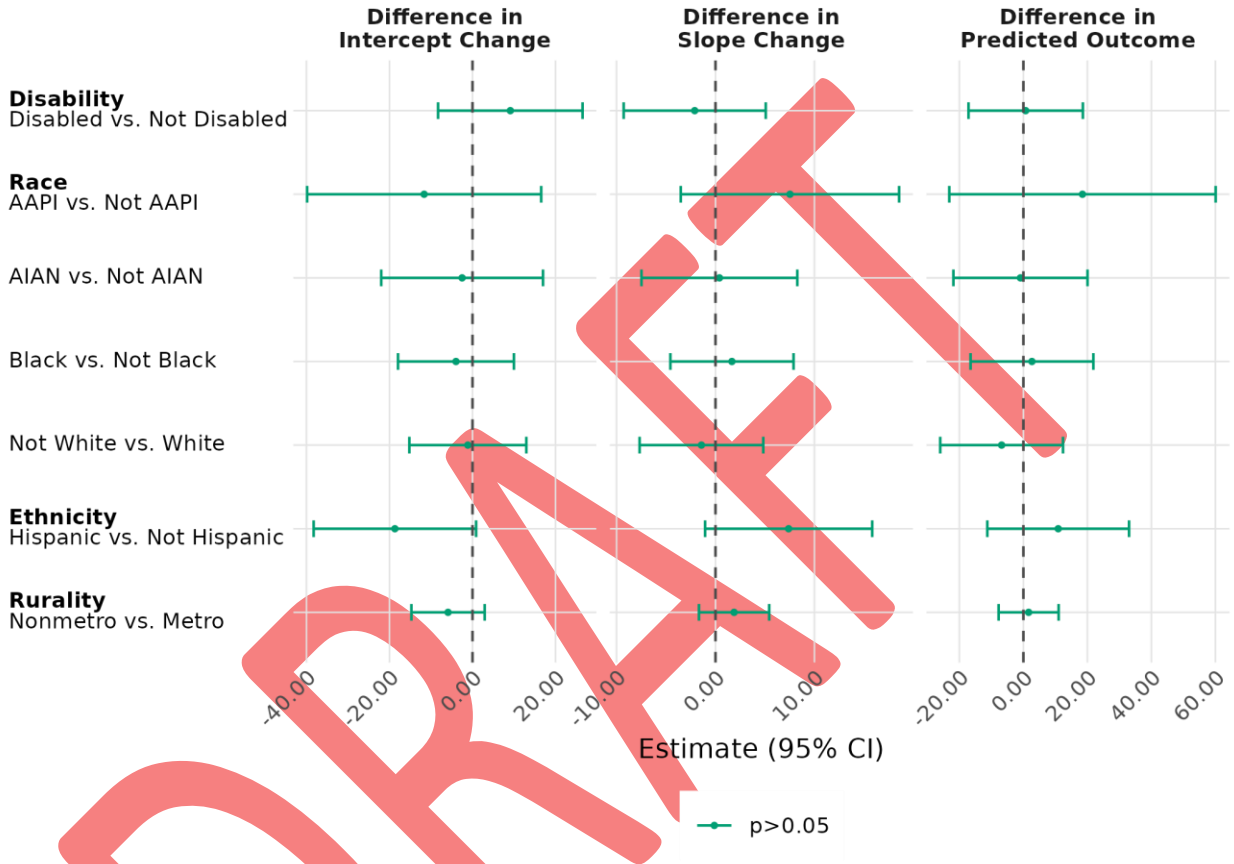
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	16.09* (12.74, 19.45)	14.25* (9.18, 19.32)	-1.84 (-6.26, 2.57)
Monthly Change	-0.096 (-0.32, 0.12)	0.15 (-1.53, 1.82)	0.24 (-1.43, 1.91)
Predicted Average Outcome Nov 2024	16.13* (12.43, 19.82)	15.25* (9.99, 20.51)	-0.88 (-5.50, 3.74)
N			17,534

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 21-44) in the NC Medicaid population as determined in the metric specifications.*

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Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 90 days of delivery (Contrast Plot)

Figure 34: Comparison groups in Contraceptive Care Postpartum: Beneficiaries ages 21-44 who were provided a LARC within 90 days of delivery



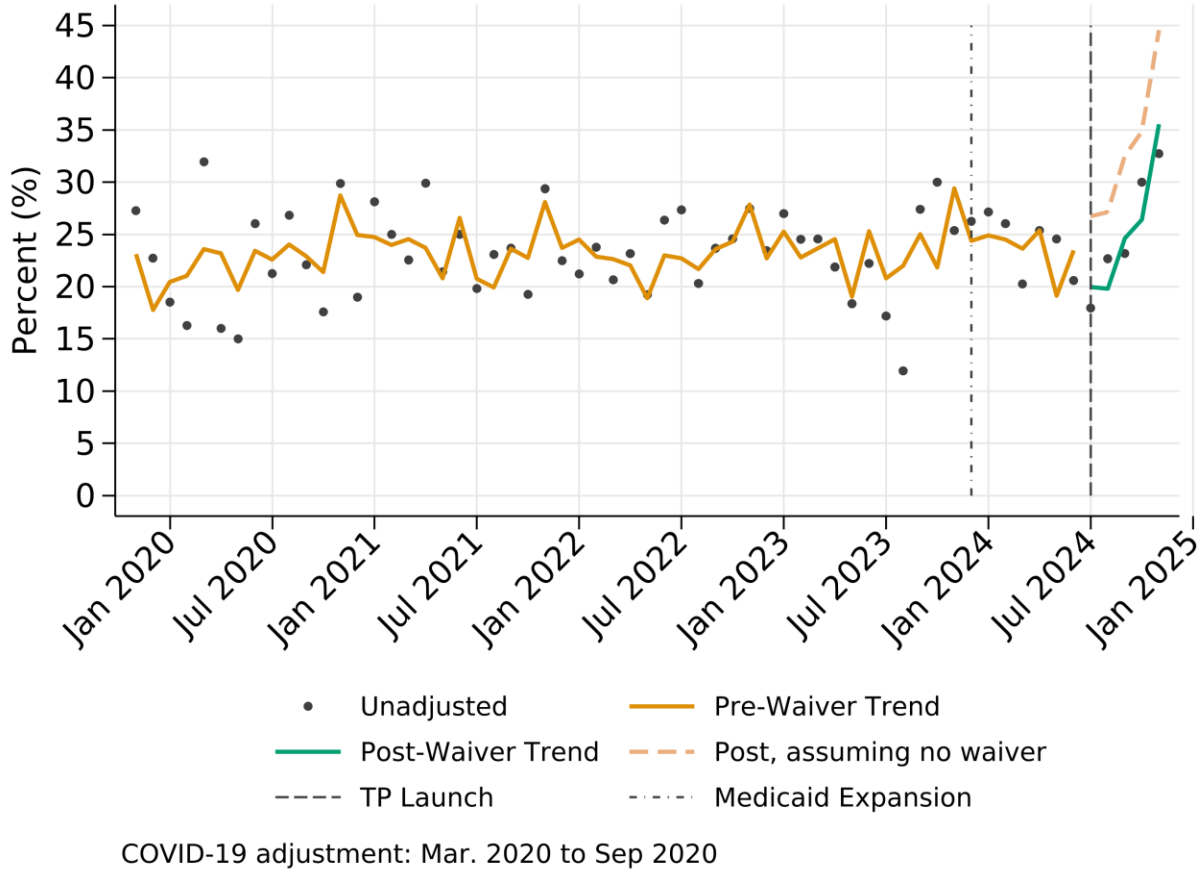
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Low-Risk Cesarean Delivery (LRCD)

Low-Risk Cesarean Delivery (LRCD) (Figure)

Figure 35: Trends in Low-Risk Cesarean Delivery (LRCD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 0-64) in the NC Medicaid population as determined in the metric specifications.

Demographic and enrollment information were derived from the mother rather than the child. TP attribution was determined by the mother's TP eligibility or enrollment status at the time of delivery.

Low-Risk Cesarean Delivery (LRCD) (Table)

Table 18: Interrupted time series estimates of Low-Risk Cesarean Delivery (LRCD)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	31.14* (24.68, 37.59)	24.35* (13.81, 34.89)	-6.79 (-16.88, 3.31)
Monthly Change	0.45* (0.052, 0.85)	-0.098 (-7.71, 7.51)	-0.55 (-8.16, 7.06)
Predicted Average Outcome Nov 2024	31.92* (24.84, 39.01)	22.93 (-9.74, 55.61)	-8.99 (-42.53, 24.55)
N			5,336

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 0-64) in the NC Medicaid population as determined in the metric specifications.*
Demographic and enrollment information were derived from the mother rather than the child. TP attribution was determined by the mother's TP eligibility or enrollment status at the time of delivery.

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Low-Risk Cesarean Delivery (LRCD) (Contrast Plot)

Figure 36: Comparison groups in Low-Risk Cesarean Delivery (LRCD)



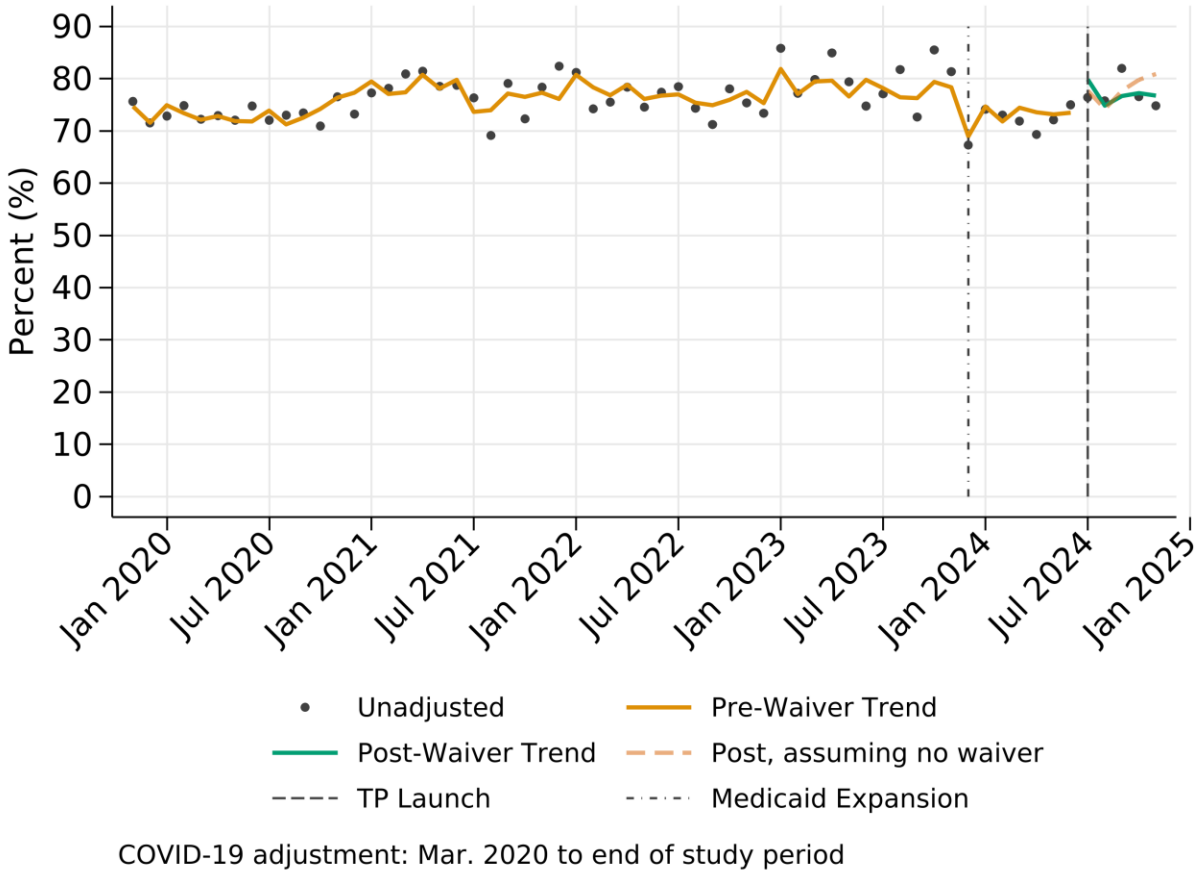
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female). Demographic and enrollment information were derived from the mother rather than the child. TP attribution was determined by the mother's TP eligibility or enrollment status at the time of delivery.

Pharmacotherapy Management of COPD Exacerbation (PCE)

Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Bronchodilator (Figure)

Figure 37: Trends in Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Bronchodilator



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 40+) in the NC Medicaid population as determined in the metric specifications.

Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Bronchodilator (Table)

Table 19: Interrupted time series estimates of Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Bronchodilator

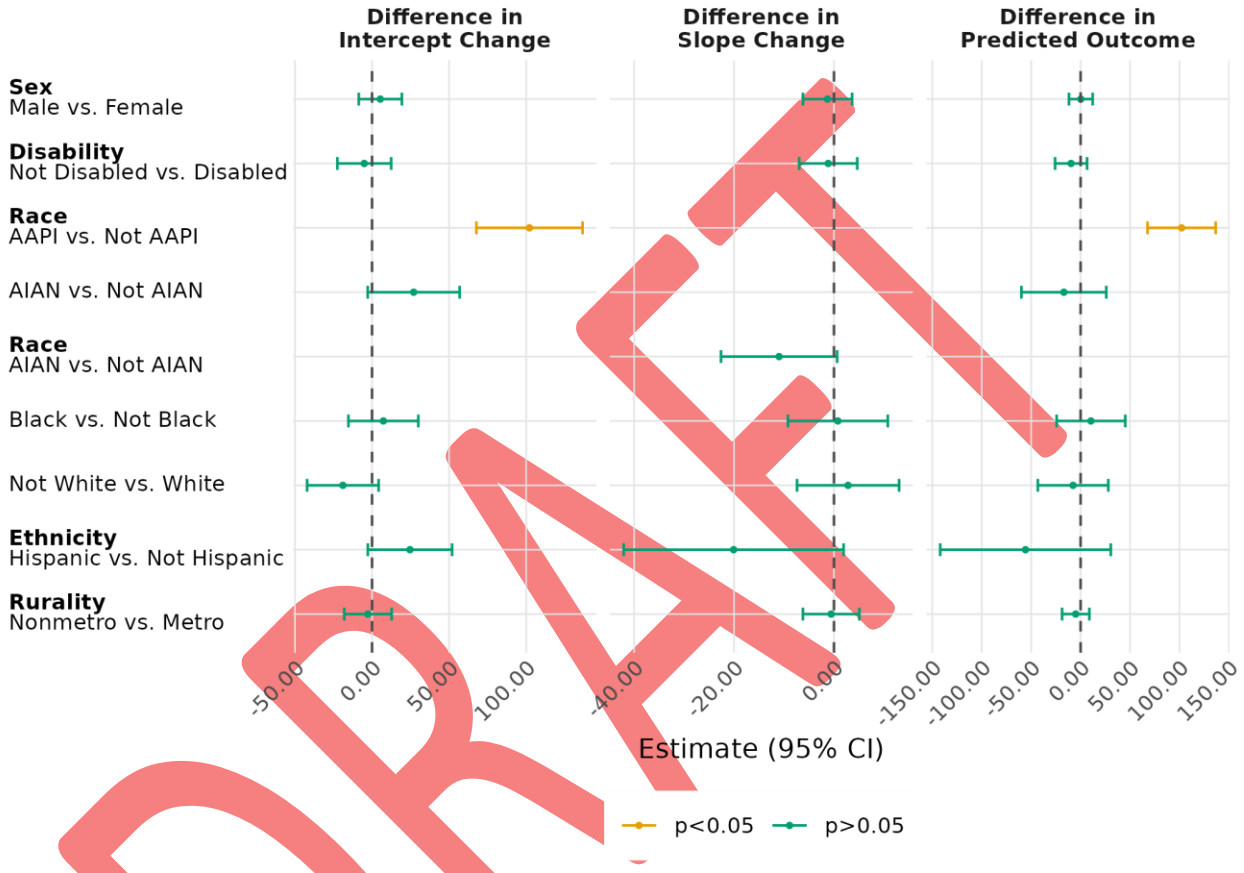
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	81.28* (75.44, 87.13)	83.49* (75.01, 91.97)	2.20 (-5.34, 9.75)
Monthly Change	-0.98 (-4.31, 2.34)	-2.57 (-6.62, 1.48)	-1.59 (-4.21, 1.04)
Predicted Average Outcome Nov 2024	81.69* (75.26, 88.13)	77.56* (69.26, 85.86)	-4.14 (-10.87, 2.59)
N			8,439

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 40+) in the NC Medicaid population as determined in the metric specifications.*

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Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Bronchodilator (Contrast Plot)

Figure 38: Comparison groups in Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Bronchodilator

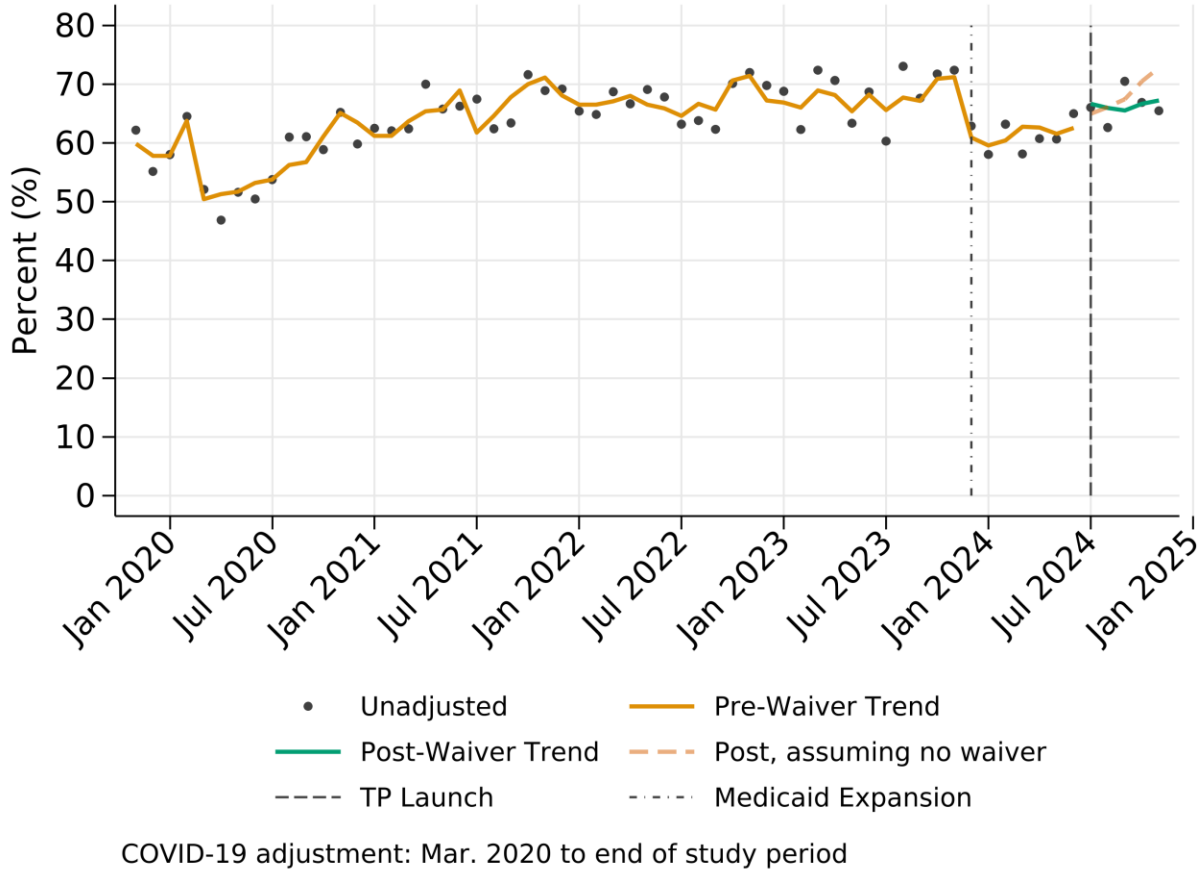


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid (Figure)

Figure 39: Trends in Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 40+) in the NC Medicaid population as determined in the metric specifications.

Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid (Table)

Table 20: Interrupted time series estimates of Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid

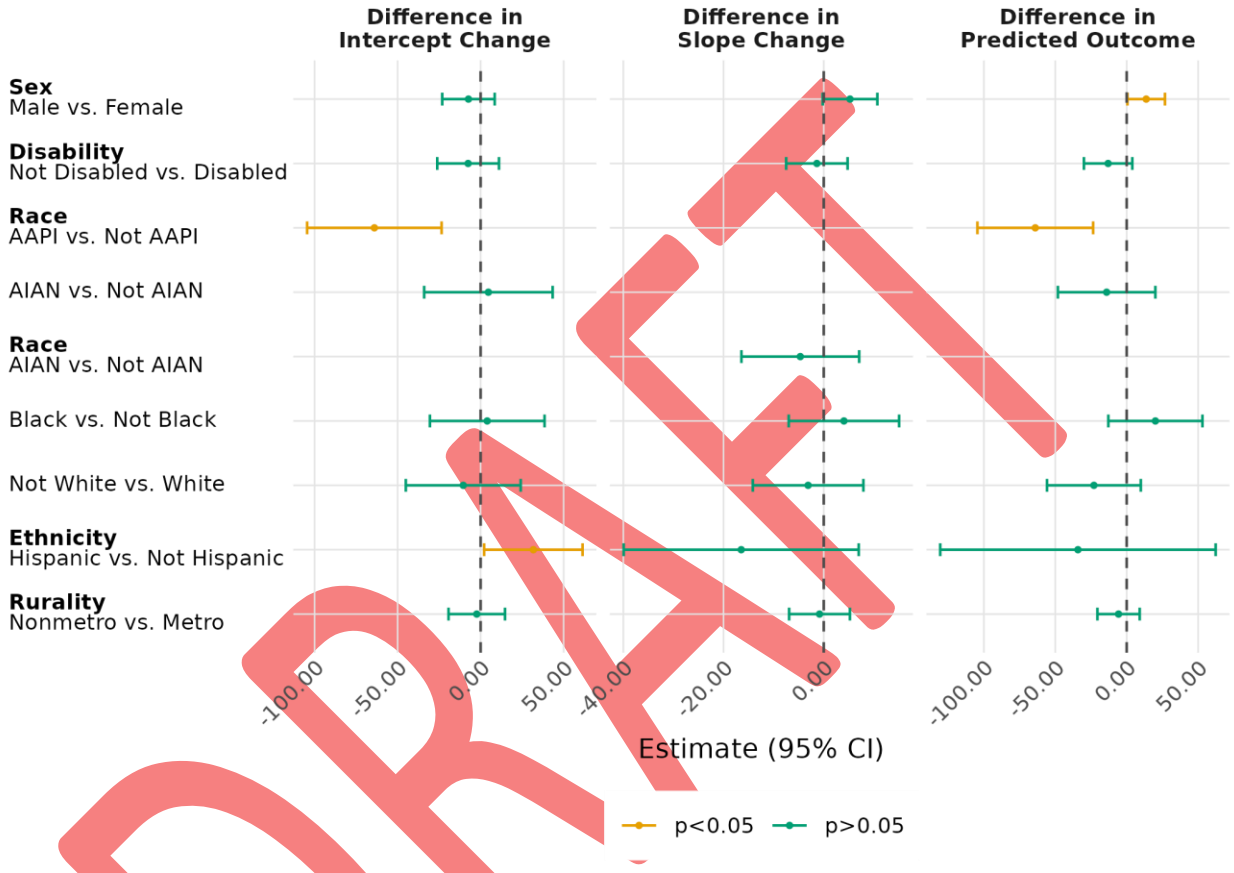
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	78.01* (71.35, 84.67)	79.68* (70.10, 89.25)	1.66 (-6.42, 9.75)
Monthly Change	3.27 (-0.60, 7.15)	1.46 (-3.18, 6.09)	-1.81 (-4.68, 1.05)
Predicted Average Outcome Nov 2024	79.17* (71.86, 86.48)	73.58* (63.99, 83.17)	-5.59 (-13.13, 1.94)
N			8,439

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 40+) in the NC Medicaid population as determined in the metric specifications.*

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Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid (Contrast Plot)

Figure 40: Comparison groups in Pharmacotherapy Management of COPD Exacerbation (PCE): Use of Corticosteroid



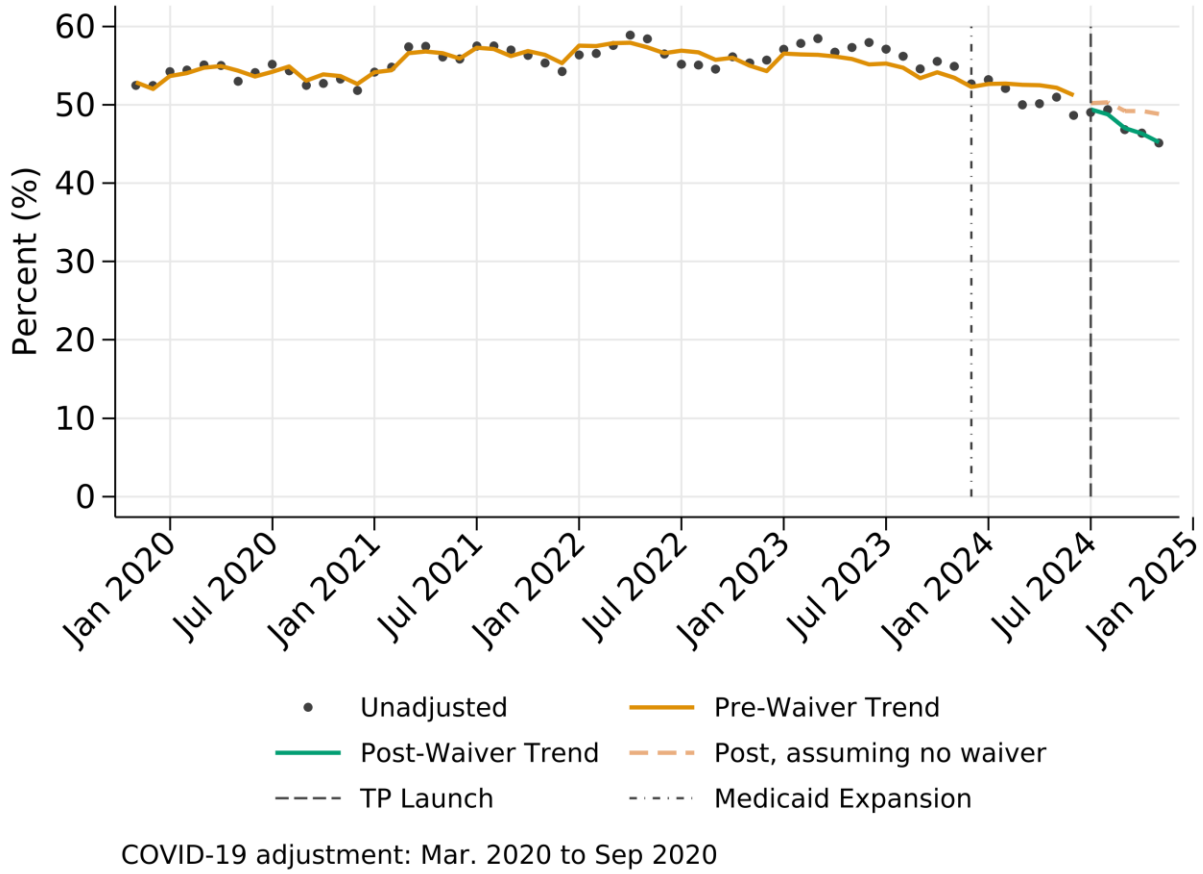
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Statin Therapy

Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC) (Figure)

Figure 41: Trends in Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged M 21-75; F 40-75) in the NC Medicaid population as determined in the metric specifications.

The Medicaid Expansion population has been excluded.

Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC) (Table)

Table 21: Interrupted time series estimates of Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	54.58* (51.03, 58.13)	52.84* (48.26, 57.42)	-1.74 (-4.69, 1.21)
Monthly Change	0.15 (-0.100, 0.40)	-0.59 (-1.53, 0.35)	-0.74 (-1.57, 0.092)
Predicted Average Outcome Nov 2024	54.28* (50.25, 58.31)	49.59* (43.67, 55.51)	-4.69* (-8.01, -1.37)
N			58,584

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged M 21-75; F 40-75) in the NC Medicaid population as determined in the metric specifications.*
The Medicaid Expansion population has been excluded.

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Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC) (Contrast Plot)

Figure 42: Comparison groups in Statin Therapy: Statin Therapy for Patients with Cardiovascular Disease (SPC)

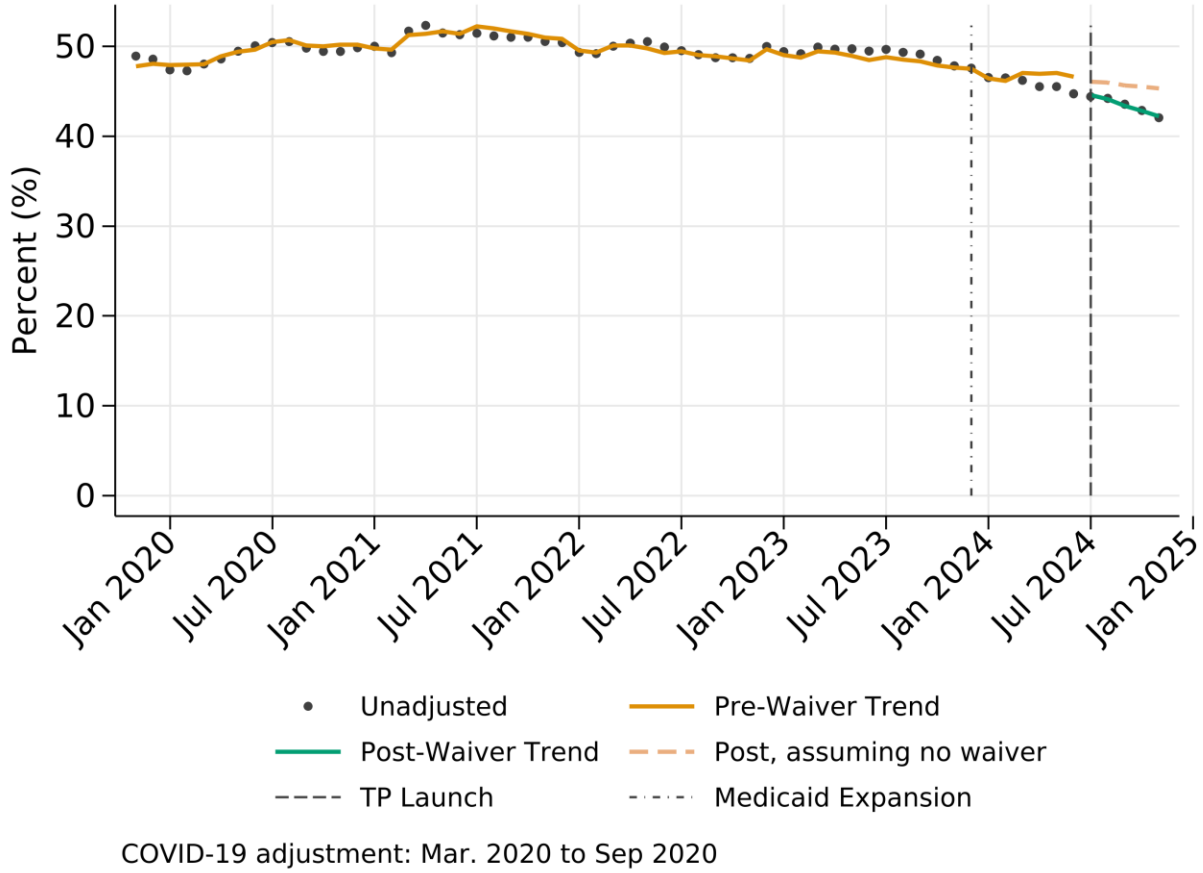


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

Statin Therapy: Statin Therapy for Patients with Diabetes (SPD) (Figure)

Figure 43: Trends in Statin Therapy: Statin Therapy for Patients with Diabetes (SPD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged M 21-75; F 40-75) in the NC Medicaid population as determined in the metric specifications.

The Medicaid Expansion population has been excluded.

Statin Therapy: Statin Therapy for Patients with Diabetes (SPD) (Table)

Table 22: Interrupted time series estimates of Statin Therapy: Statin Therapy for Patients with Diabetes (SPD)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	50.79* (49.29, 52.28)	48.64* (46.61, 50.67)	-2.14* (-3.52, -0.77)
Monthly Change	0.24* (0.14, 0.33)	-0.21 (-0.62, 0.19)	-0.45* (-0.85, -0.050)
Predicted Average Outcome Nov 2024	50.80* (49.07, 52.54)	46.86* (44.43, 49.28)	-3.94* (-6.12, -1.77)
N			252,121

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged M 21-75; F 40-75) in the NC Medicaid population as determined in the metric specifications.*
The Medicaid Expansion population has been excluded.

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Statin Therapy: Statin Therapy for Patients with Diabetes (SPD) (Contrast Plot)

Figure 44: Comparison groups in Statin Therapy: Statin Therapy for Patients with Diabetes (SPD)



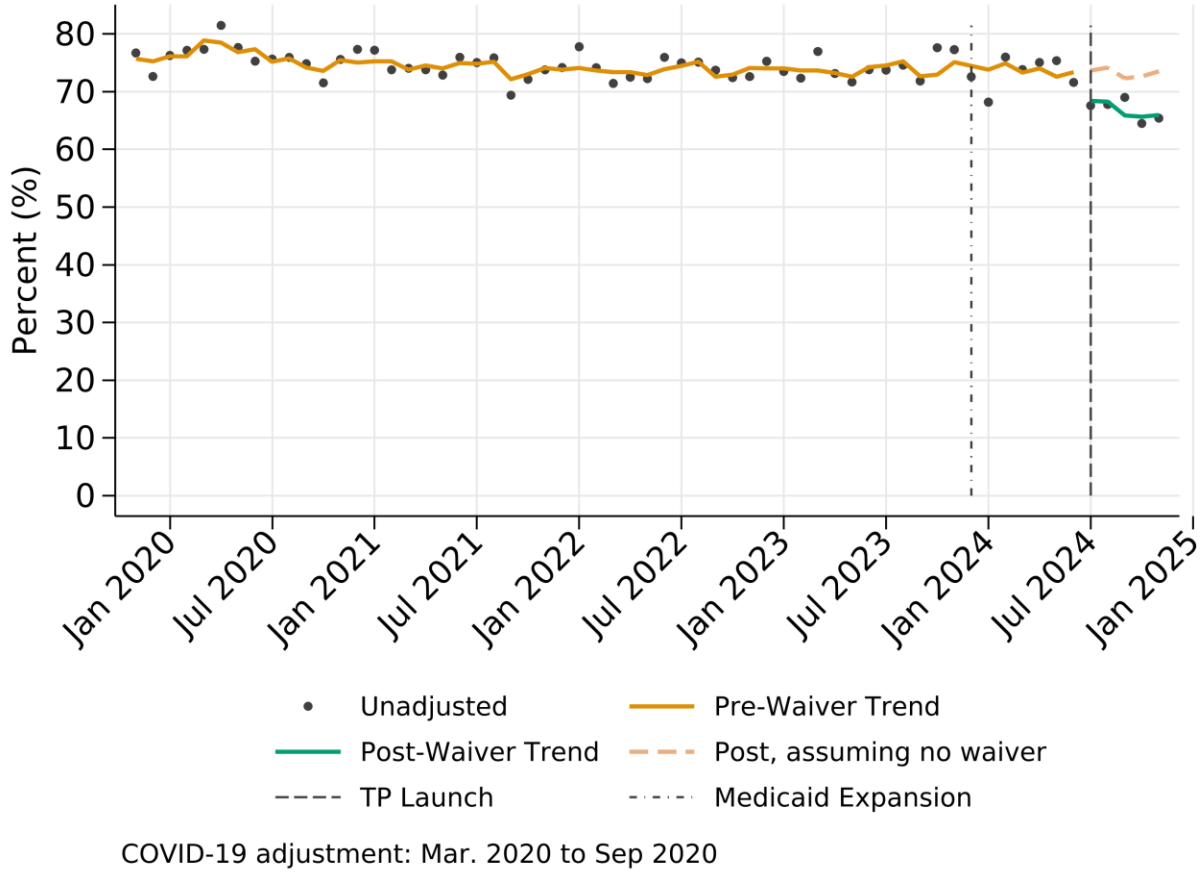
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
The Medicaid Expansion population has been excluded.

Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP)

Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP) (Figure)

Figure 45: Trends in Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP) (Table)

Table 23: Interrupted time series estimates of Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	74.03* (71.18, 76.89)	68.73* (63.19, 74.28)	-5.30* (-10.50, -0.10)
Monthly Change	-0.0097 (-0.23, 0.21)	-0.57 (-2.59, 1.44)	-0.56 (-2.57, 1.44)
Predicted Average Outcome Nov 2024	74.05* (70.90, 77.20)	66.49* (60.81, 72.17)	-7.56* (-12.94, -2.18)
N			23,834

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP) (Contrast Plot)

Figure 46: Comparison groups in Avoidance of Unnecessary Imaging Studies for Low Back Pain (LBP)



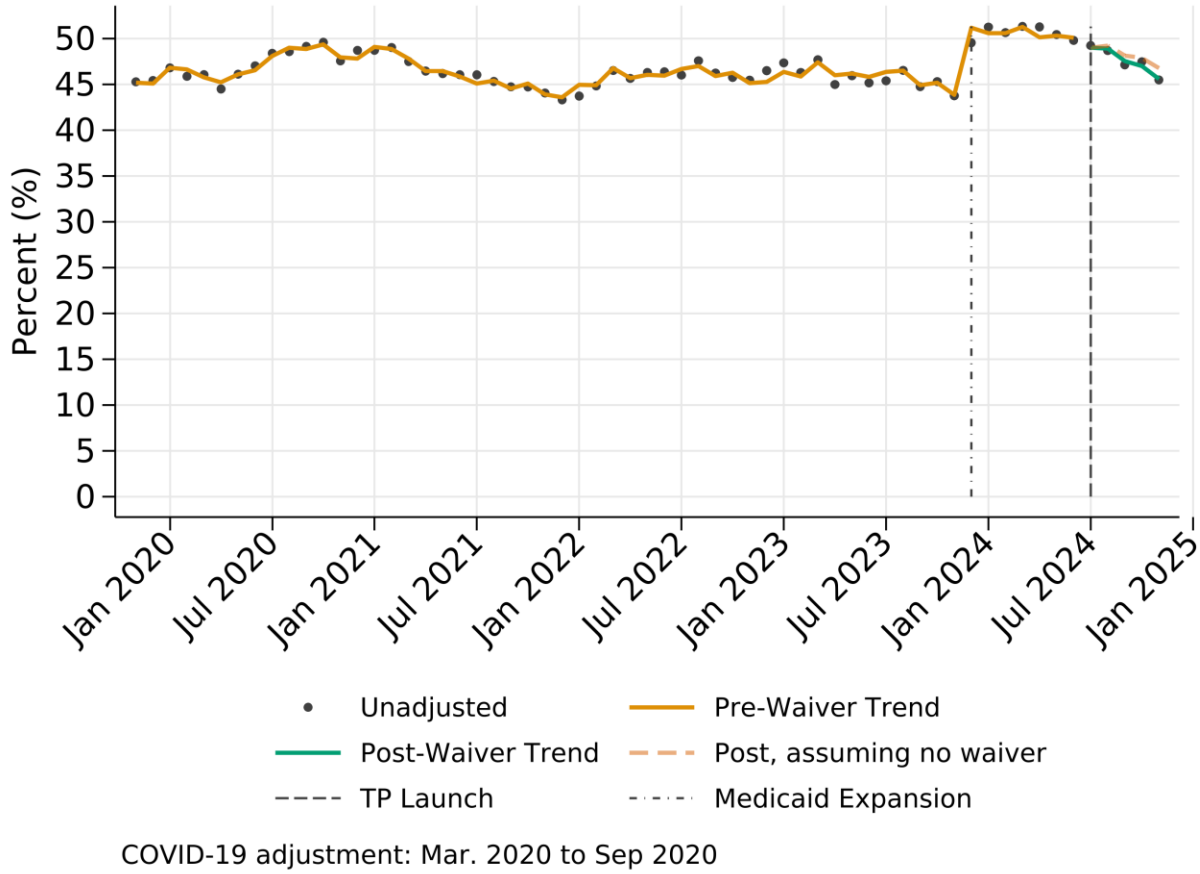
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Any SUD Treatment

Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service (Figure)

Figure 47: Trends in Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service (Table)

Table 24: Interrupted time series estimates of Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service

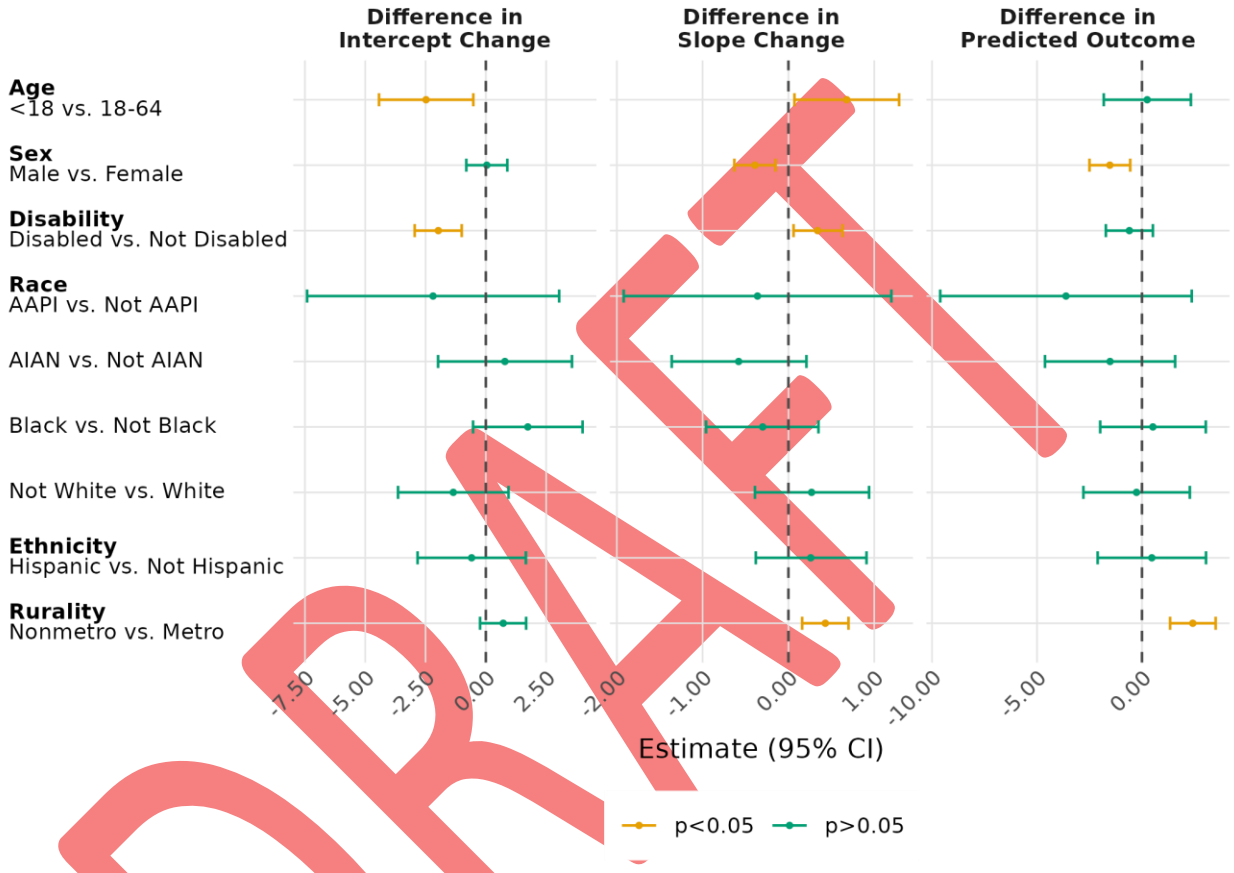
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	42.67* (41.61, 43.74)	42.29* (41.22, 43.36)	-0.38 (-1.11, 0.34)
Monthly Change	-0.21* (-0.29, -0.14)	-0.56* (-0.85, -0.27)	-0.35* (-0.64, -0.052)
Predicted Average Outcome Nov 2024	41.92* (40.72, 43.13)	40.16* (38.66, 41.65)	-1.77* (-3.26, -0.28)
N			1,952,227

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service (Contrast Plot)

Figure 48: Comparison groups in Any SUD Treatment: Percent of beneficiaries who receive a SUD treatment service



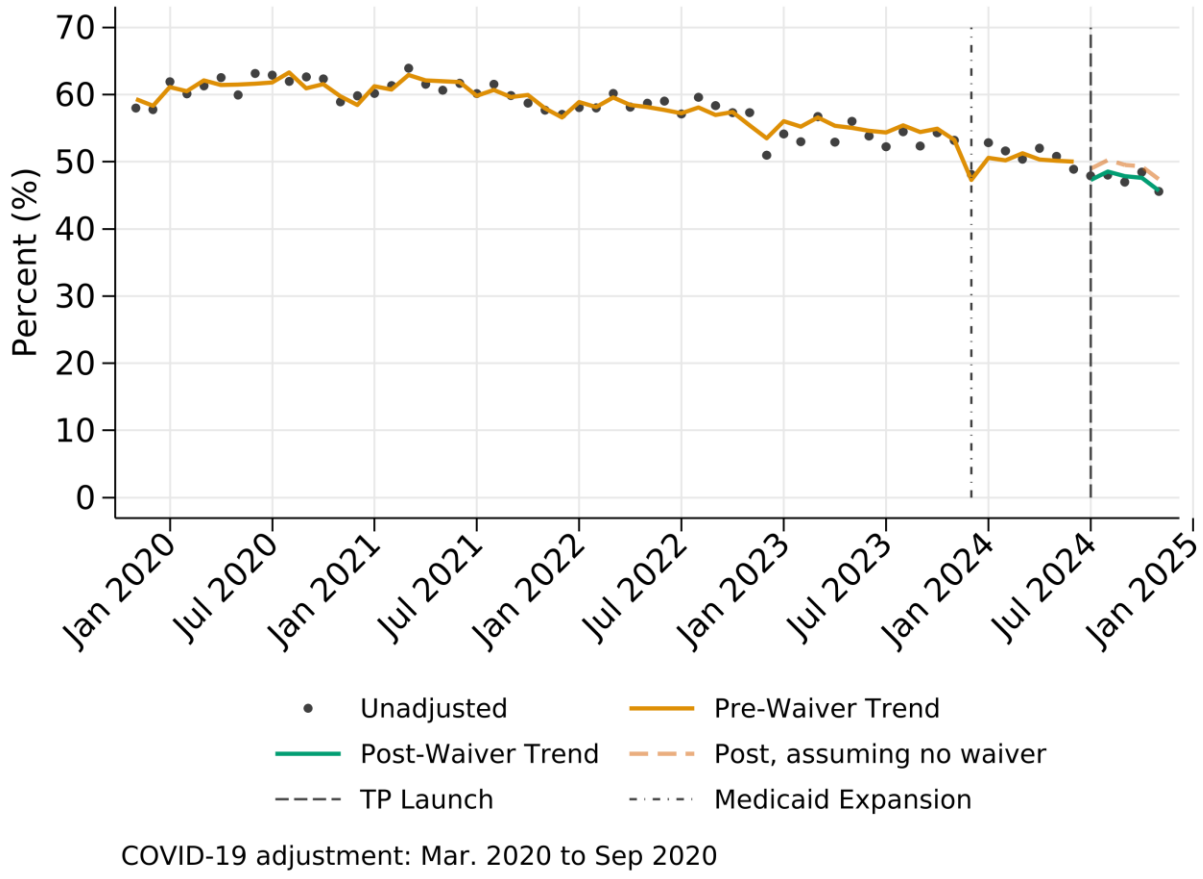
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD

Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD (Figure)

Figure 49: Trends in Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 20-99) in the NC Medicaid population as determined in the metric specifications.

Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD (Table)

Table 25: Interrupted time series estimates of Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD

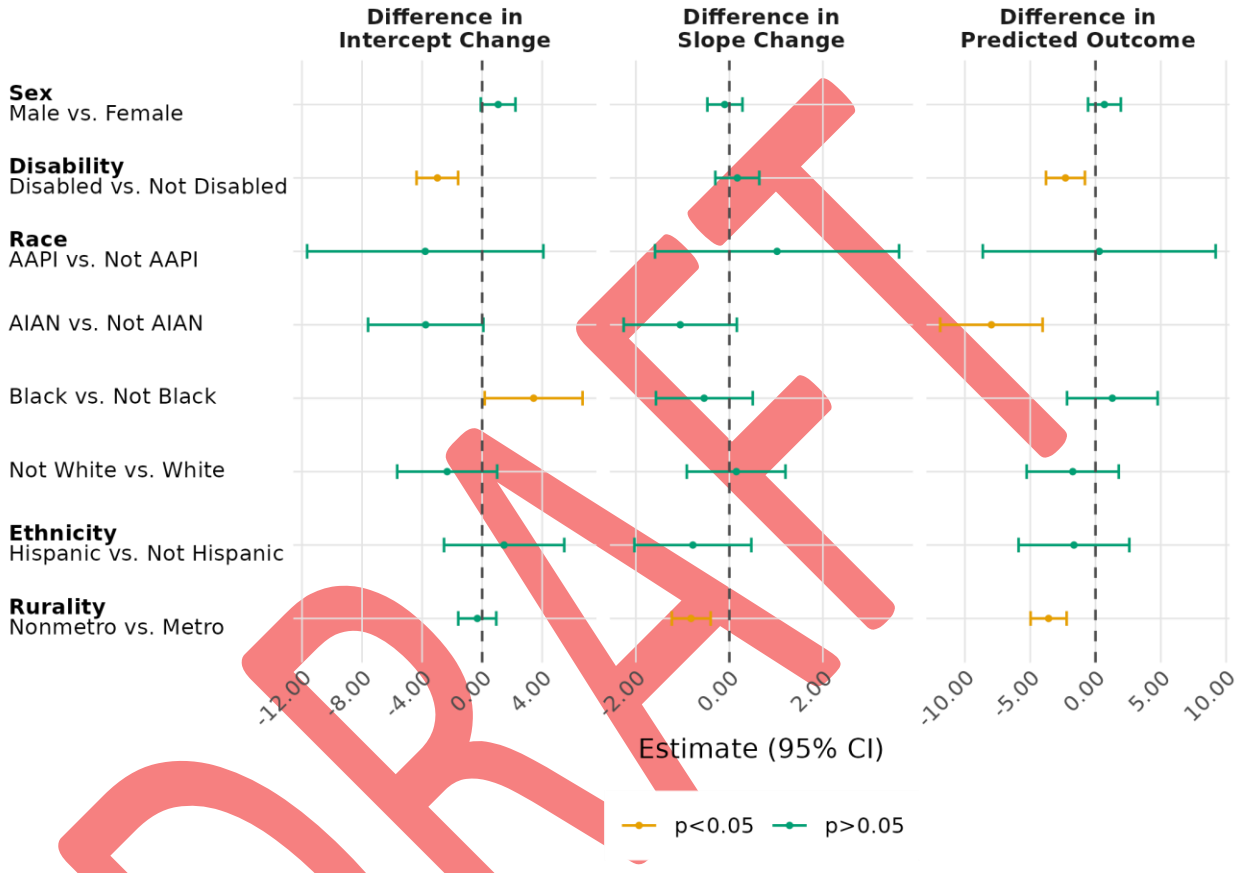
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	55.29* (54.62, 55.96)	53.62* (52.78, 54.47)	-1.66* (-2.36, -0.97)
Monthly Change	0.099* (0.052, 0.15)	0.081 (-0.15, 0.31)	-0.018 (-0.24, 0.20)
Predicted Average Outcome Nov 2024	54.87* (54.15, 55.60)	53.14* (52.28, 53.99)	-1.74* (-2.47, -1.01)
N			892,527

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 20-99) in the NC Medicaid population as determined in the metric specifications.*

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Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD (Contrast Plot)

Figure 50: Comparison groups in Access to Preventive/Ambulatory Health Services for Adult Medicaid Beneficiaries with SUD



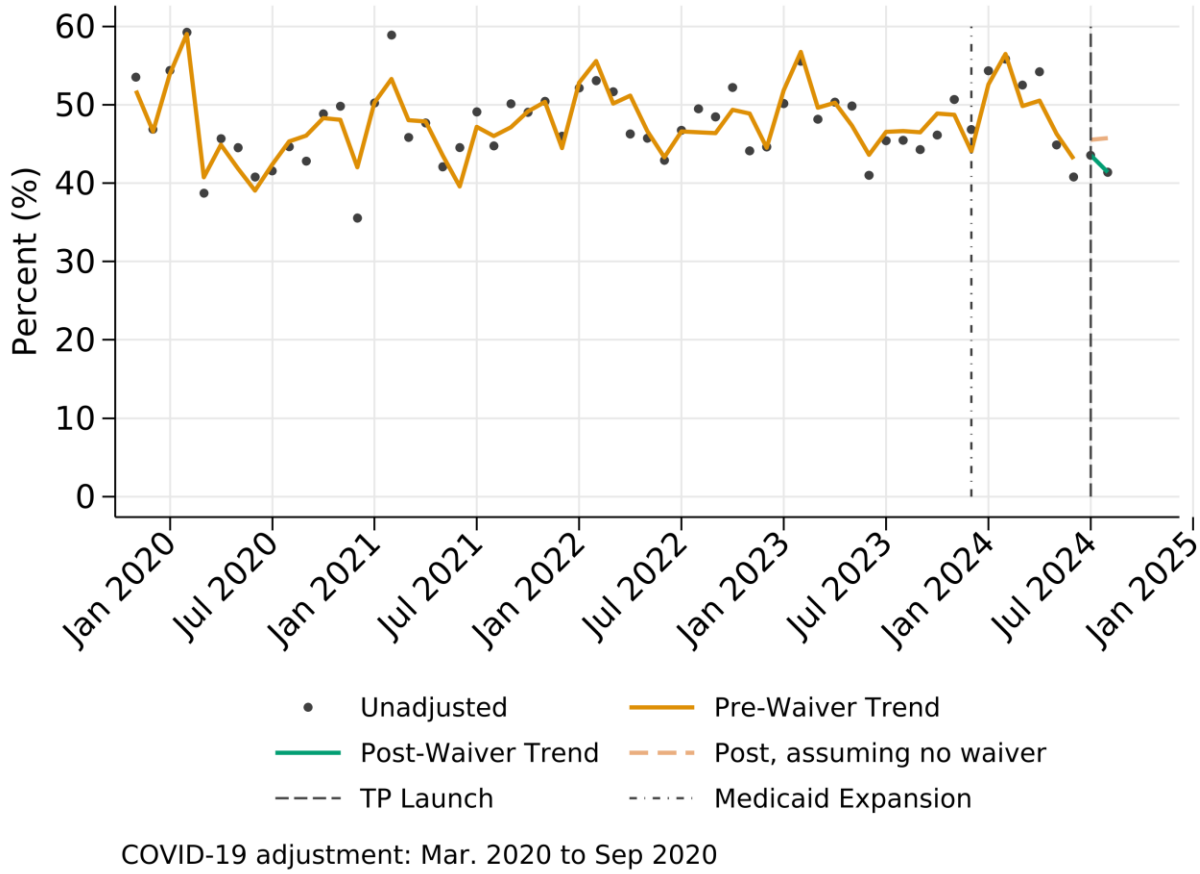
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Follow-up Care for Children Prescribed ADHD Medication (ADD)

Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation (Figure)

Figure 51: Trends in Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.

Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation (Table)

Table 26: Interrupted time series estimates of Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	44.51* (40.73, 48.28)	42.50* (35.51, 49.49)	-2.01 (-8.45, 4.43)
Monthly Change	-0.28 (-0.57, 0.0016)	-2.65 (-10.60, 5.31)	-2.37 (-10.32, 5.58)
Predicted Average Outcome Aug 2024	44.41* (40.54, 48.28)	40.04* (33.75, 46.33)	-4.37 (-9.97, 1.22)
N			18,134

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.*

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Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation (Contrast Plot)

Figure 52: Comparison groups in Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation

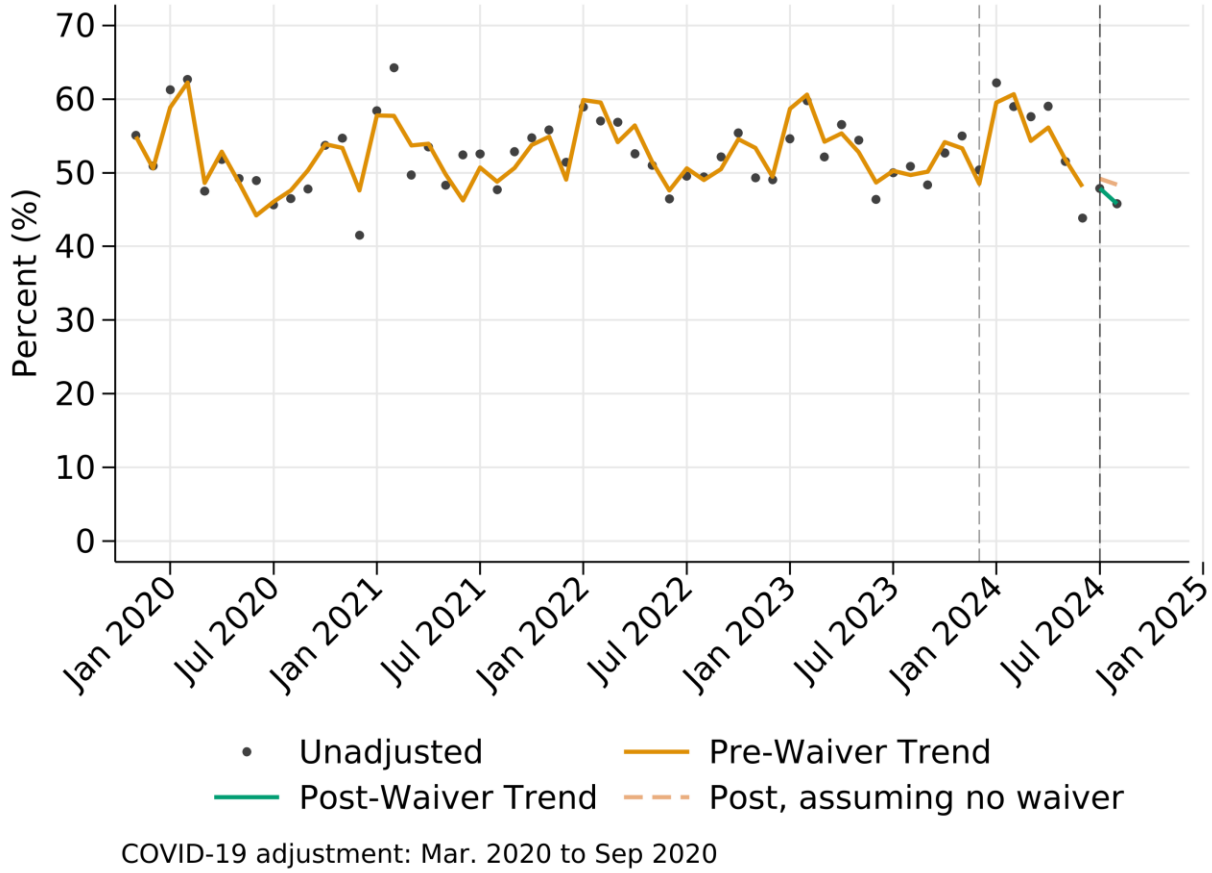


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation (Figure)

Figure 53: Trends in Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.

Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation (Table)

Table 27: Interrupted time series estimates of Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation

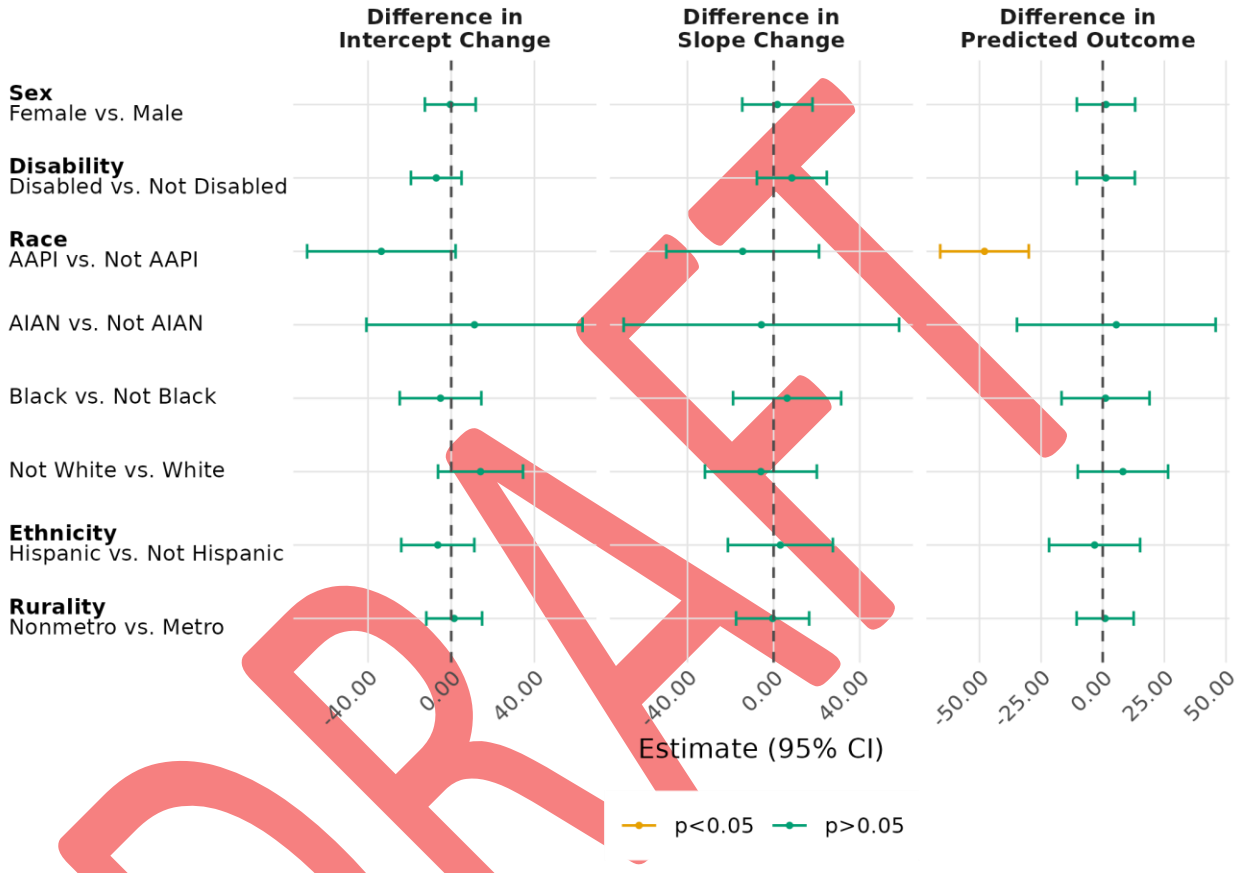
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	51.34* (47.33, 55.35)	50.02* (42.58, 57.45)	-1.32 (-8.20, 5.55)
Monthly Change	-0.12 (-0.42, 0.19)	-1.39 (-9.92, 7.14)	-1.28 (-9.80, 7.25)
Predicted Average Outcome Aug 2024	51.30* (47.19, 55.41)	48.70* (41.95, 55.45)	-2.60 (-8.65, 3.45)
N			15,557

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.*

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Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation (Contrast Plot)

Figure 54: Comparison groups in Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation



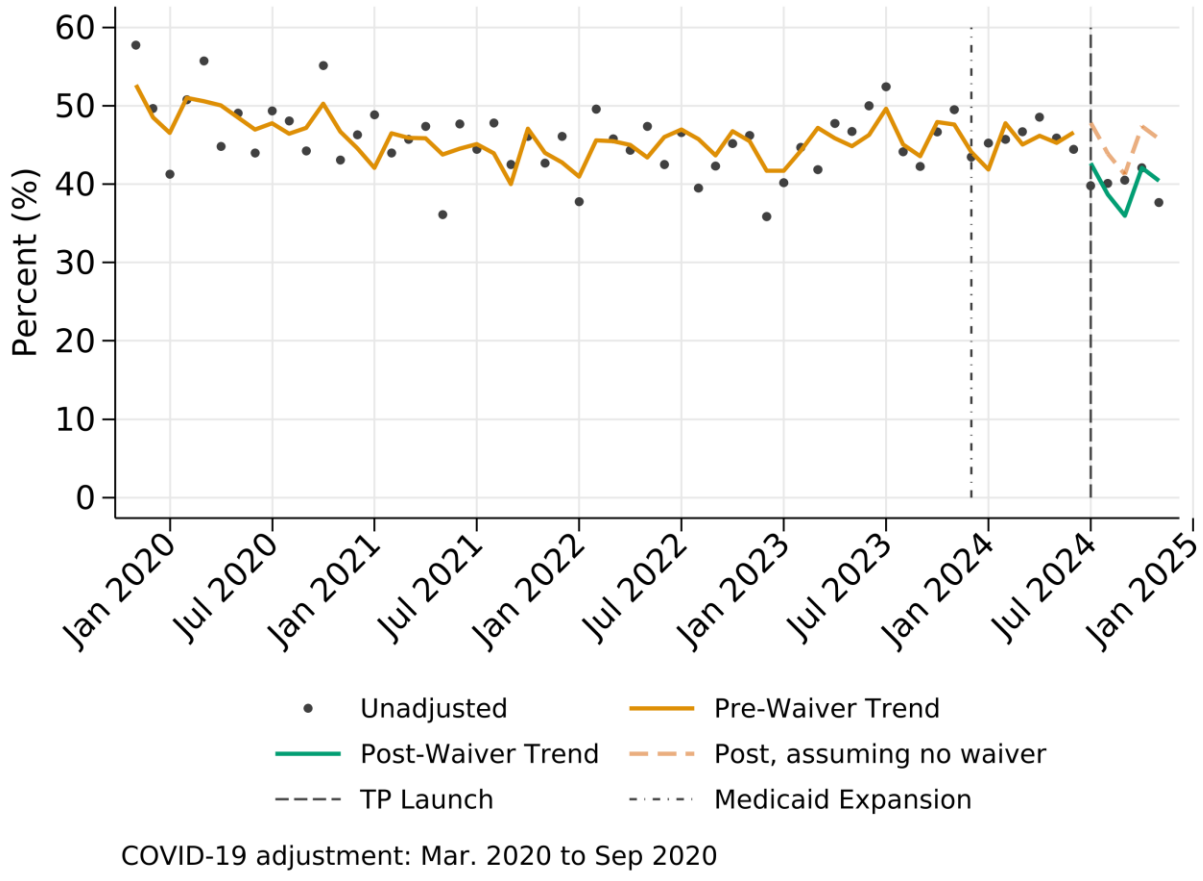
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)

Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP) (Figure)

Figure 55: Trends in Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 1-17) in the NC Medicaid population as determined in the metric specifications.

Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP) (Table)

Table 28: Interrupted time series estimates of Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	40.51* (36.04, 44.99)	35.35* (28.11, 42.59)	-5.16 (-11.65, 1.32)
Monthly Change	-0.43* (-0.73, -0.12)	-0.48 (-2.99, 2.03)	-0.048 (-2.55, 2.46)
Predicted Average Outcome Nov 2024	40.16* (35.23, 45.09)	34.80* (27.35, 42.26)	-5.36 (-12.14, 1.42)
N			13,093

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 1-17) in the NC Medicaid population as determined in the metric specifications.*

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Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP) (Contrast Plot)

Figure 56: Comparison groups in Use of First Line Psychosocial Care for Children and Adolescents on Antipsychotics (APP)



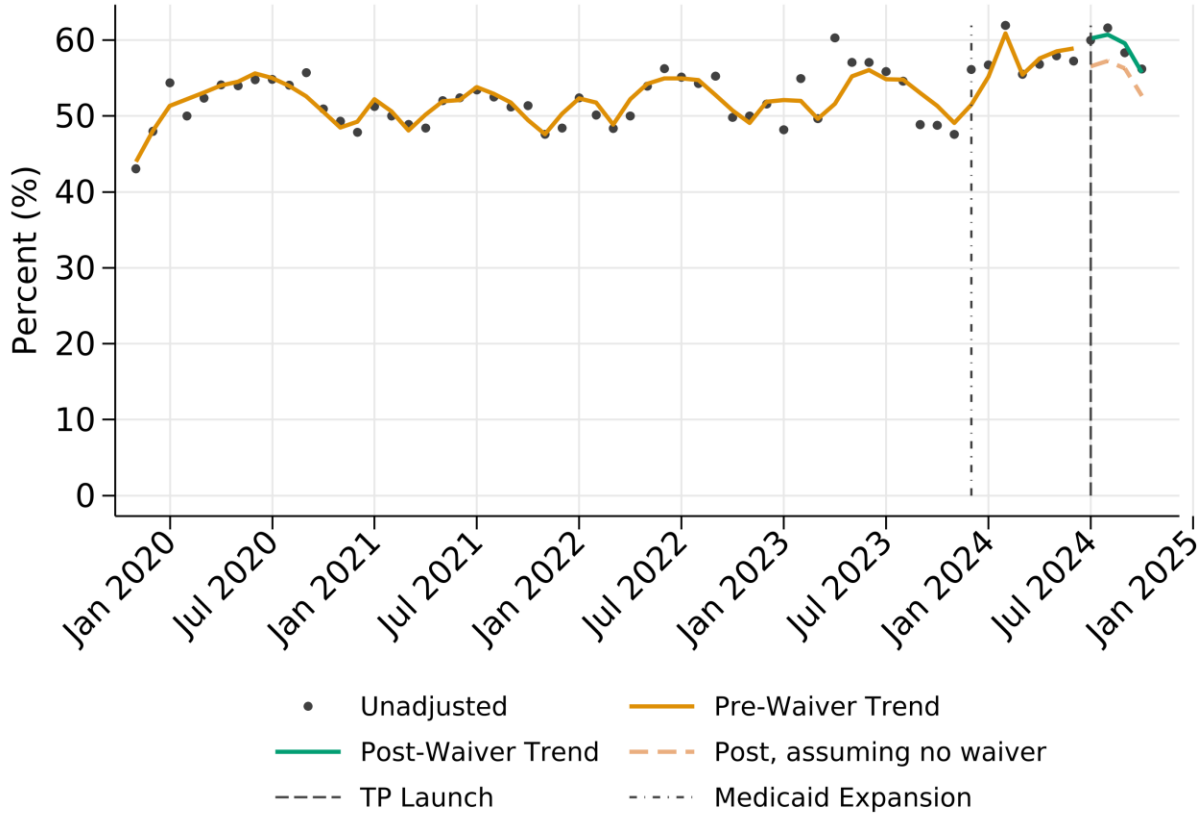
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Antidepressant Medication Management (AMM)

Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days (Figure)

Figure 57: Trends in Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days (Table)

Table 29: Interrupted time series estimates of Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	51.70* (48.39, 55.00)	55.41* (51.21, 59.61)	3.71* (0.13, 7.29)
Monthly Change	1.48 (-1.23, 4.19)	1.27 (-1.98, 4.52)	-0.21 (-2.00, 1.58)
Predicted Average Outcome Oct 2024	51.71* (48.16, 55.27)	54.79* (49.98, 59.60)	3.08 (-0.94, 7.09)
N			29,985

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days (Contrast Plot)

Figure 58: Comparison groups in Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days

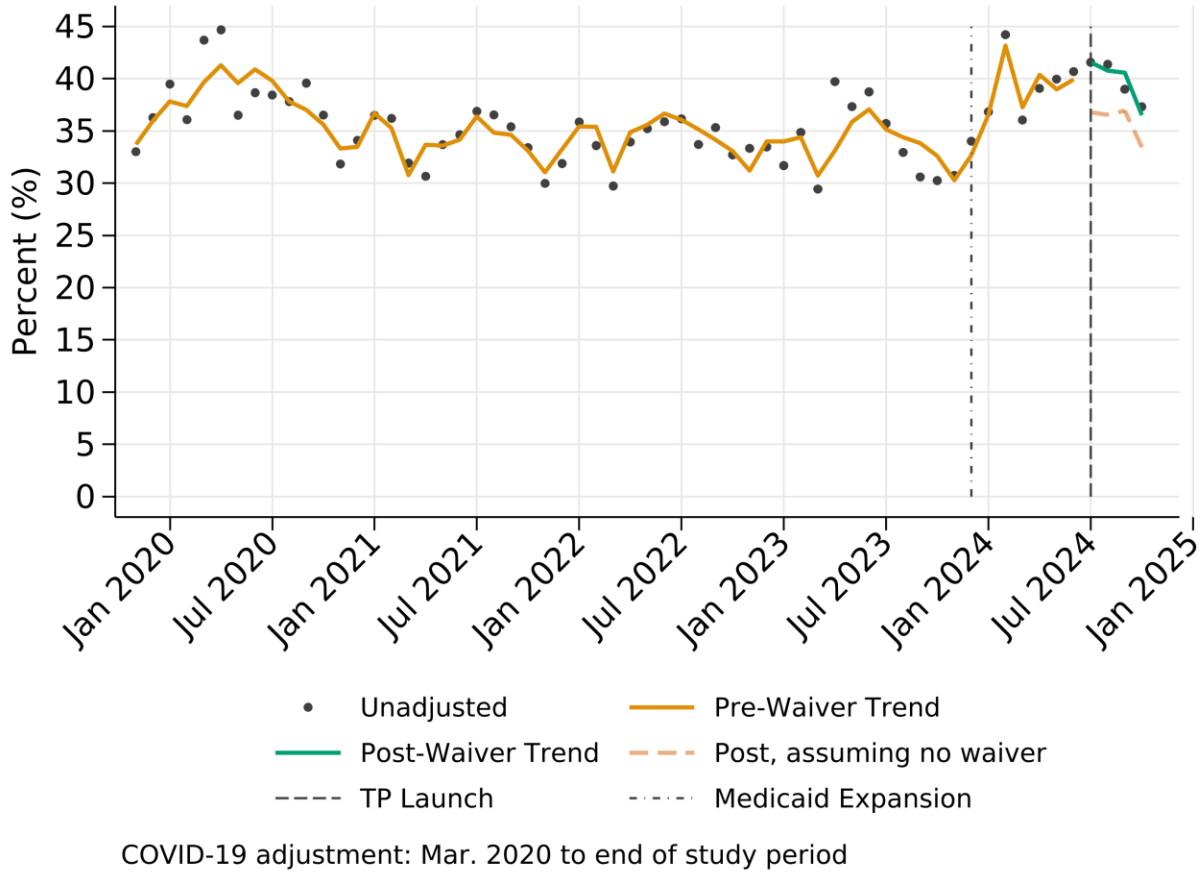


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days (Figure)

Figure 59: Trends in Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days (Table)

Table 30: Interrupted time series estimates of Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days

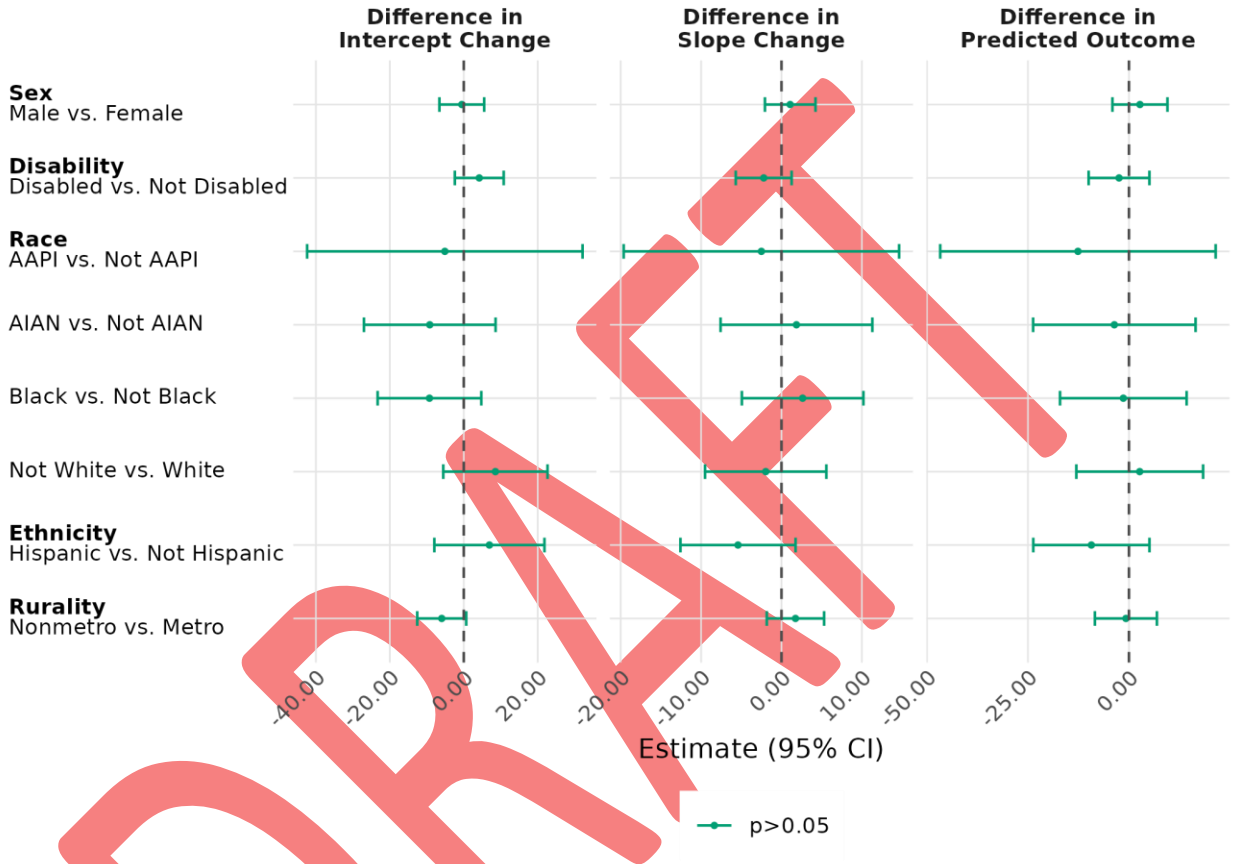
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	29.99* (26.84, 33.15)	34.79* (30.68, 38.90)	4.79* (1.26, 8.32)
Monthly Change	-0.12 (-2.69, 2.44)	-0.70 (-3.80, 2.41)	-0.58 (-2.33, 1.18)
Predicted Average Outcome Oct 2024	29.61* (26.22, 33.01)	32.68* (28.05, 37.31)	3.06 (-0.81, 6.94)
N			29,985

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days (Contrast Plot)

Figure 60: Comparison groups in Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days



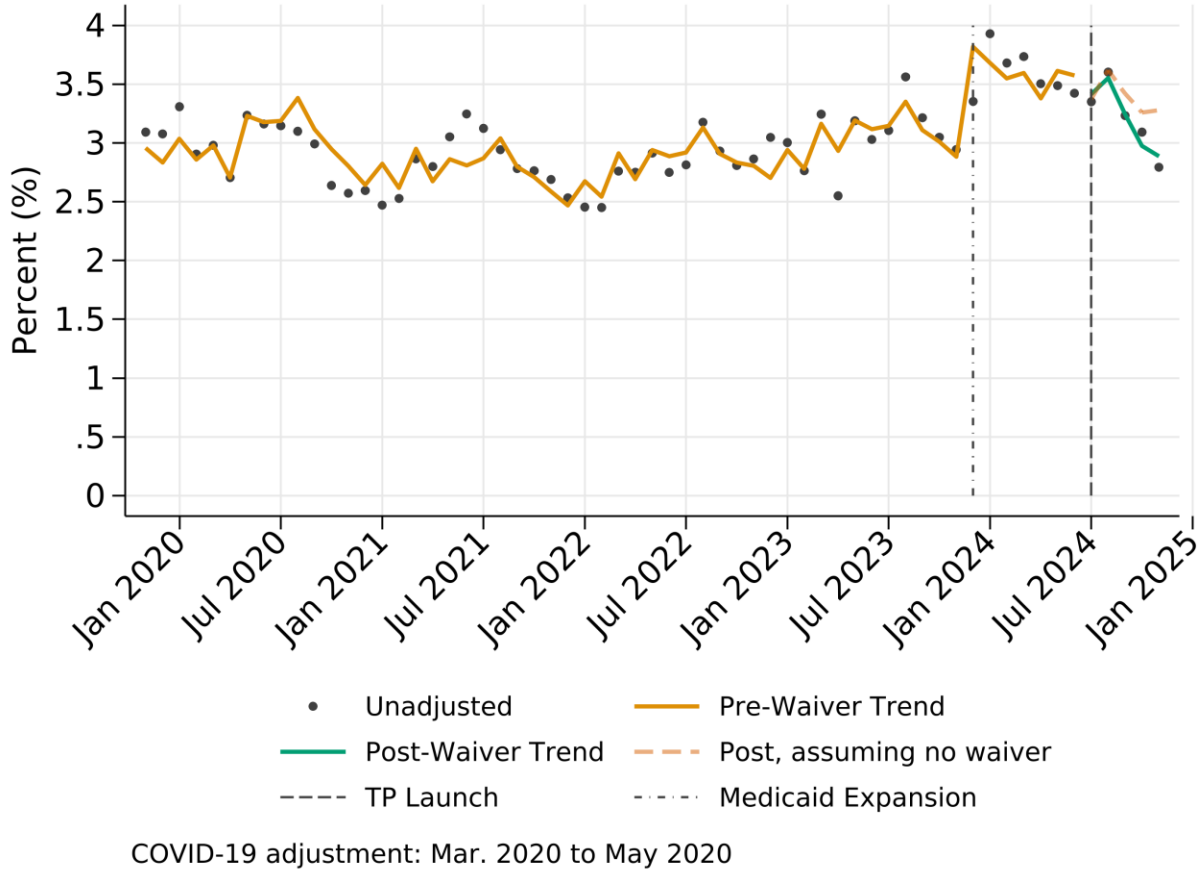
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Inpatient Admissions for SUD

Inpatient Admissions for SUD (Figure)

Figure 61: Trends in Inpatient Admissions for SUD



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Inpatient Admissions for SUD (Table)

Table 31: Interrupted time series estimates of Inpatient Admissions for SUD

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	2.84* (2.58, 3.09)	2.77* (2.48, 3.06)	-0.070 (-0.25, 0.11)
Monthly Change	-0.020* (-0.037, -0.0024)	-0.15* (-0.21, -0.085)	-0.13* (-0.19, -0.067)
Predicted Average Outcome Nov 2024	2.82* (2.52, 3.11)	2.24* (1.91, 2.57)	-0.58* (-0.84, -0.31)
N			1,952,227

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Inpatient Admissions for SUD (Contrast Plot)

Figure 62: Comparison groups in Inpatient Admissions for SUD

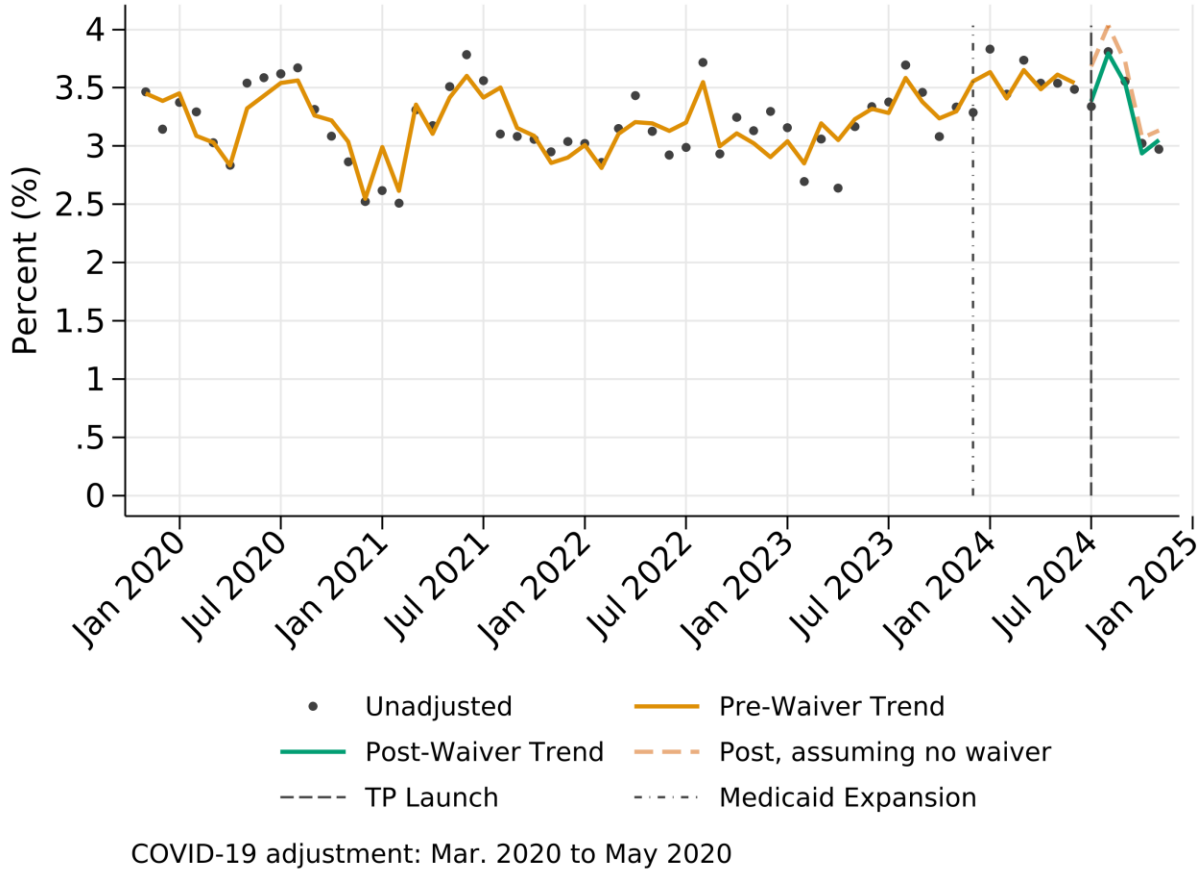


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Inpatient Admissions for SUD in the OUD population (Figure)

Figure 63: Trends in Inpatient Admissions for SUD in the OUD population



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Inpatient Admissions for SUD in the OUD population (Table)

Table 32: Interrupted time series estimates of Inpatient Admissions for SUD in the OUD population

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	3.42* (3.12, 3.72)	3.00* (2.66, 3.34)	-0.42* (-0.69, -0.15)
Monthly Change	0.0082 (-0.0095, 0.026)	0.060 (-0.039, 0.16)	0.052 (-0.050, 0.15)
Predicted Average Outcome Nov 2024	3.44* (3.09, 3.78)	3.22* (2.87, 3.58)	-0.21 (-0.55, 0.13)
N			602,820

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Inpatient Admissions for SUD in the OUD population (Contrast Plot)

Figure 64: Comparison groups in Inpatient Admissions for SUD in the OUD population



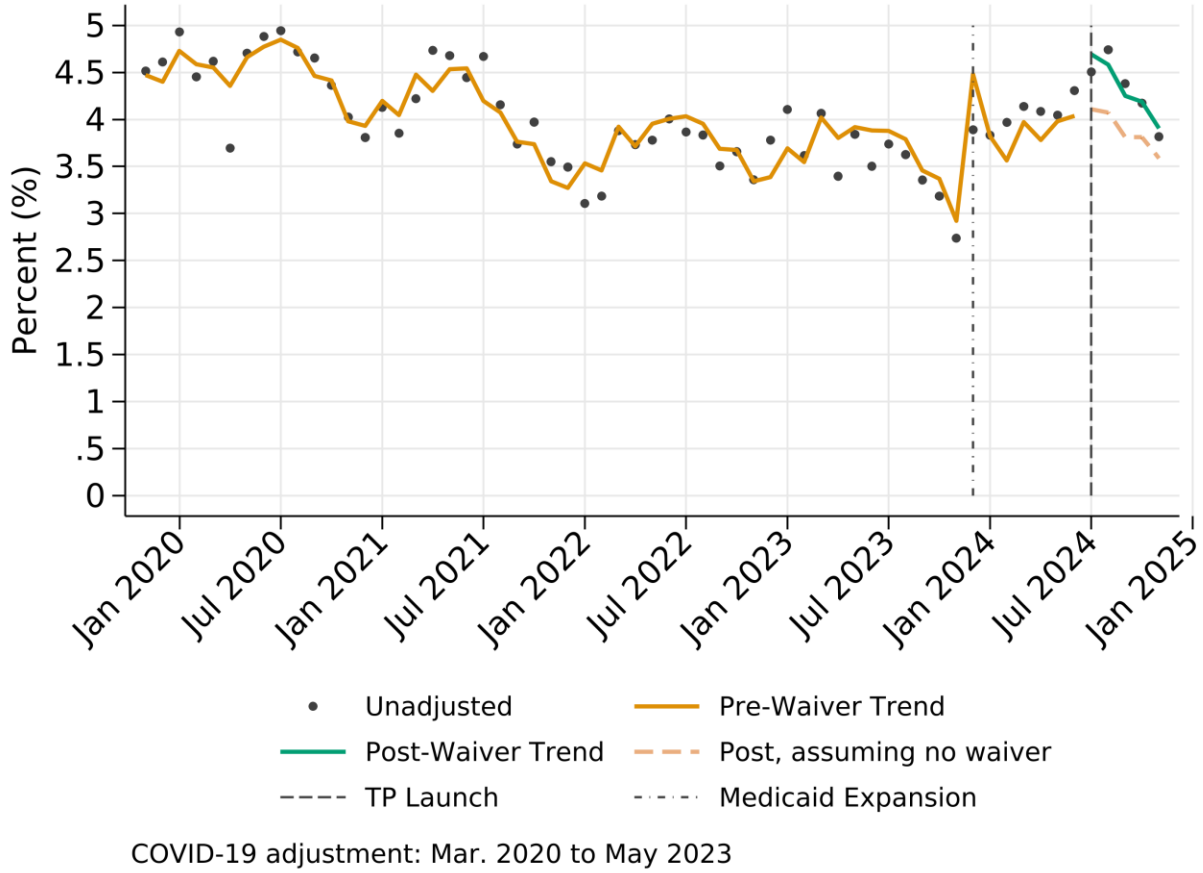
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Emergency Department Visits for SUD

Emergency Department Visits for SUD (Figure)

Figure 65: Trends in Emergency Department Visits for SUD



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Emergency Department Visits for SUD (Table)

Table 33: Interrupted time series estimates of Emergency Department Visits for SUD

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	3.09* (2.67, 3.51)	3.95* (3.38, 4.52)	0.86* (0.52, 1.19)
Monthly Change	-0.037* (-0.063, -0.011)	-0.084* (-0.15, -0.014)	-0.047 (-0.12, 0.023)
Predicted Average Outcome Nov 2024	2.93* (2.45, 3.40)	3.60* (3.03, 4.17)	0.67* (0.32, 1.02)
N			1,952,227

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Emergency Department Visits for SUD (Contrast Plot)

Figure 66: Comparison groups in Emergency Department Visits for SUD

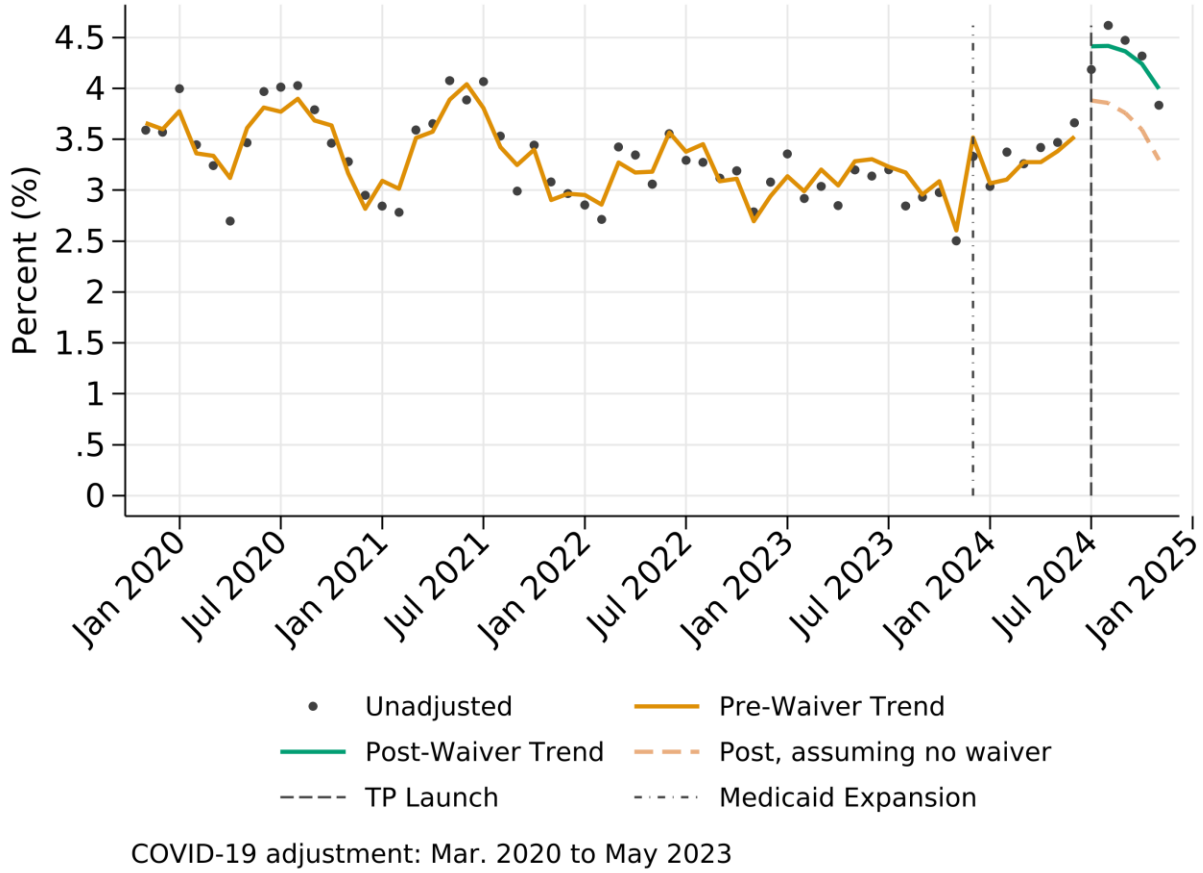


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Emergency Department Visits for SUD in the OUD population (Figure)

Figure 67: Trends in Emergency Department Visits for SUD in the OUD population



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Emergency Department Visits for SUD in the OUD population (Table)

Table 34: Interrupted time series estimates of Emergency Department Visits for SUD in the OUD population

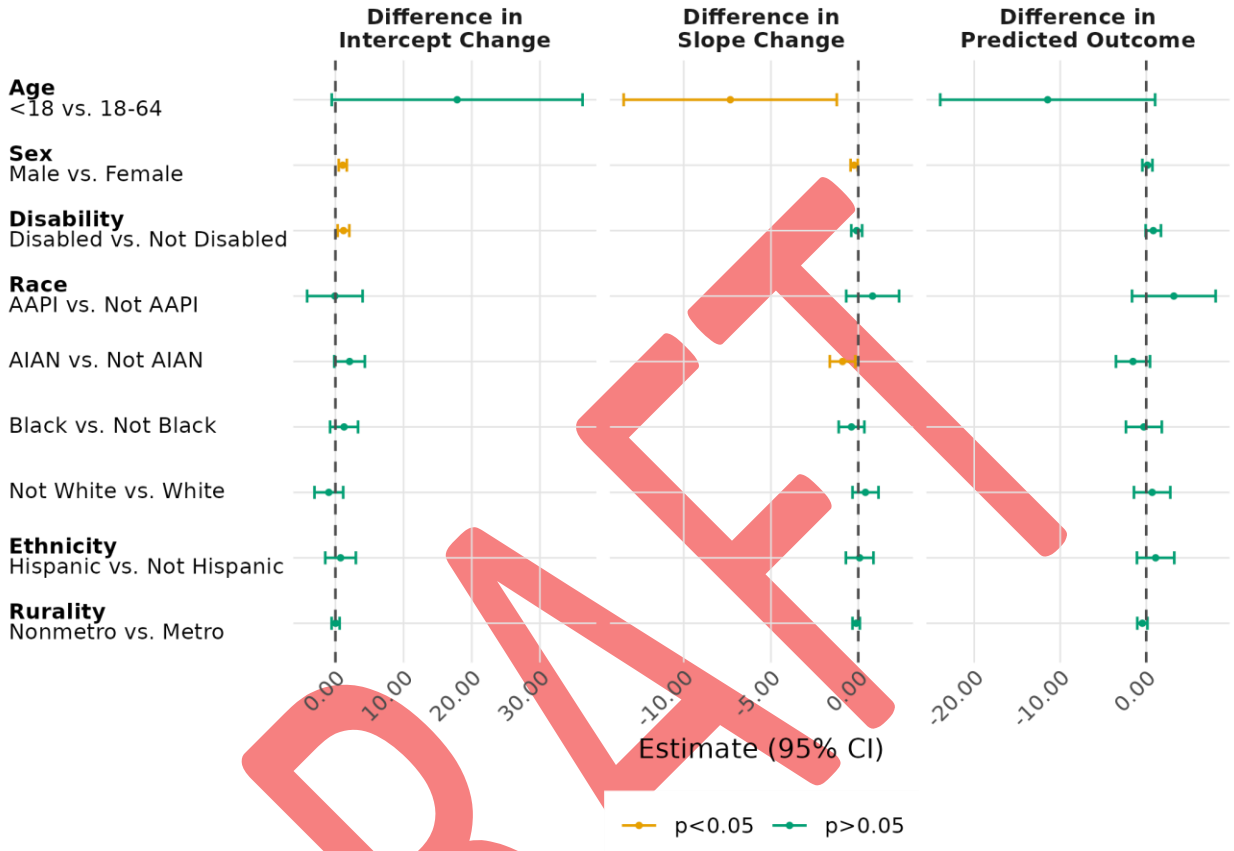
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	3.13* (2.76, 3.50)	4.02* (3.58, 4.47)	0.89* (0.60, 1.18)
Monthly Change	0.011 (-0.013, 0.035)	0.086 (-0.024, 0.19)	0.074 (-0.024, 0.17)
Predicted Average Outcome Nov 2024	3.05* (2.64, 3.46)	4.24* (3.65, 4.82)	1.19* (0.86, 1.52)
N			602,820

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Emergency Department Visits for SUD in the OUD population (Contrast Plot)

Figure 68: Comparison groups in Emergency Department Visits for SUD in the OUD population



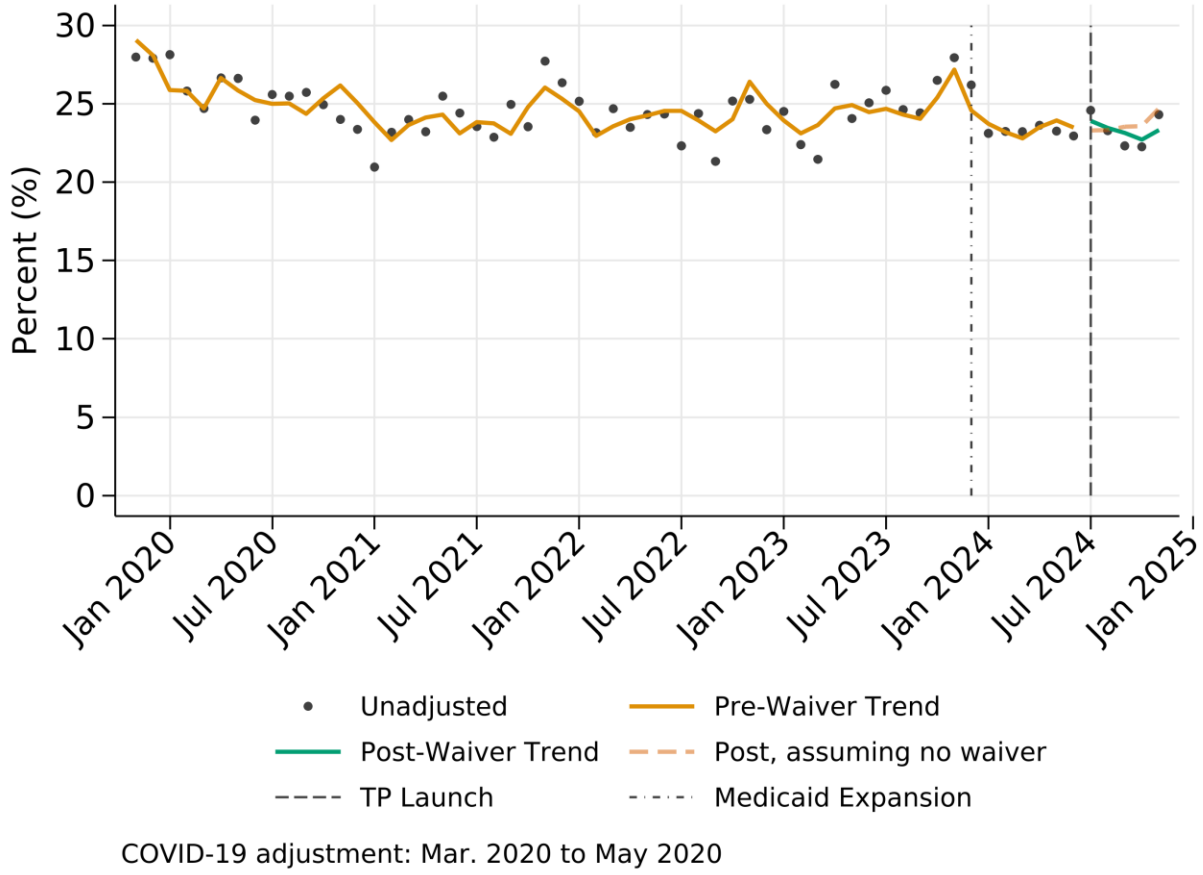
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

30-day Hospital Readmissions Among Beneficiaries with SUD (M25)

30-day Hospital Readmissions Among Beneficiaries with SUD (M25) (Figure)

Figure 69: Trends in 30-day Hospital Readmissions Among Beneficiaries with SUD (M25)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

30-day Hospital Readmissions Among Beneficiaries with SUD (M25) (Table)

Table 35: Interrupted time series estimates of 30-day Hospital Readmissions Among Beneficiaries with SUD (M25)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	22.86* (21.25, 24.47)	23.47* (21.22, 25.72)	0.61 (-1.40, 2.62)
Monthly Change	-0.16* (-0.27, -0.040)	-0.65 (-1.38, 0.084)	-0.49 (-1.22, 0.23)
Predicted Average Outcome Nov 2024	22.80* (21.03, 24.58)	21.44* (19.08, 23.80)	-1.36 (-3.50, 0.77)
N			76,681

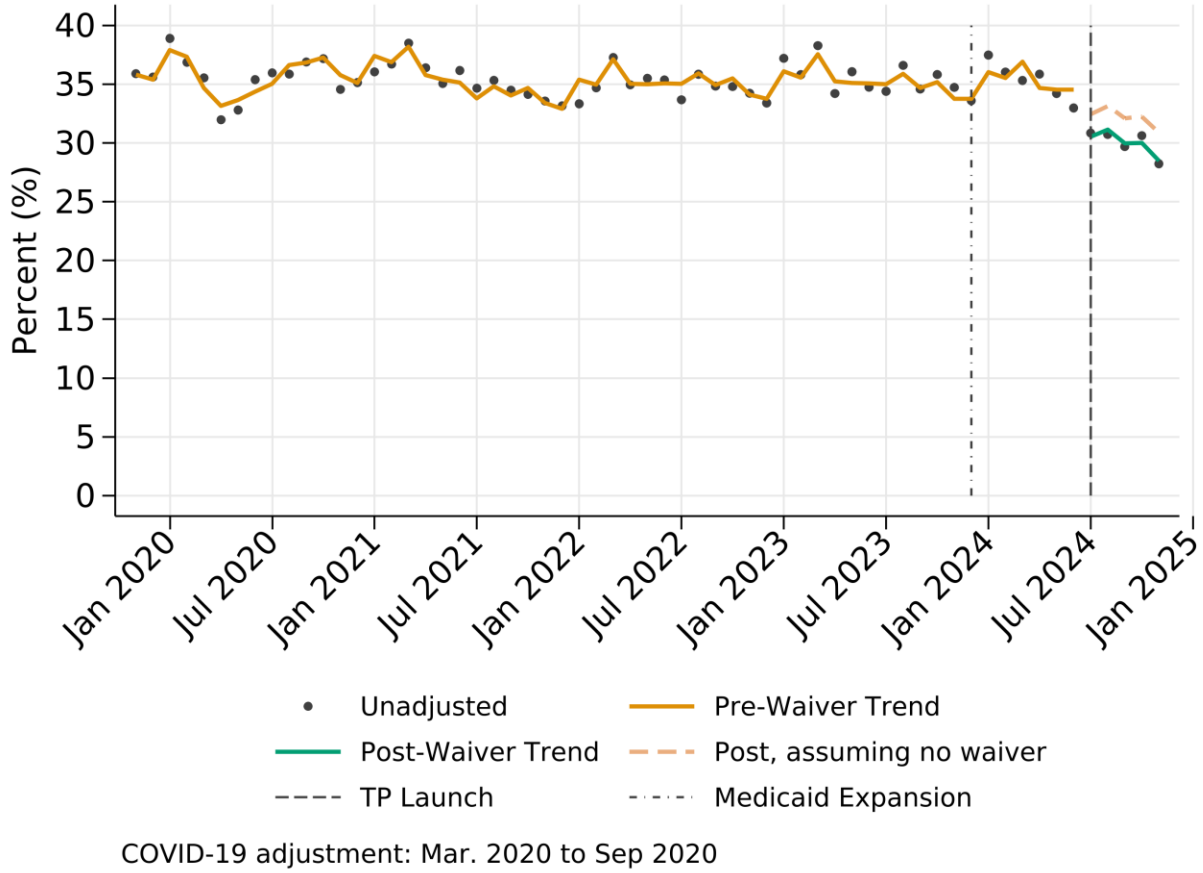
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Use of Behavioral Health Care for People with SMI/SUD/SED

Use of Behavioral Health Care for People with SMI/SUD/SED (Figure)

Figure 70: Trends in Use of Behavioral Health Care for People with SMI/SUD/SED



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Use of Behavioral Health Care for People with SMI/SUD/SED (Table)

Table 36: Interrupted time series estimates of Use of Behavioral Health Care for People with SMI/SUD/SED

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	31.34* (30.63, 32.05)	28.31* (27.58, 29.05)	-3.03* (-3.53, -2.53)
Monthly Change	-0.25* (-0.29, -0.21)	-0.49* (-0.63, -0.36)	-0.24* (-0.38, -0.11)
Predicted Average Outcome Nov 2024	30.87* (30.06, 31.68)	26.87* (26.14, 27.60)	-4.00* (-4.54, -3.46)
N			3,430,787

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Use of Behavioral Health Care for People with SMI/SUD/SED (Contrast Plot)

Figure 71: Comparison groups in Use of Behavioral Health Care for People with SMI/SUD/SED



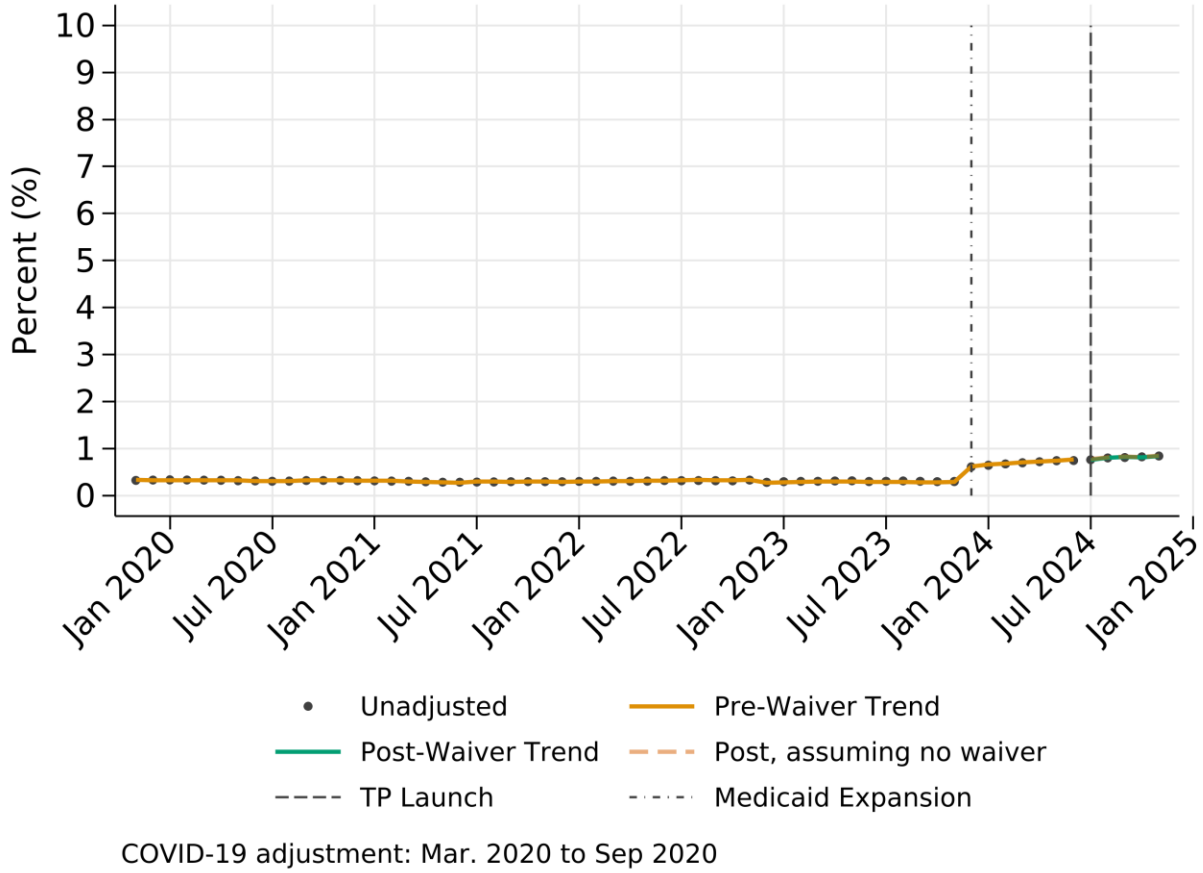
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Incarceration of Adults with Drug Related Charges

Incarceration of Adults with Drug Related Charges (Figure)

Figure 72: Trends in Incarceration of Adults with Drug Related Charges



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Incarceration of Adults with Drug Related Charges (Table)

Table 37: Interrupted time series estimates of Incarceration of Adults with Drug Related Charges

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	0.40* (0.37, 0.43)	0.38* (0.35, 0.41)	-0.024* (-0.047, -0.0019)
Monthly Change	-0.0045* (-0.0067, -0.0023)	-0.0005 (-0.0077, 0.0068)	0.0041 (-0.0026, 0.011)
Predicted Average Outcome Nov 2024	0.41* (0.37, 0.44)	0.40* (0.36, 0.44)	-0.0081 (-0.042, 0.026)
N			10,785,162

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Incarceration of Adults with Drug Related Charges (Contrast Plot)

Figure 73: Comparison groups in Incarceration of Adults with Drug Related Charges



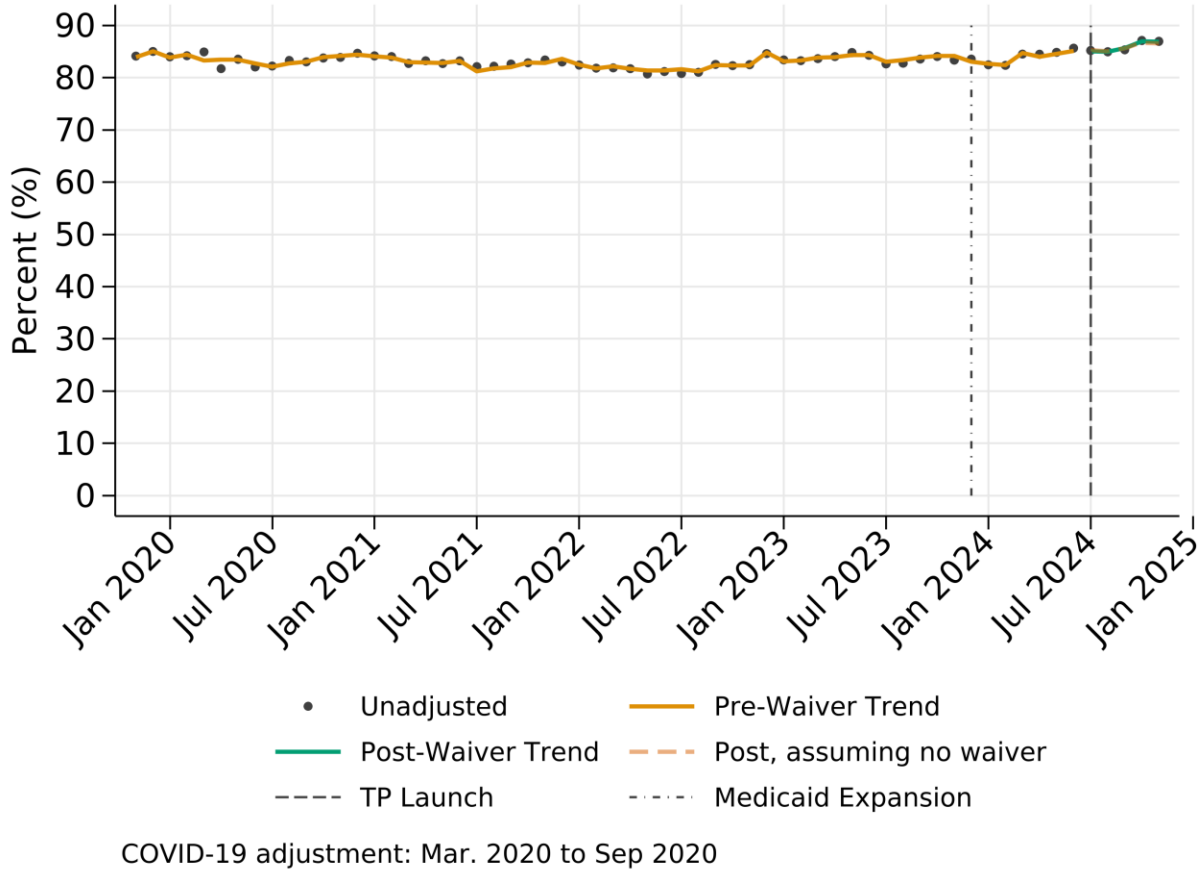
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medication Assisted Treatment

Medication Assisted Treatment: OUD population (Figure)

Figure 74: Trends in Medication Assisted Treatment: OUD population



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medication Assisted Treatment: OUD population (Table)

Table 38: Interrupted time series estimates of Medication Assisted Treatment: OUD population

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	83.46* (82.59, 84.33)	83.24* (82.05, 84.43)	-0.23 (-1.20, 0.75)
Monthly Change	-0.025 (-0.084, 0.035)	0.15 (-0.086, 0.39)	0.17 (-0.084, 0.43)
Predicted Average Outcome Nov 2024	83.49* (82.50, 84.47)	83.96* (83.10, 84.81)	0.47 (-0.51, 1.46)
N			602,820

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medication Assisted Treatment: OUD population (Contrast Plot)

Figure 75: Comparison groups in Medication Assisted Treatment: OUD population



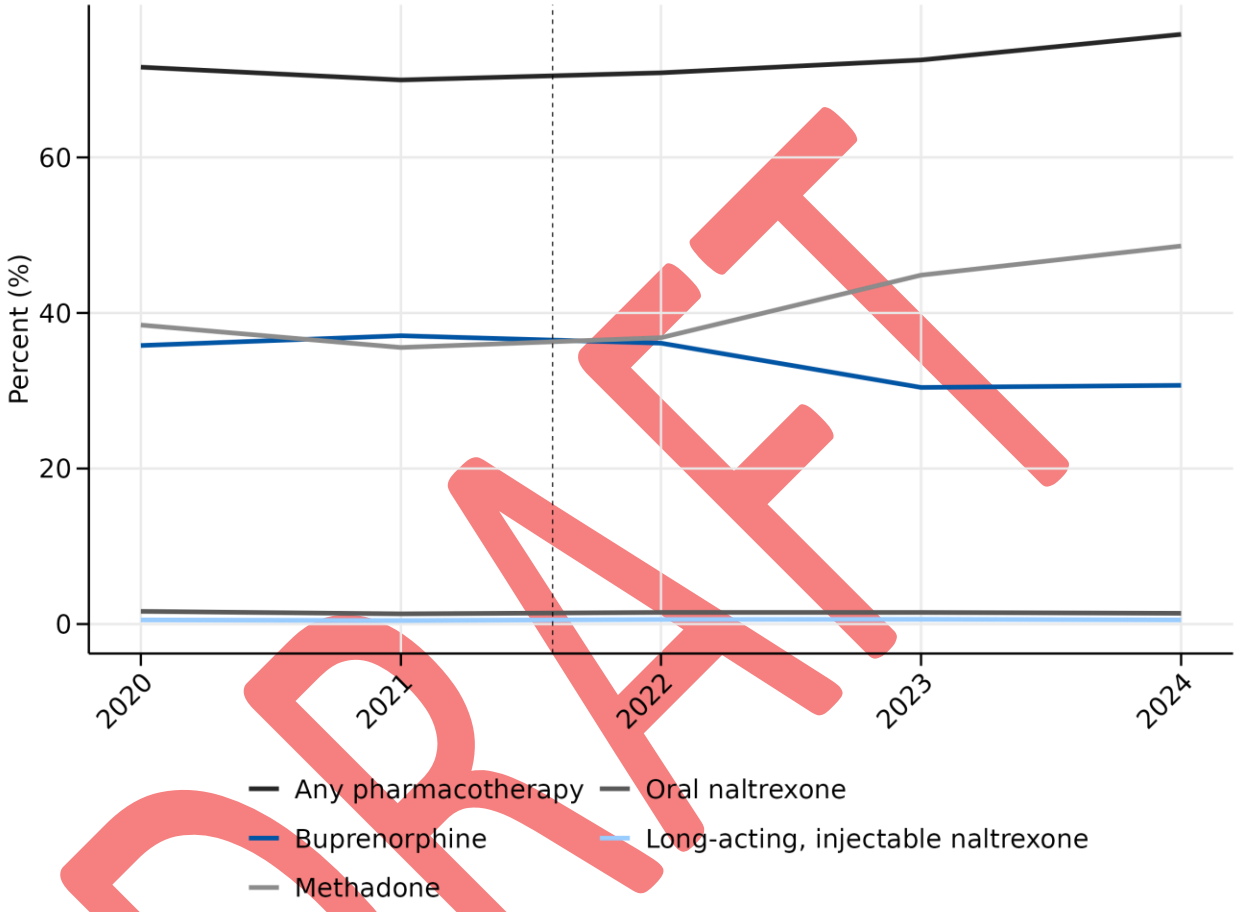
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Use of Pharmacotherapy for Opioid Use Disorder (OUD)

Use of Pharmacotherapy for Opioid Use Disorder (OUD): All (Figure)

Figure 76: Trends in Use of Pharmacotherapy for Opioid Use Disorder (OUD): All



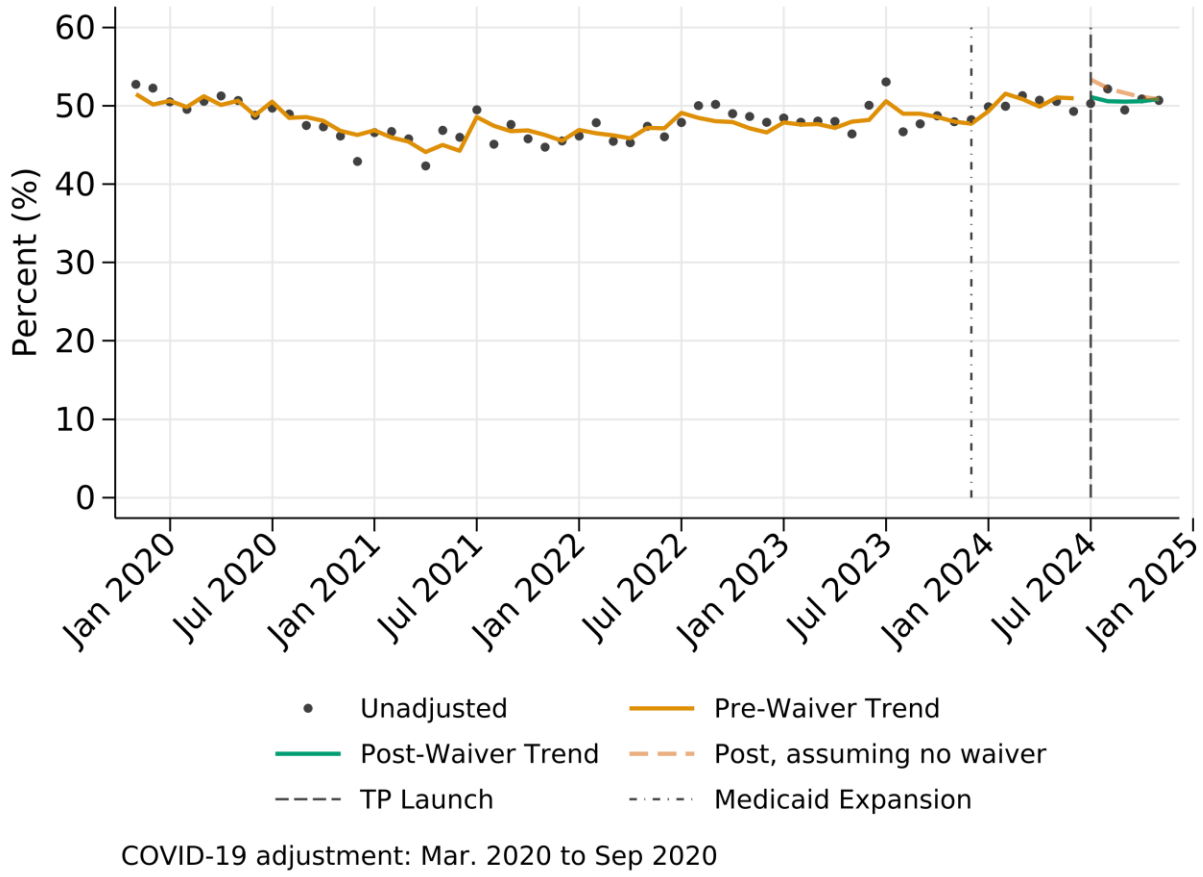
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Notes: This figure plots unadjusted rates from the metric population. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Initiation and Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD) (Figure)

Figure 77: Trends in Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD) (Table)

Table 39: Interrupted time series estimates of Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

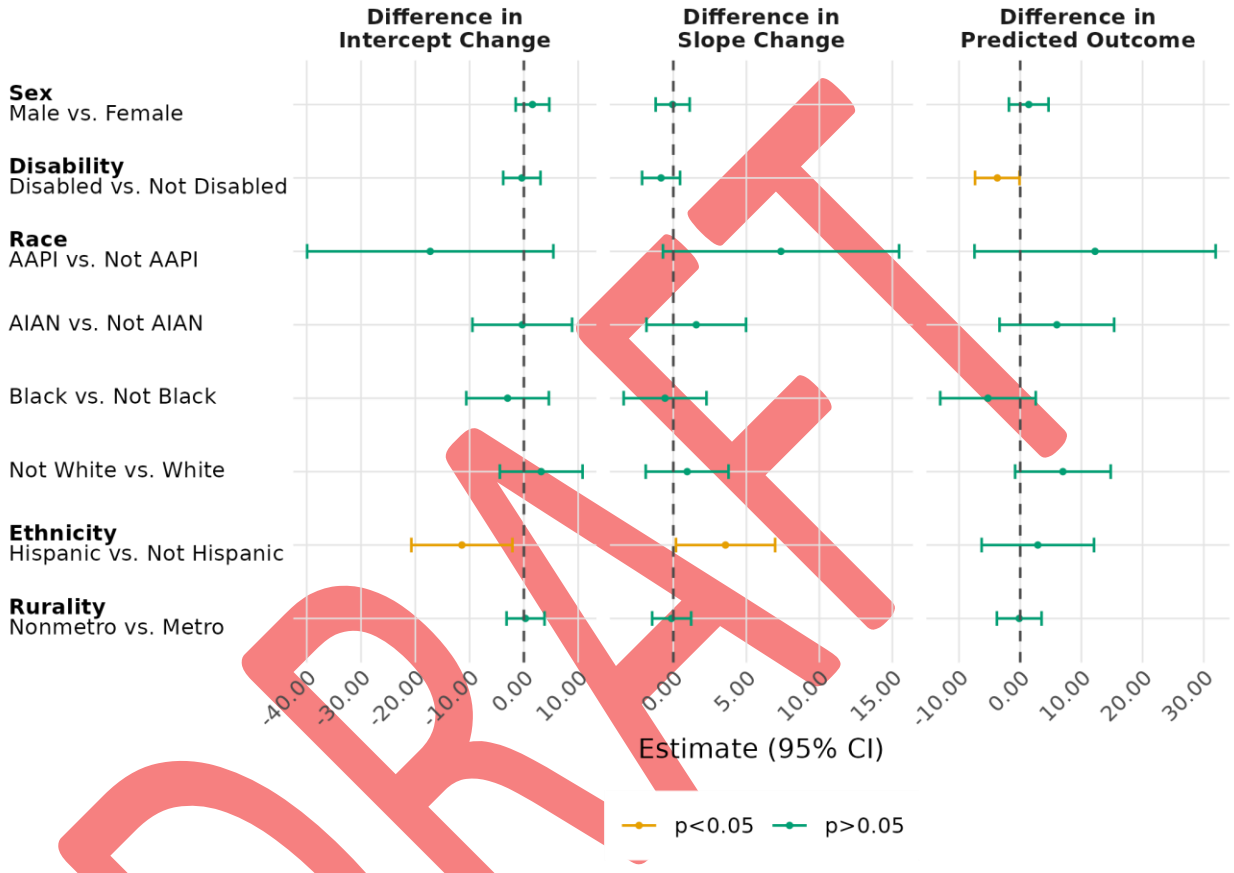
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	45.25* (43.76, 46.73)	43.02* (40.85, 45.19)	-2.23* (-4.16, -0.29)
Monthly Change	-0.36* (-0.48, -0.24)	0.19 (-0.50, 0.89)	0.55 (-0.14, 1.24)
Predicted Average Outcome Nov 2024	45.11* (43.47, 46.75)	45.10* (42.93, 47.26)	-0.018 (-1.97, 1.94)
N			116,840

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD) (Contrast Plot)

Figure 78: Comparison groups in Initiation of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

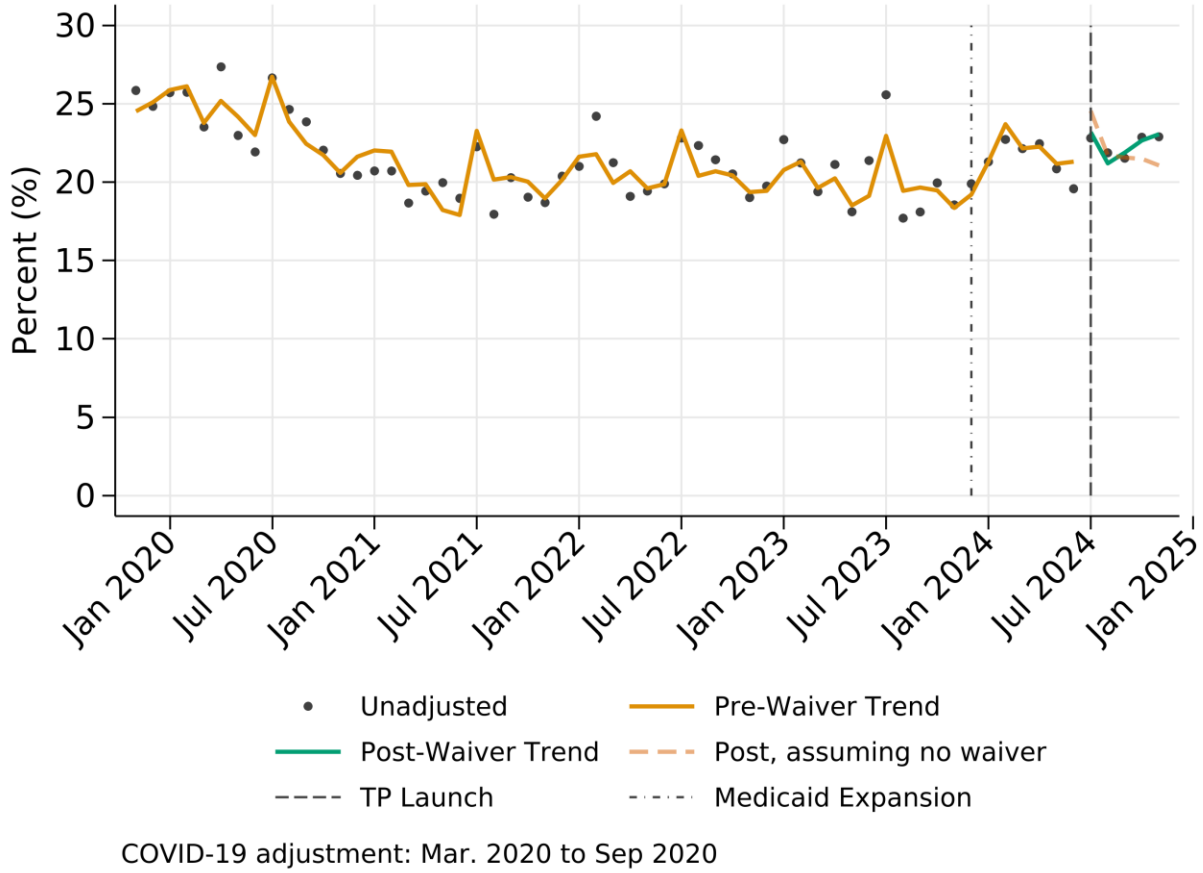


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD) (Figure)

Figure 79: Trends in Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD) (Table)

Table 40: Interrupted time series estimates of Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

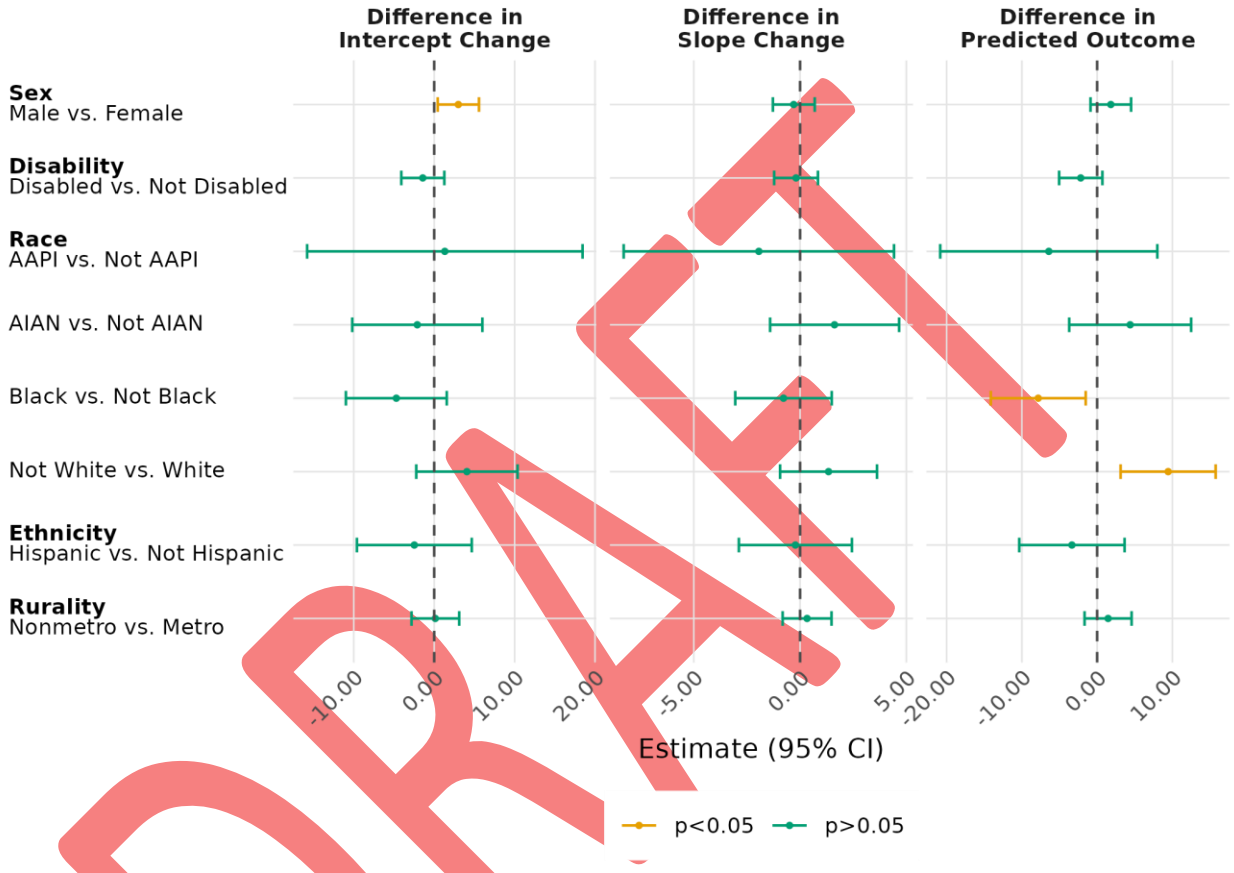
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	16.57* (15.37, 17.77)	15.22* (13.46, 16.98)	-1.35 (-2.93, 0.23)
Monthly Change	-0.40* (-0.50, -0.30)	0.44 (-0.14, 1.01)	0.84* (0.26, 1.41)
Predicted Average Outcome Nov 2024	16.15* (14.82, 17.47)	18.14* (16.36, 19.91)	1.99* (0.40, 3.58)
N			116,840

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD) (Contrast Plot)

Figure 80: Comparison groups in Engagement of Alcohol and Other Drug Abuse or Dependence Treatment (IET-AD)

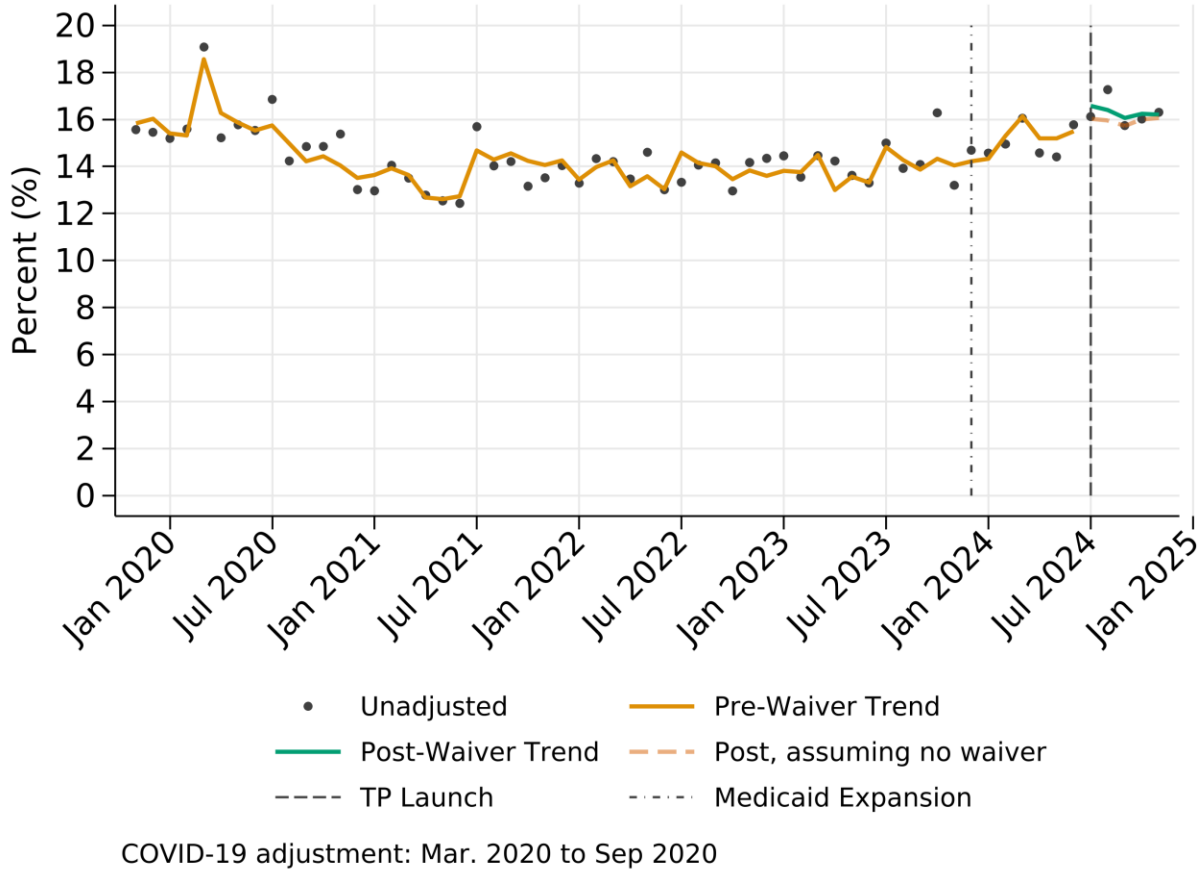


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Initiation of Alcohol Abuse or Dependence Treatment (IET-AD) (Figure)

Figure 81: Trends in Initiation of Alcohol Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Initiation of Alcohol Abuse or Dependence Treatment (IET-AD) (Table)

Table 41: Interrupted time series estimates of Initiation of Alcohol Abuse or Dependence Treatment (IET-AD)

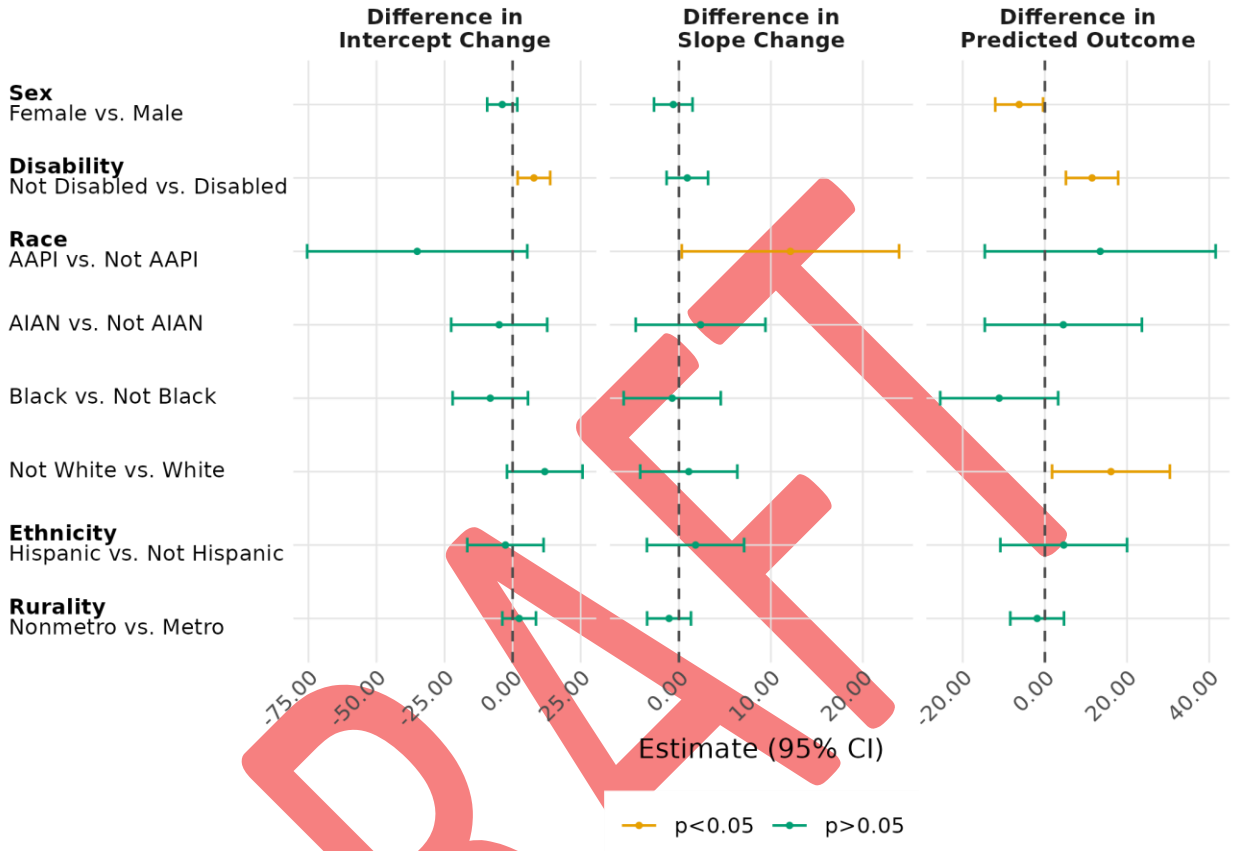
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	44.27* (41.56, 46.98)	45.52* (41.59, 49.45)	1.25 (-2.21, 4.72)
Monthly Change	-0.20 (-0.41, 0.0090)	0.14 (-1.10, 1.37)	0.33 (-0.90, 1.57)
Predicted Average Outcome Nov 2024	44.13* (41.14, 47.12)	46.72* (42.81, 50.63)	2.59 (-0.92, 6.09)
N			36,383

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Initiation of Alcohol Abuse or Dependence Treatment (IET-AD) (Contrast Plot)

Figure 82: Comparison groups in Initiation of Alcohol Abuse or Dependence Treatment (IET-AD)

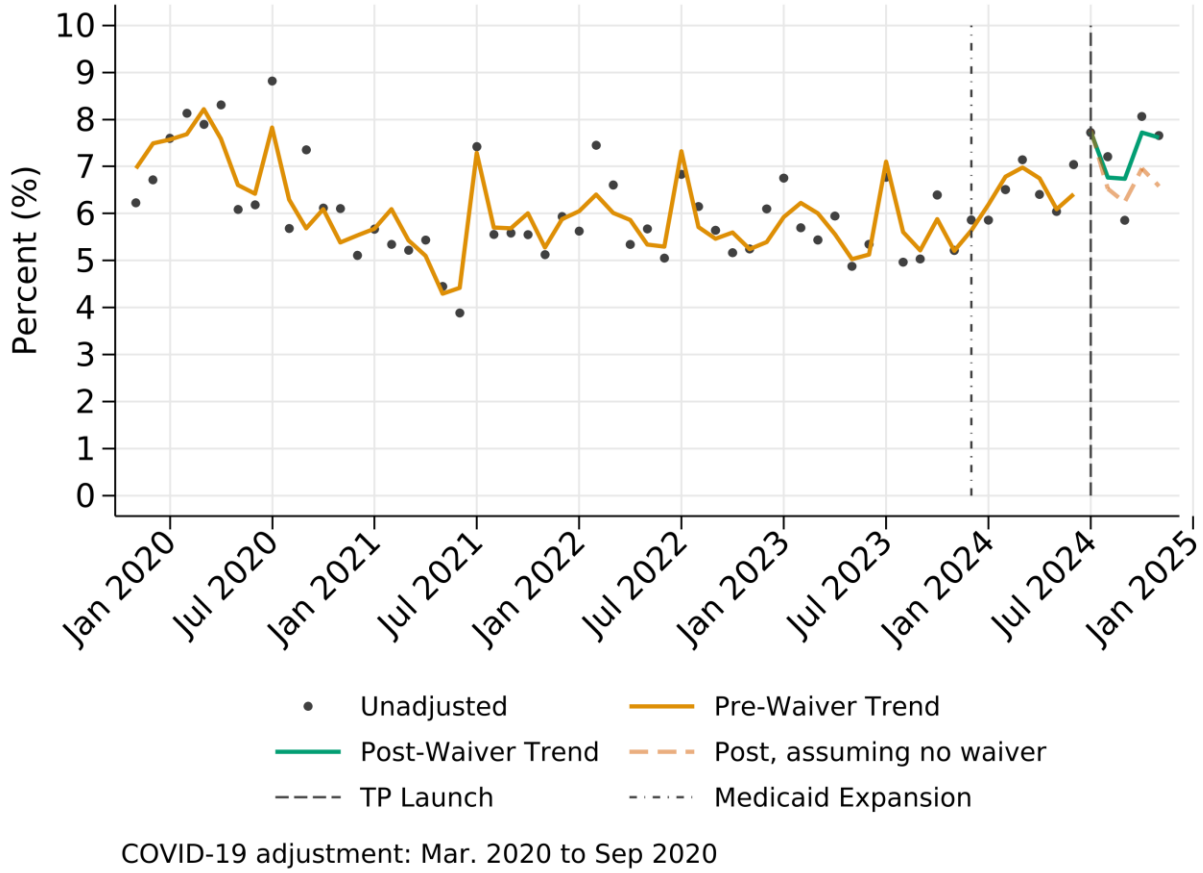


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Engagement of Alcohol Abuse or Dependence Treatment (IET-AD) (Figure)

Figure 83: Trends in Engagement of Alcohol Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Engagement of Alcohol Abuse or Dependence Treatment (IET-AD) (Table)

Table 42: Interrupted time series estimates of Engagement of Alcohol Abuse or Dependence Treatment (IET-AD)

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	15.04* (12.97, 17.12)	15.28* (12.17, 18.38)	0.23 (-2.56, 3.03)
Monthly Change	-0.36* (-0.53, -0.20)	0.45 (-0.57, 1.48)	0.82 (-0.20, 1.84)
Predicted Average Outcome Nov 2024	14.62* (12.33, 16.91)	18.13* (15.04, 21.23)	3.51* (0.69, 6.33)
N			36,383

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Engagement of Alcohol Abuse or Dependence Treatment (IET-AD) (Contrast Plot)

Figure 84: Comparison groups in Engagement of Alcohol Abuse or Dependence Treatment (IET-AD)

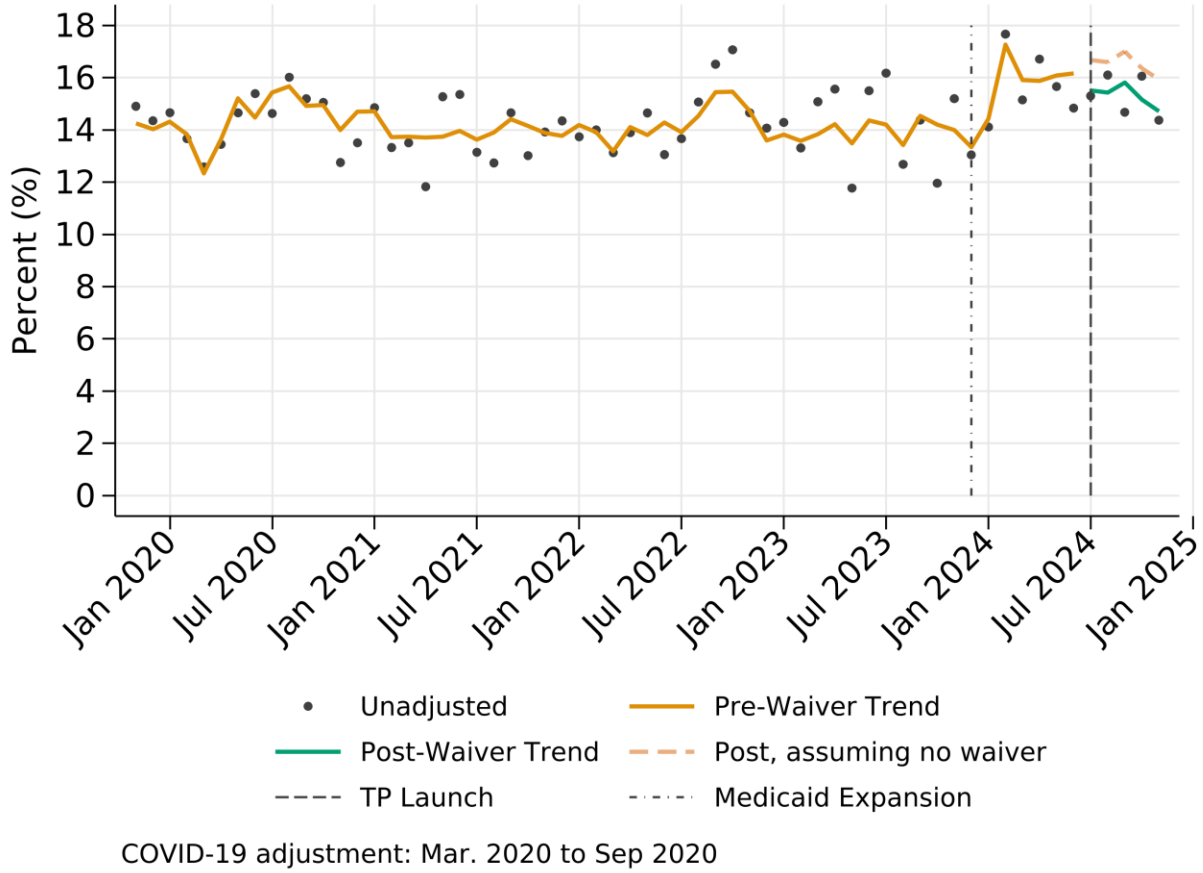


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Initiation of Opioid Abuse or Dependence Treatment (IET-AD) (Figure)

Figure 85: Trends in Initiation of Opioid Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Initiation of Opioid Abuse or Dependence Treatment (IET-AD) (Table)

Table 43: Interrupted time series estimates of Initiation of Opioid Abuse or Dependence Treatment (IET-AD)

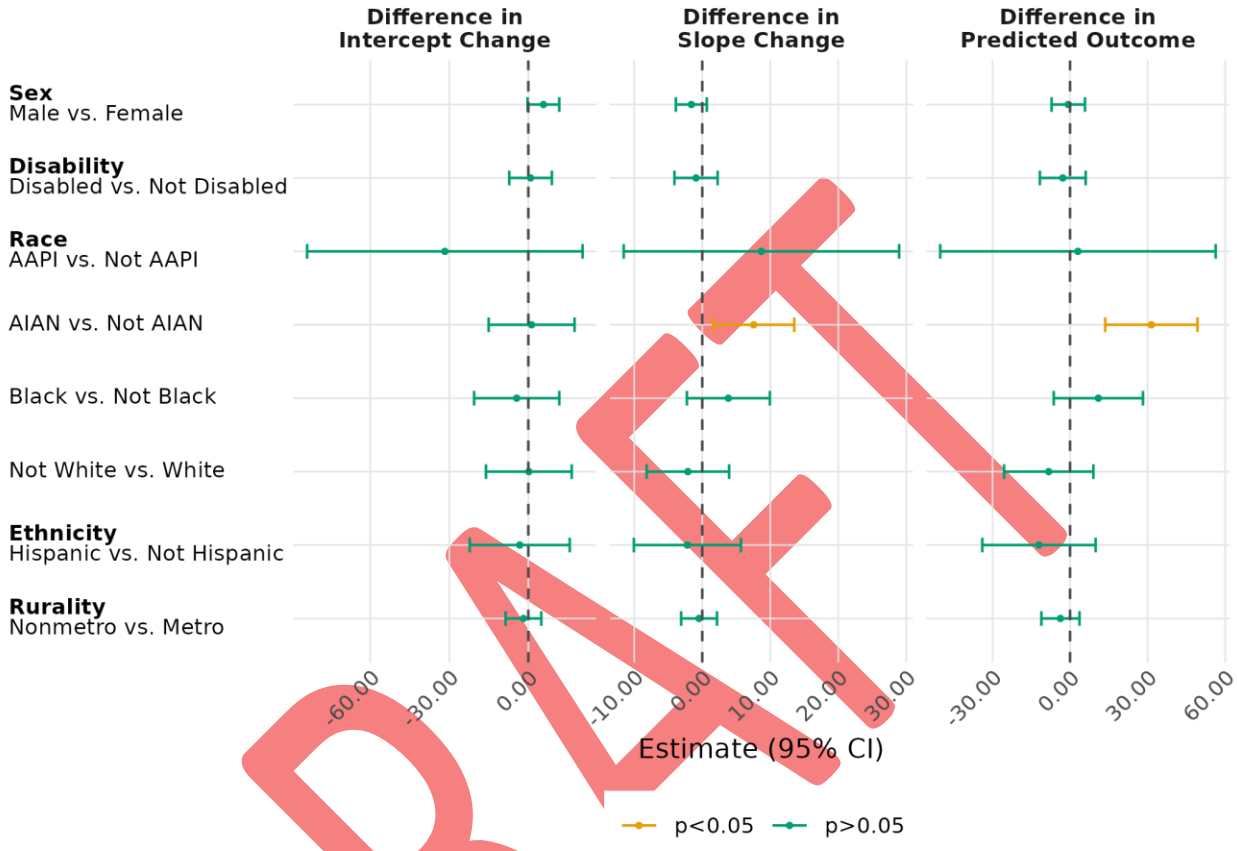
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	59.57* (56.63, 62.51)	52.72* (48.41, 57.03)	-6.85* (-10.70, -3.01)
Monthly Change	-0.35* (-0.58, -0.11)	1.39* (0.0066, 2.77)	1.73* (0.36, 3.11)
Predicted Average Outcome Nov 2024	59.90* (56.66, 63.15)	59.98* (55.62, 64.35)	0.079 (-3.83, 3.99)
N			28,100

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Initiation of Opioid Abuse or Dependence Treatment (IET-AD) (Contrast Plot)

Figure 86: Comparison groups in Initiation of Opioid Abuse or Dependence Treatment (IET-AD)

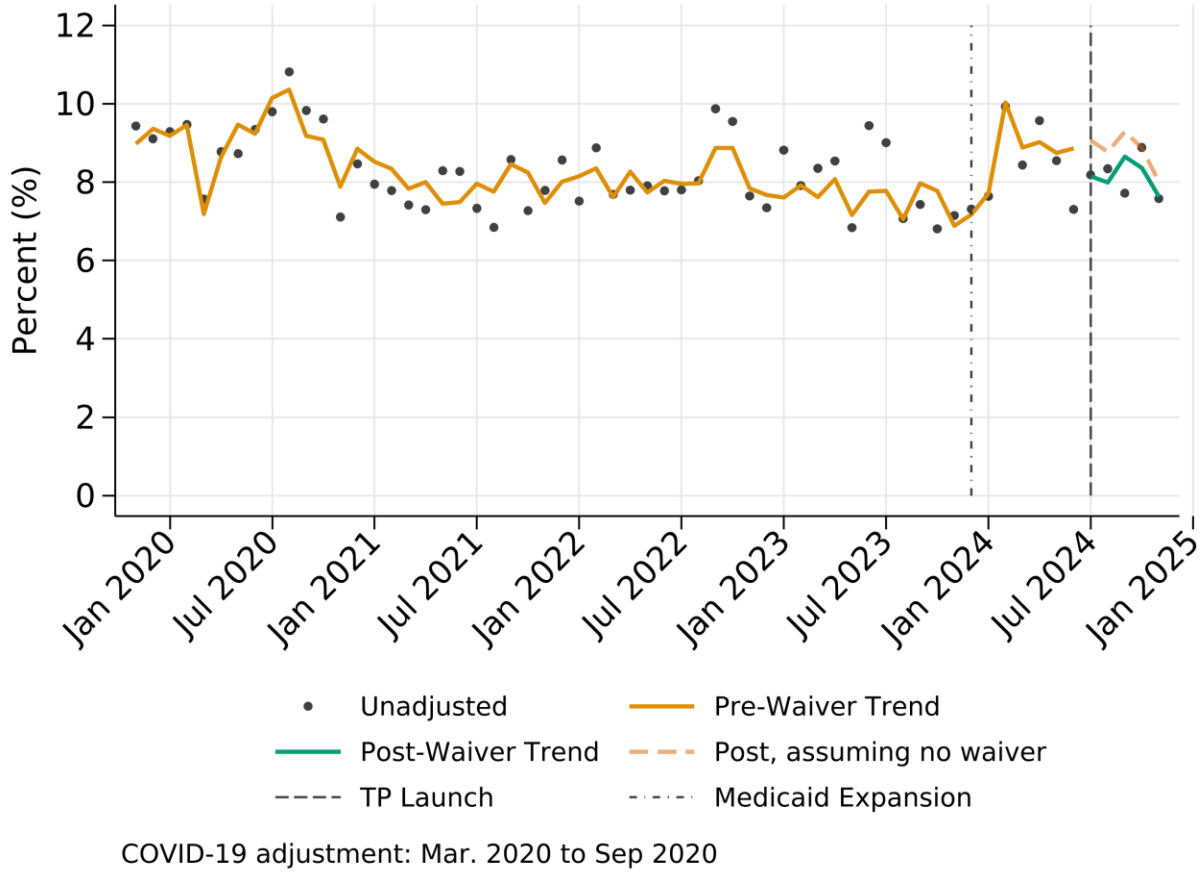


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Engagement of Opioid Abuse or Dependence Treatment (IET-AD) (Figure)

Figure 87: Trends in Engagement of Opioid Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Engagement of Opioid Abuse or Dependence Treatment (IET-AD) (Table)

Table 44: Interrupted time series estimates of Engagement of Opioid Abuse or Dependence Treatment (IET-AD)

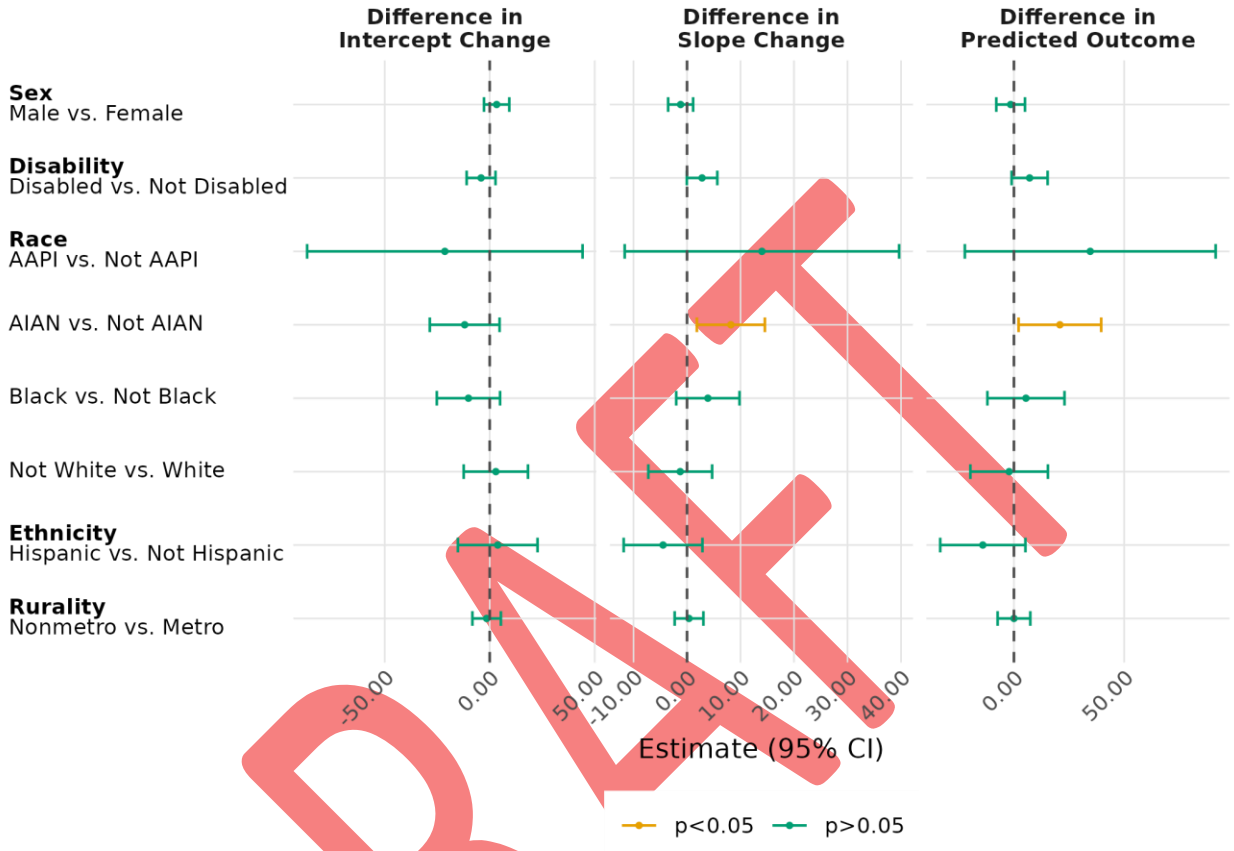
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	28.35* (25.47, 31.22)	23.64* (19.45, 27.84)	-4.70* (-8.45, -0.95)
Monthly Change	-0.58* (-0.81, -0.34)	0.97 (-0.41, 2.34)	1.55* (0.18, 2.91)
Predicted Average Outcome Nov 2024	27.87* (24.69, 31.04)	29.35* (25.03, 33.67)	1.48 (-2.37, 5.34)
N			28,100

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Engagement of Opioid Abuse or Dependence Treatment (IET-AD) (Contrast Plot)

Figure 88: Comparison groups in Engagement of Opioid Abuse or Dependence Treatment (IET-AD)

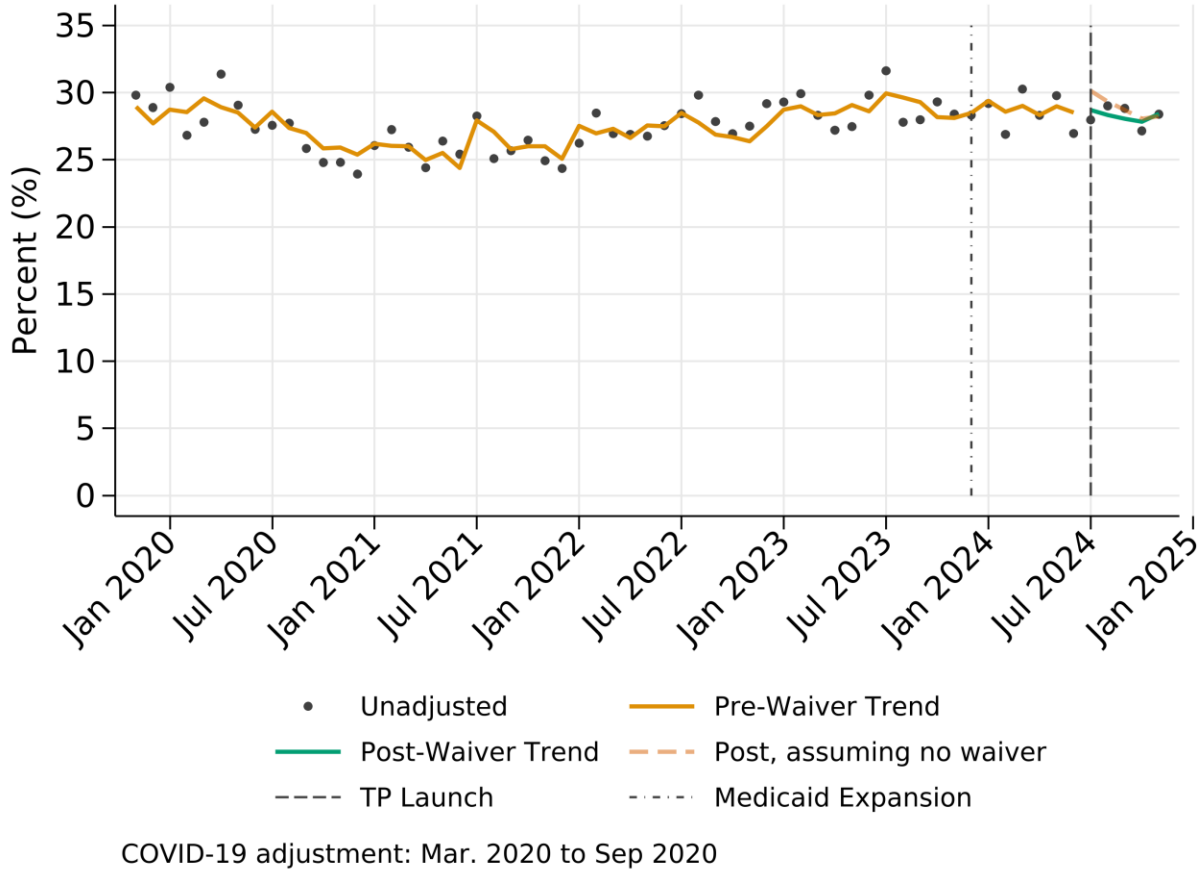


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Initiation of Other Drug Abuse or Dependence Treatment (IET-AD) (Figure)

Figure 89: Trends in Initiation of Other Drug Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Initiation of Other Drug Abuse or Dependence Treatment (IET-AD) (Table)

Table 45: Interrupted time series estimates of Initiation of Other Drug Abuse or Dependence Treatment (IET-AD)

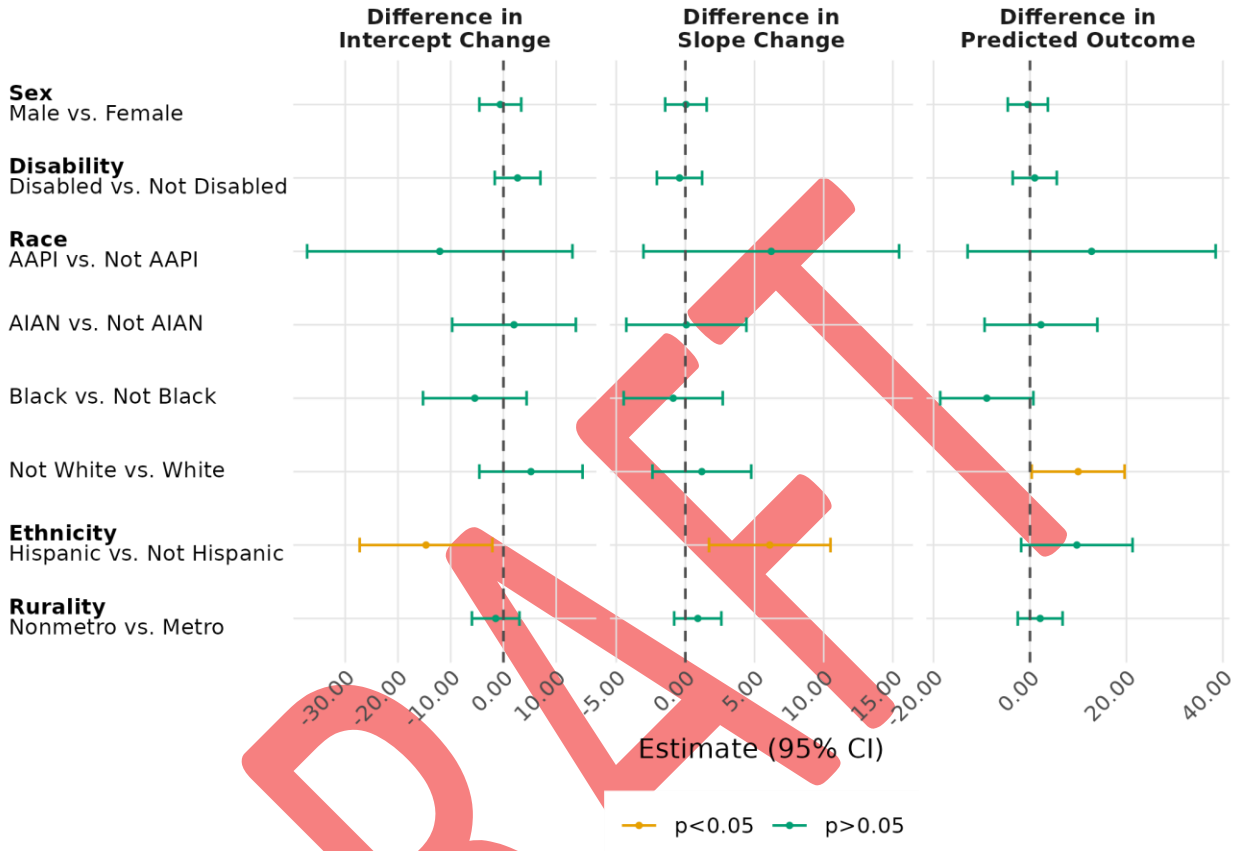
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	42.84* (40.97, 44.72)	40.54* (37.79, 43.28)	-2.31 (-4.77, 0.16)
Monthly Change	-0.32* (-0.47, -0.17)	0.18 (-0.71, 1.07)	0.50 (-0.38, 1.39)
Predicted Average Outcome Nov 2024	42.70* (40.62, 44.77)	42.40* (39.64, 45.16)	-0.30 (-2.80, 2.20)
N			70,694

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Initiation of Other Drug Abuse or Dependence Treatment (IET-AD) (Contrast Plot)

Figure 90: Comparison groups in Initiation of Other Drug Abuse or Dependence Treatment (IET-AD)

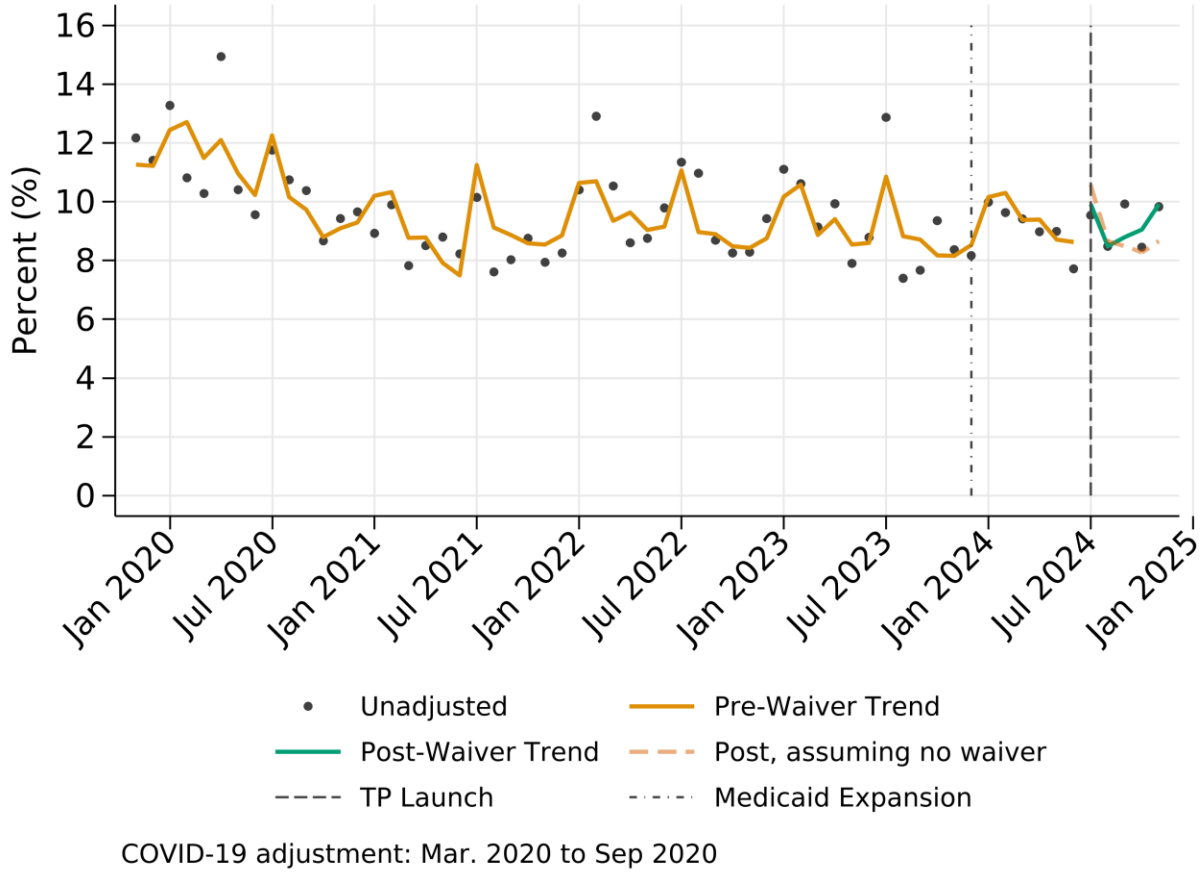


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Engagement of Other Drug Abuse or Dependence Treatment (IET-AD) (Figure)

Figure 91: Trends in Engagement of Other Drug Abuse or Dependence Treatment (IET-AD)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Engagement of Other Drug Abuse or Dependence Treatment (IET-AD) (Table)

Table 46: Interrupted time series estimates of Engagement of Other Drug Abuse or Dependence Treatment (IET-AD)

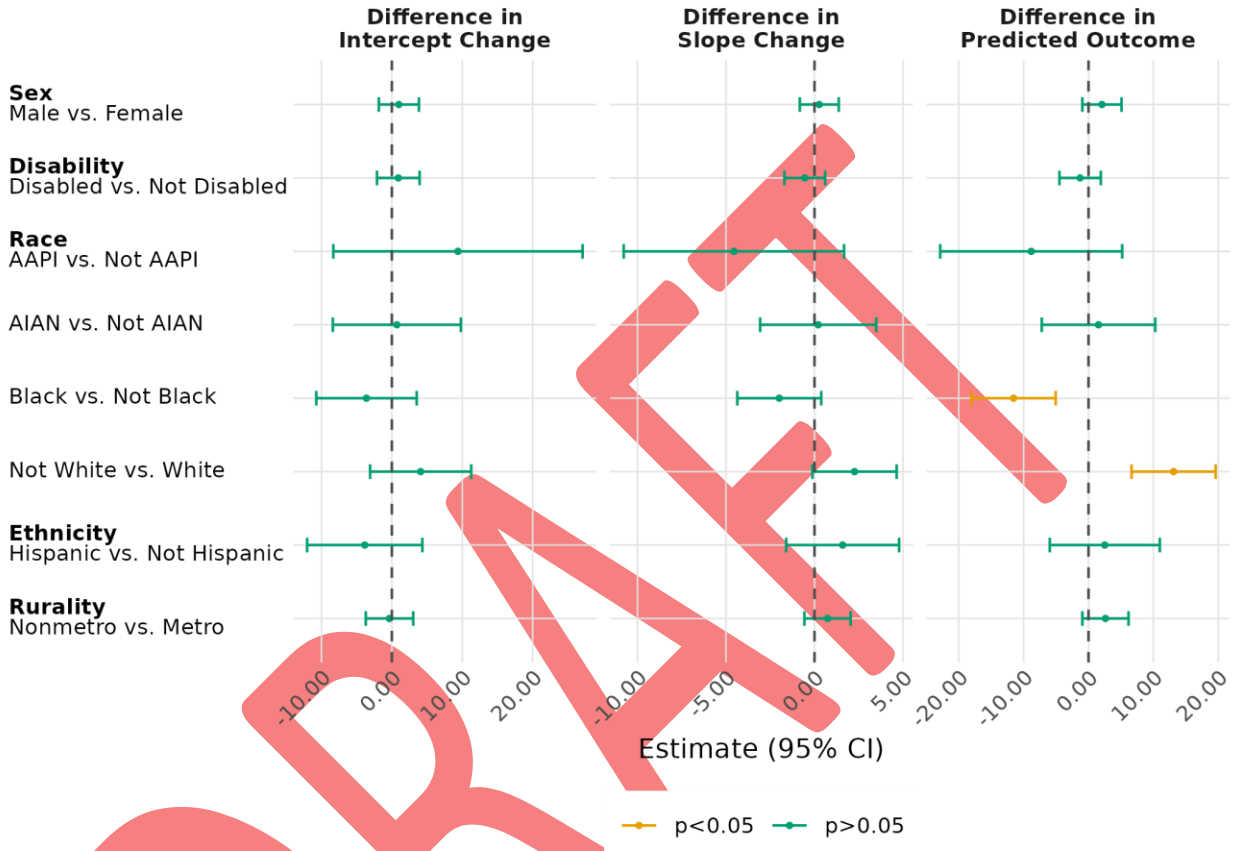
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	11.37* (10.01, 12.74)	10.27* (8.26, 12.28)	-1.11 (-2.90, 0.68)
Monthly Change	-0.34* (-0.45, -0.22)	0.39 (-0.27, 1.04)	0.72* (0.075, 1.37)
Predicted Average Outcome Nov 2024	10.93* (9.42, 12.44)	12.72* (10.70, 14.74)	1.79 (-0.0010, 3.59)
N			70,694

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Engagement of Other Drug Abuse or Dependence Treatment (IET-AD) (Contrast Plot)

Figure 92: Comparison groups in Engagement of Other Drug Abuse or Dependence Treatment (IET-AD)



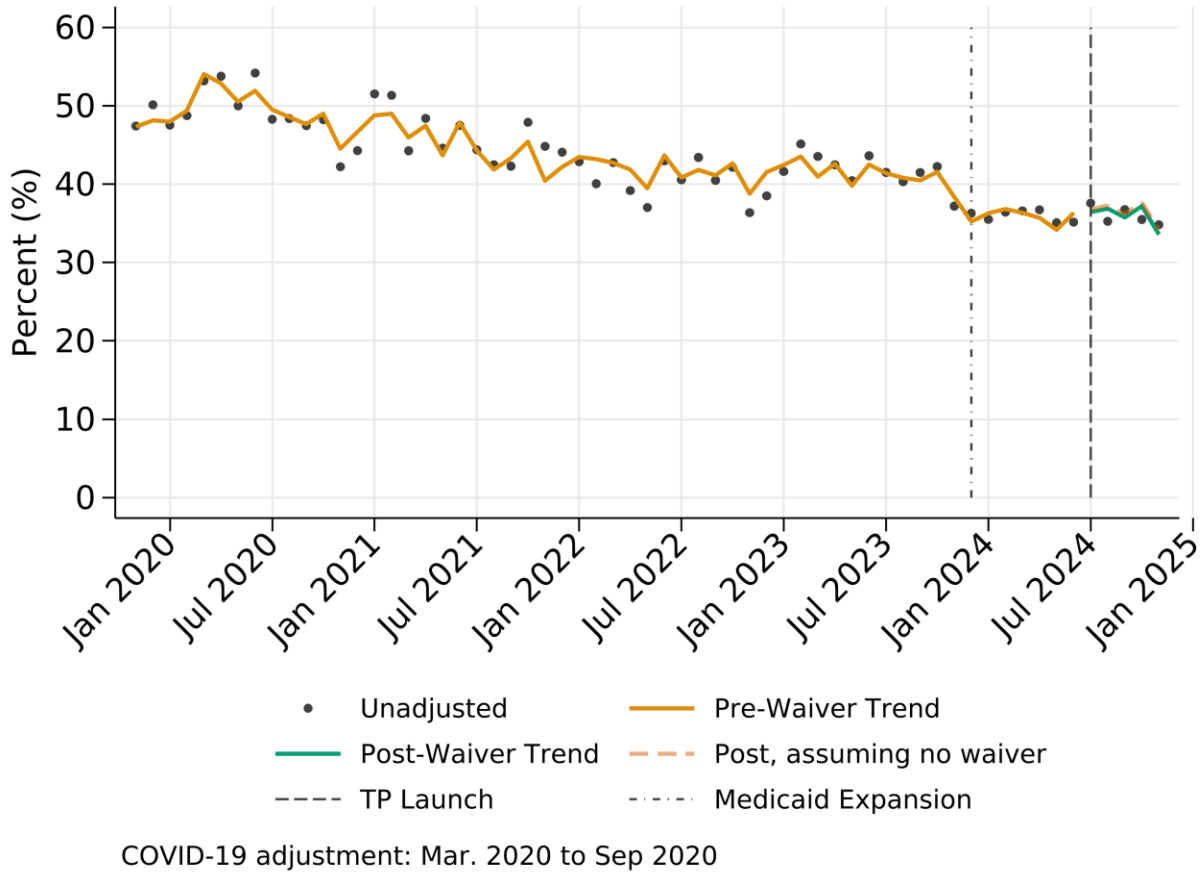
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD)

Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 7 Days of ED Visit (Figure)

Figure 93: Trends in Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 7 Days of ED Visit



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 7 Days of ED Visit (Table)

Table 47: Interrupted time series estimates of Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 7 Days of ED Visit

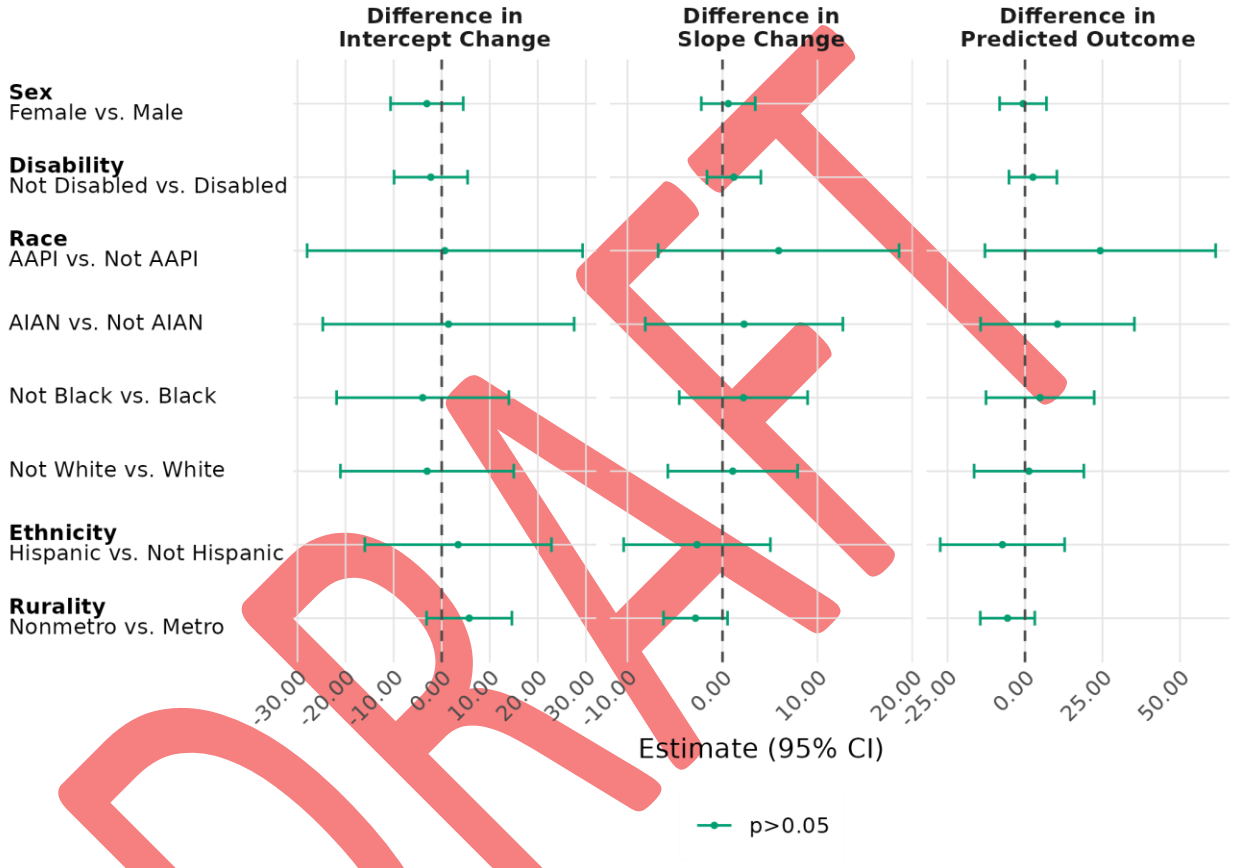
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	40.87* (37.56, 44.18)	40.53* (35.55, 45.52)	-0.33 (-4.67, 4.01)
Monthly Change	0.024 (-0.19, 0.24)	-0.036 (-1.59, 1.51)	-0.060 (-1.61, 1.49)
Predicted Average Outcome Nov 2024	40.44* (36.80, 44.08)	39.86* (34.95, 44.78)	-0.57 (-4.87, 3.72)
N			25,775

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 7 Days of ED Visit (Contrast Plot)

Figure 94: Comparison groups in Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 7 Days of ED Visit

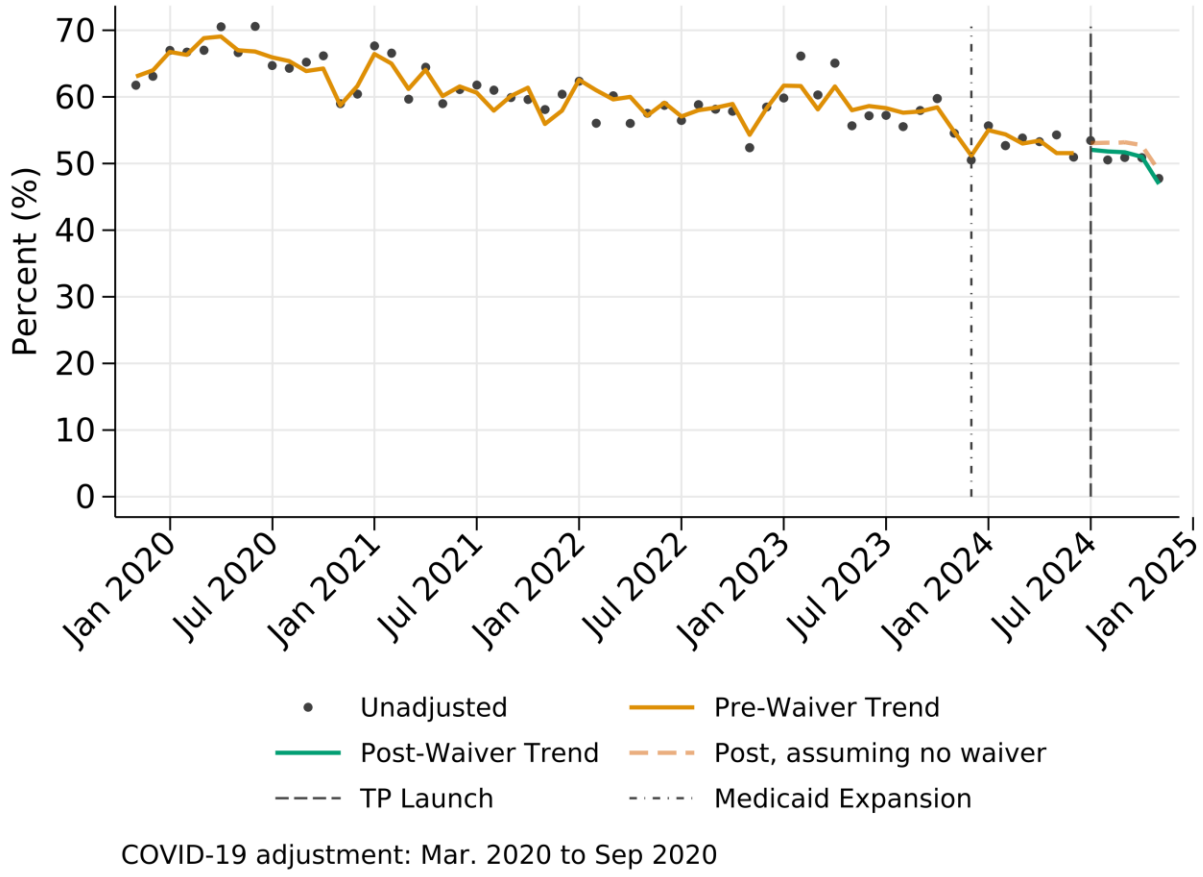


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 30 Days of ED Visit (Figure)

Figure 95: Trends in Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 30 Days of ED Visit



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 30 Days of ED Visit (Table)

Table 48: Interrupted time series estimates of Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 30 Days of ED Visit

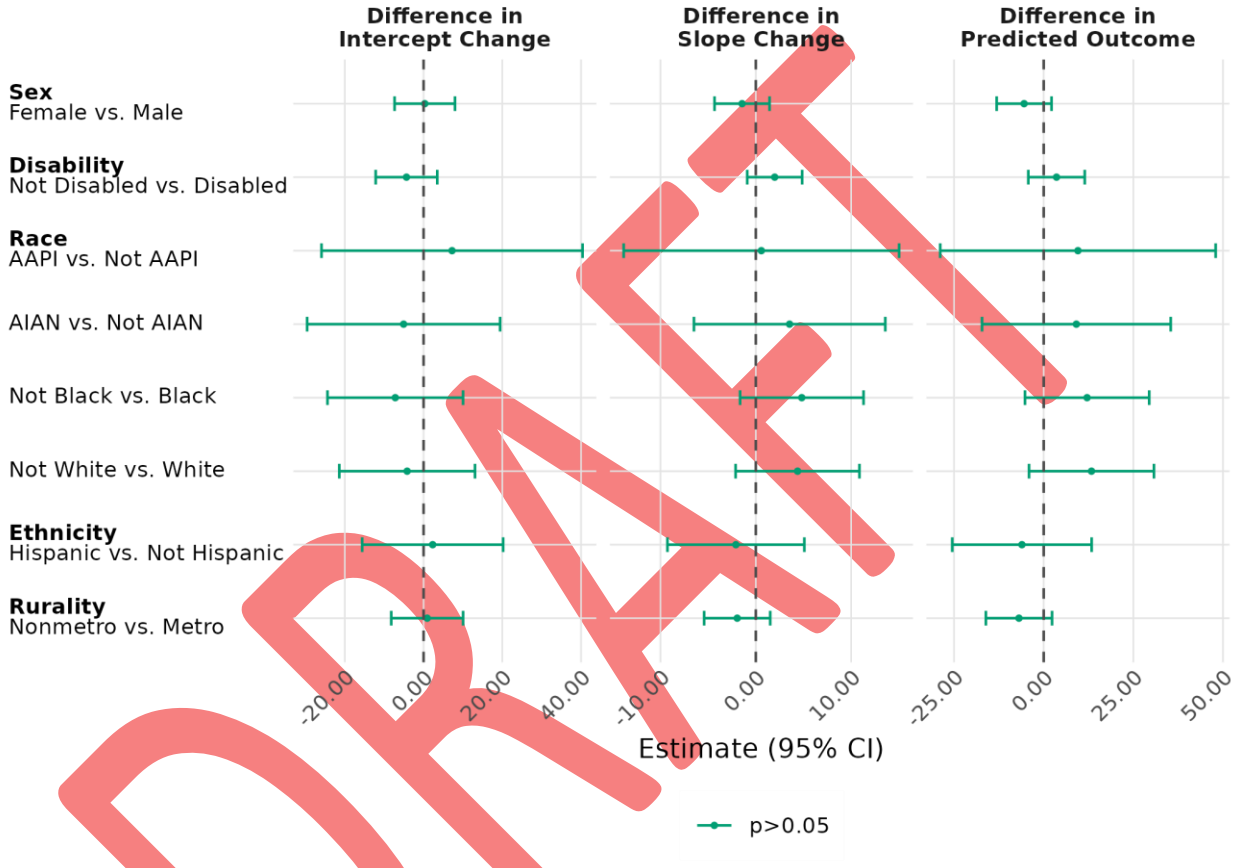
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	56.82* (53.55, 60.10)	55.82* (50.85, 60.79)	-1.00 (-5.39, 3.39)
Monthly Change	-0.043 (-0.25, 0.16)	-0.30 (-1.87, 1.28)	-0.25 (-1.83, 1.32)
Predicted Average Outcome Nov 2024	56.40* (52.80, 60.00)	54.39* (49.54, 59.23)	-2.01 (-6.36, 2.33)
N			25,775

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 30 Days of ED Visit (Contrast Plot)

Figure 96: Comparison groups in Follow-Up After Emergency Department Visit for Mental Illness Age 18 and older (FUM-AD): Follow-up with Any Practitioner within 30 Days of ED Visit



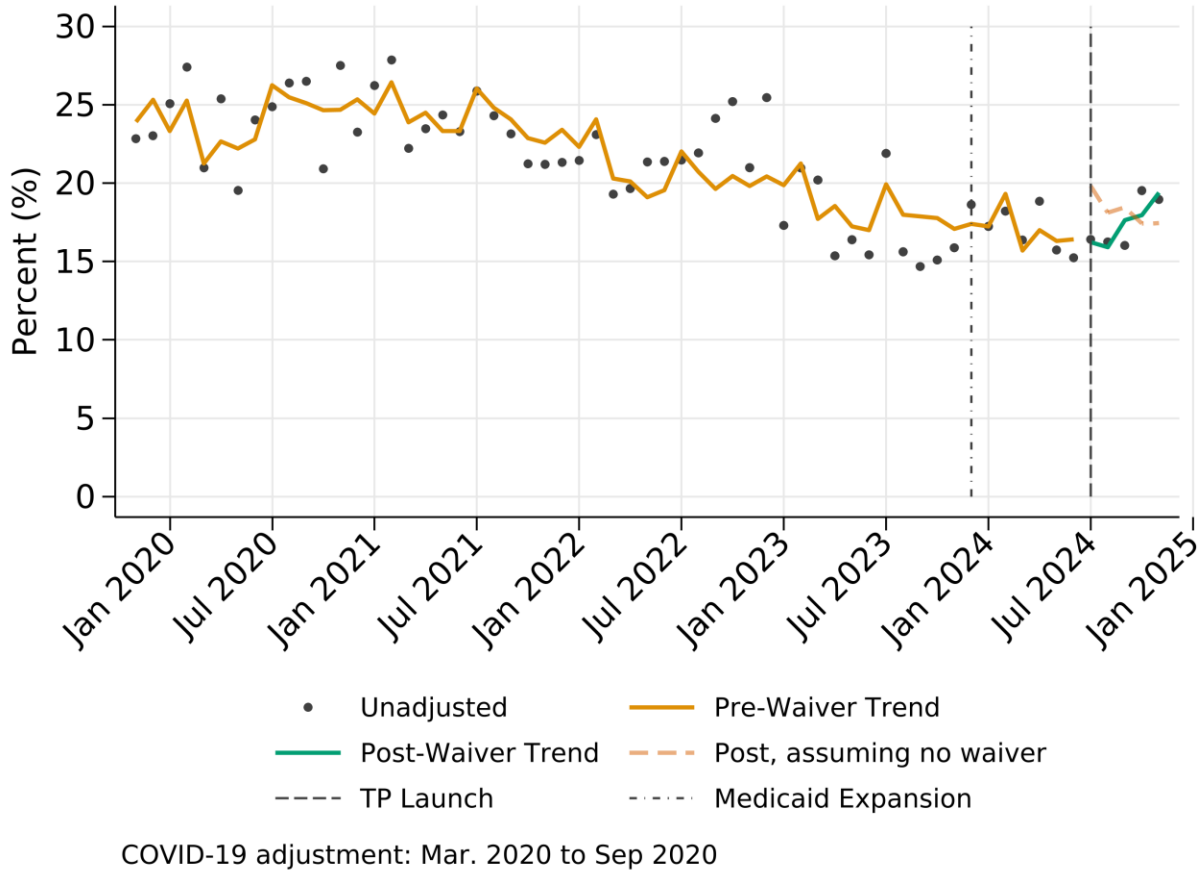
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence: Age 18 and older (FUA-AD)

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 7 Days After ED Visit (Figure)

Figure 97: Trends in Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 7 Days After ED Visit



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 7 Days After ED Visit (Table)

Table 49: Interrupted time series estimates of Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 7 Days After ED Visit

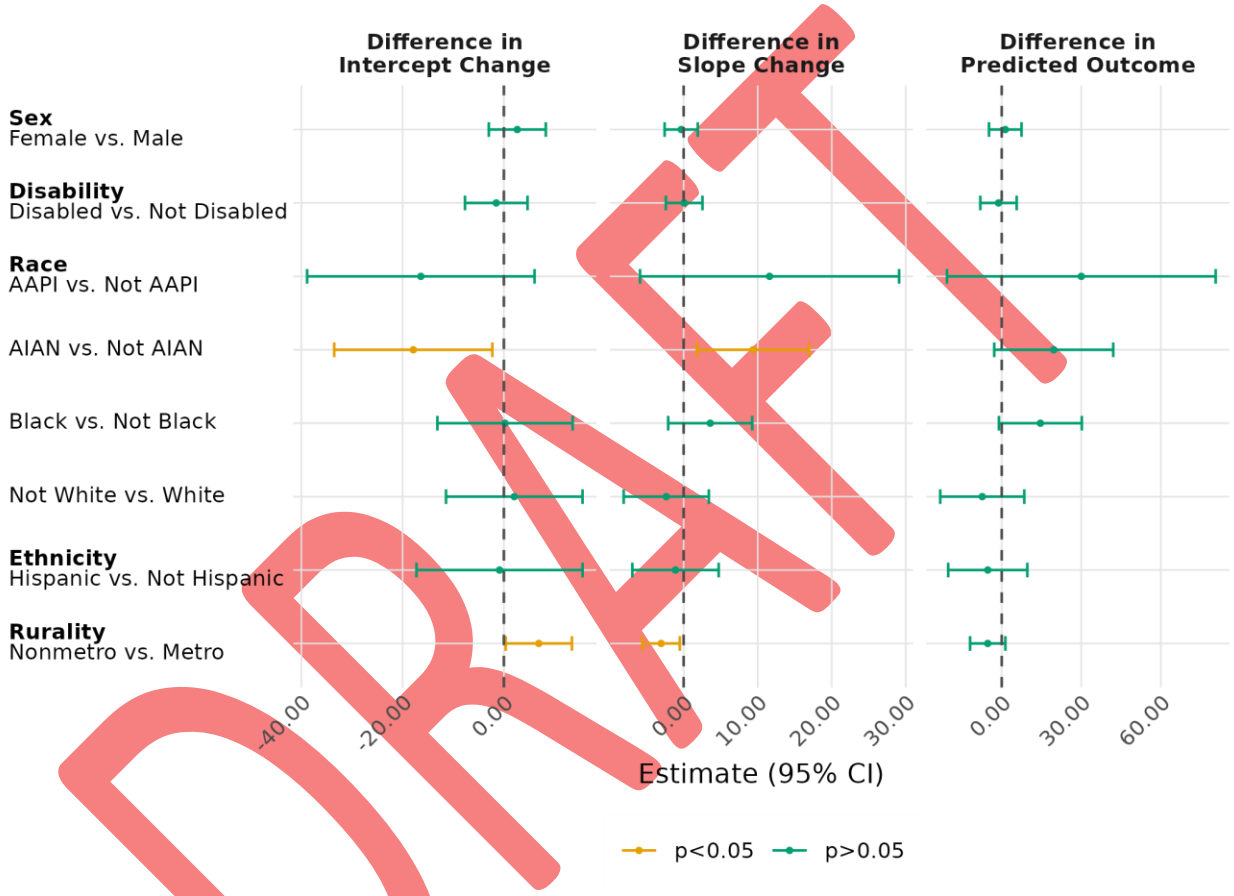
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	20.15* (17.37, 22.93)	16.57* (12.51, 20.62)	-3.58* (-7.03, -0.14)
Monthly Change	0.14 (-0.055, 0.34)	1.52* (0.23, 2.81)	1.38* (0.090, 2.67)
Predicted Average Outcome Nov 2024	19.63* (16.58, 22.69)	21.57* (17.45, 25.69)	1.93 (-1.64, 5.51)
N			26,195

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 7 Days After ED Visit (Contrast Plot)

Figure 98: Comparison groups in Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 7 Days After ED Visit

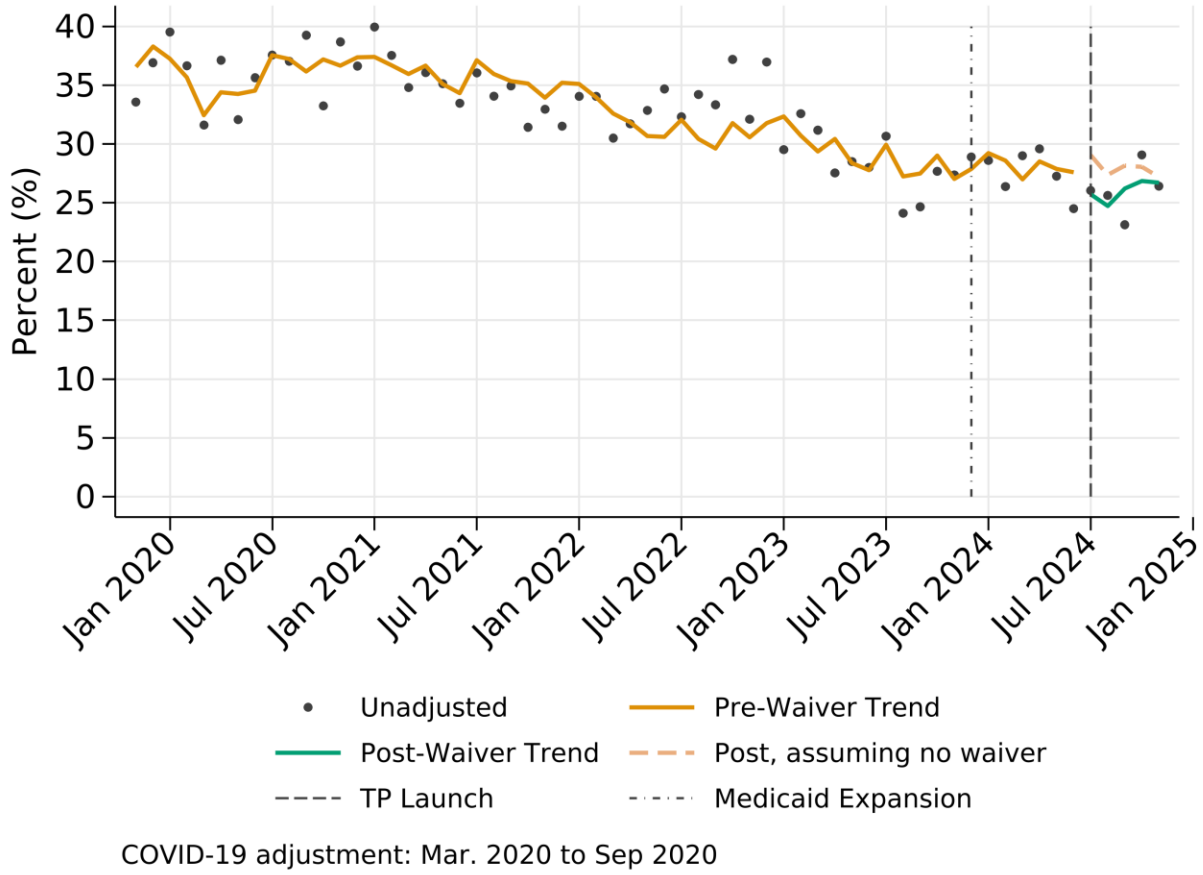


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit (Figure)

Figure 99: Trends in Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit (Table)

Table 50: Interrupted time series estimates of Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	30.34* (27.13, 33.54)	26.98* (22.32, 31.63)	-3.36 (-7.32, 0.60)
Monthly Change	0.11 (-0.12, 0.34)	0.82 (-0.63, 2.28)	0.71 (-0.74, 2.17)
Predicted Average Outcome Nov 2024	29.64* (26.11, 33.17)	29.13* (24.46, 33.80)	-0.51 (-4.58, 3.57)
N			26,195

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit (Contrast Plot)

Figure 100: Comparison groups in Follow-Up After Emergency Department Visit for Alcohol and Other Drug Abuse or Dependence Age 18 and older (FUA-AD): Follow-up with Any Practitioner within 30 Days After ED Visit



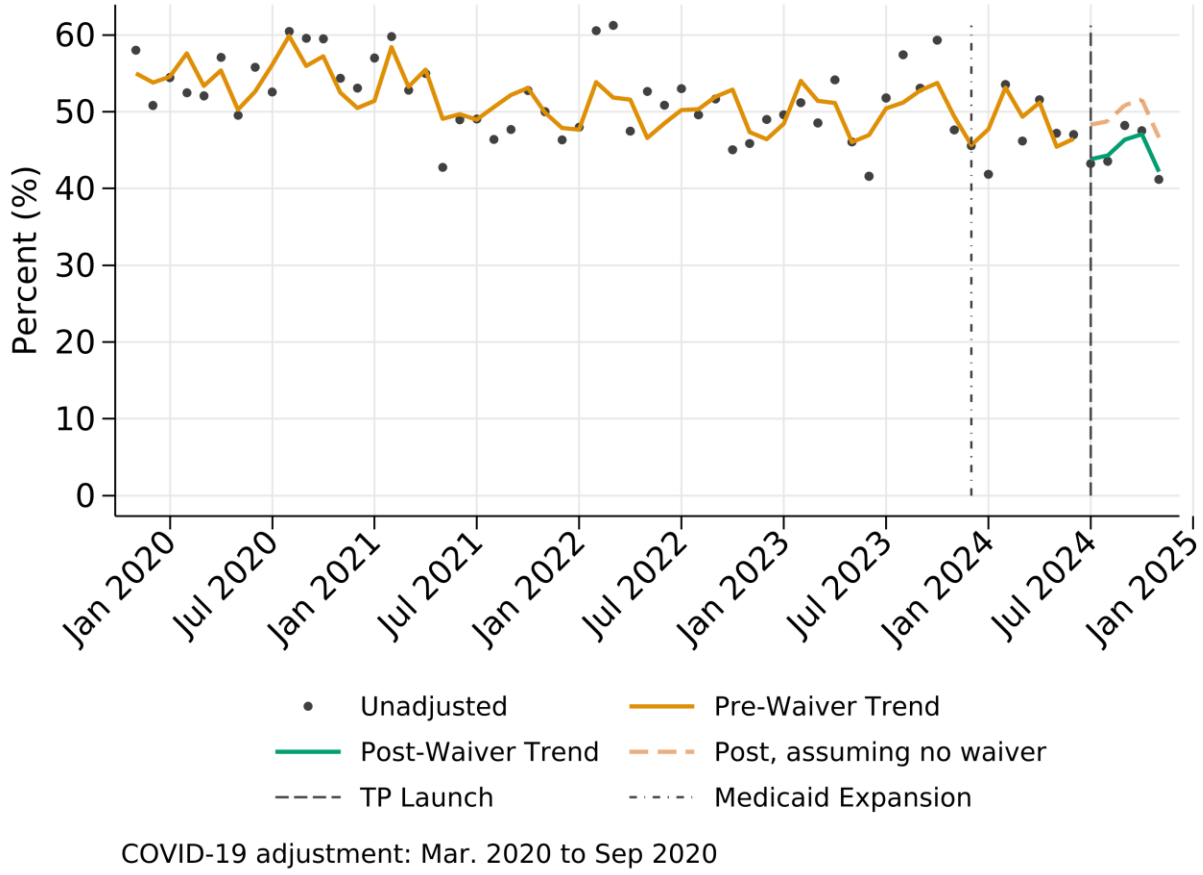
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Follow-up After Hospitalization for Mental Illness (FUH)

Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge (Figure)

Figure 101: Trends in Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-17) in the NC Medicaid population as determined in the metric specifications.

Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge (Table)

Table 51: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge

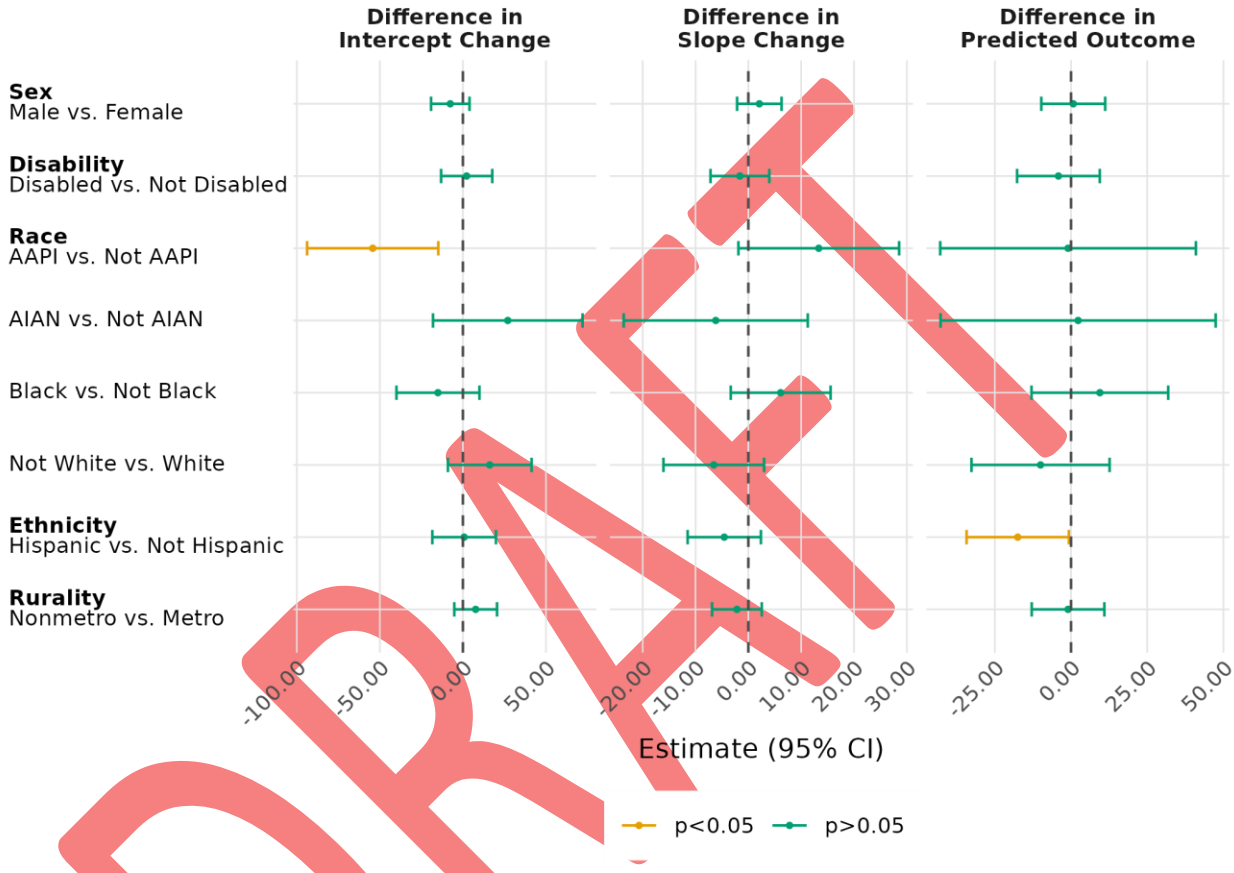
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	48.83* (44.37, 53.29)	44.34* (37.03, 51.66)	-4.49 (-10.99, 2.01)
Monthly Change	-0.16 (-0.44, 0.13)	-0.15 (-2.46, 2.15)	0.0022 (-2.31, 2.31)
Predicted Average Outcome Nov 2024	48.64* (43.74, 53.54)	44.16* (37.51, 50.82)	-4.48 (-10.34, 1.39)
N			14,421

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-17) in the NC Medicaid population as determined in the metric specifications.*

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Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge (Contrast Plot)

Figure 102: Comparison groups in Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge

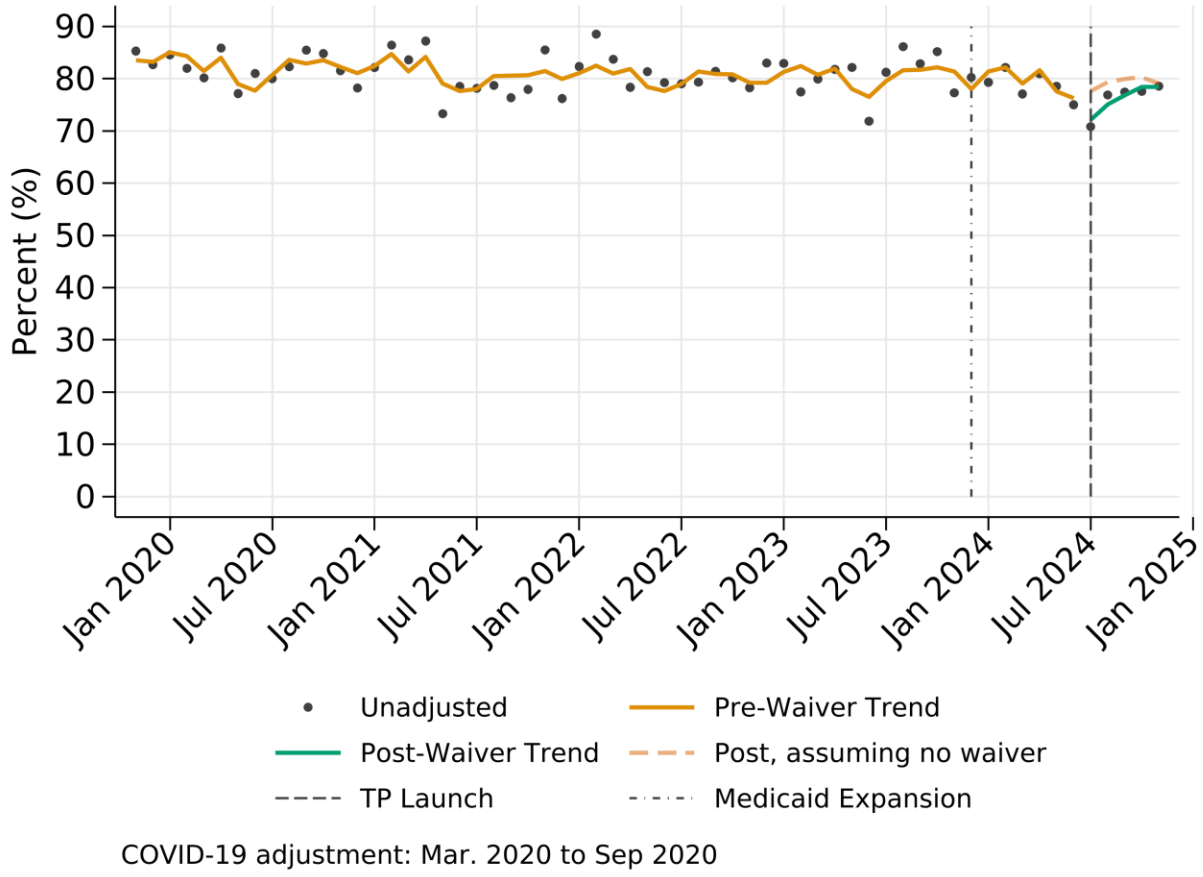


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge (Figure)

Figure 103: Trends in Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-17) in the NC Medicaid population as determined in the metric specifications.

Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge (Table)

Table 52: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge

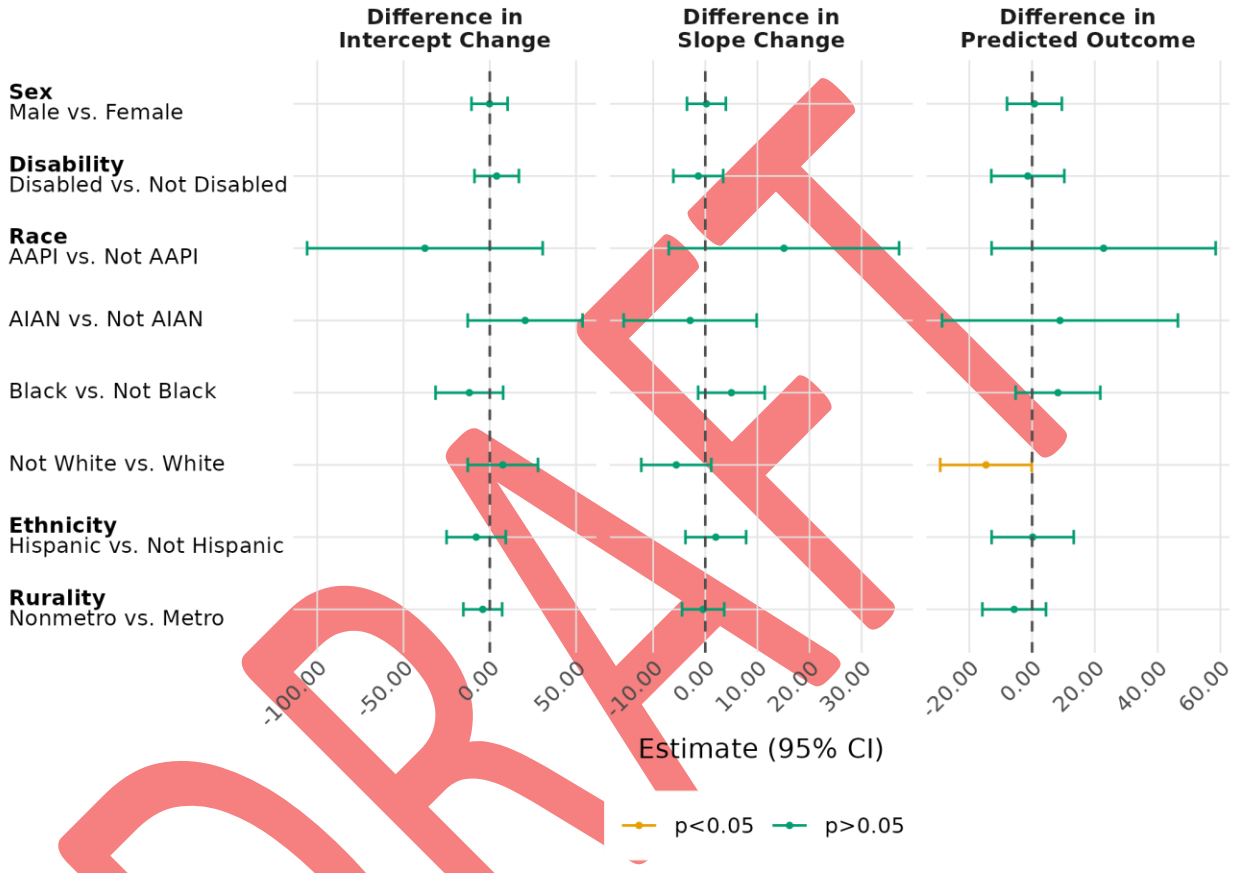
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	79.80* (76.40, 83.20)	74.32* (68.30, 80.34)	-5.48* (-10.94, -0.018)
Monthly Change	-0.082 (-0.30, 0.14)	1.13 (-0.82, 3.07)	1.21 (-0.73, 3.15)
Predicted Average Outcome Nov 2024	79.75* (76.01, 83.49)	79.11* (73.75, 84.48)	-0.63 (-5.46, 4.19)
N			14,421

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 6-17) in the NC Medicaid population as determined in the metric specifications.*

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Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge (Contrast Plot)

Figure 104: Comparison groups in Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge

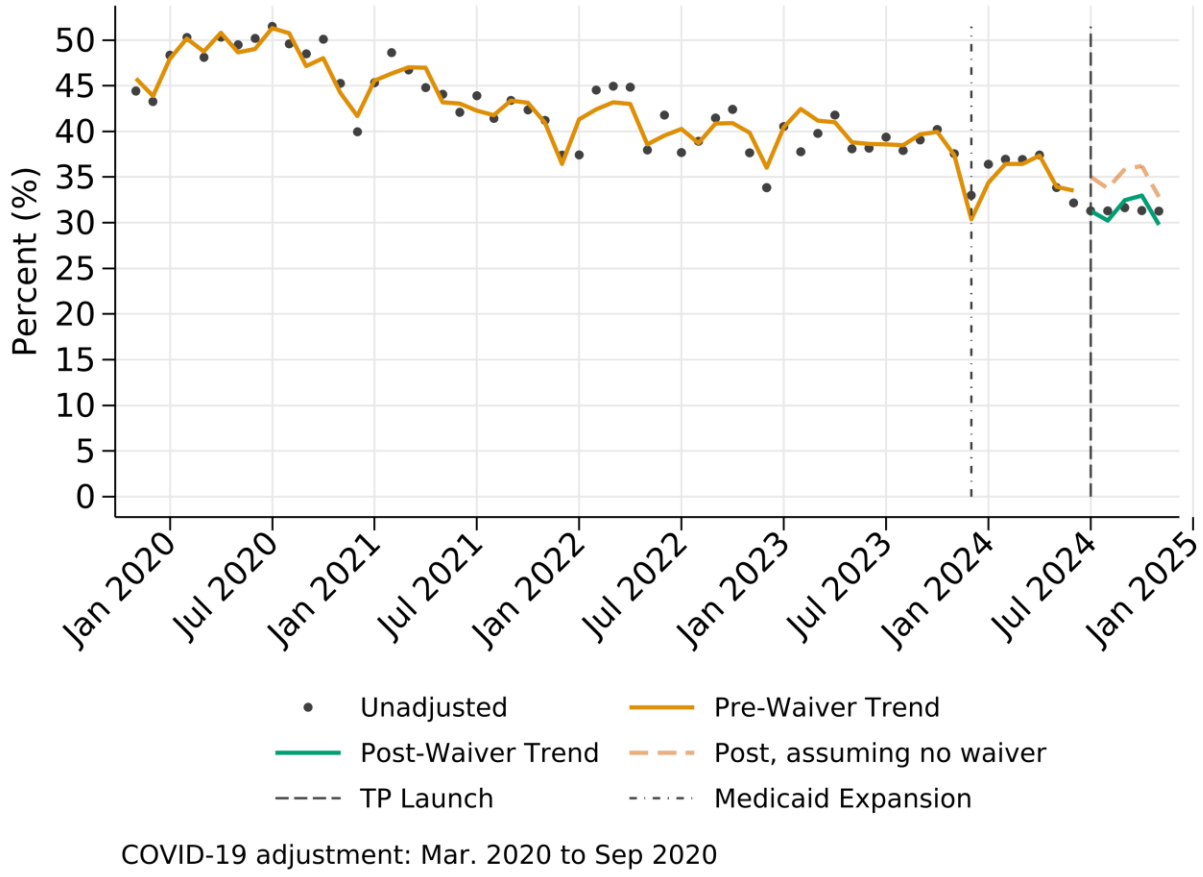


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge (Figure)

Figure 105: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge (Table)

Table 53: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge

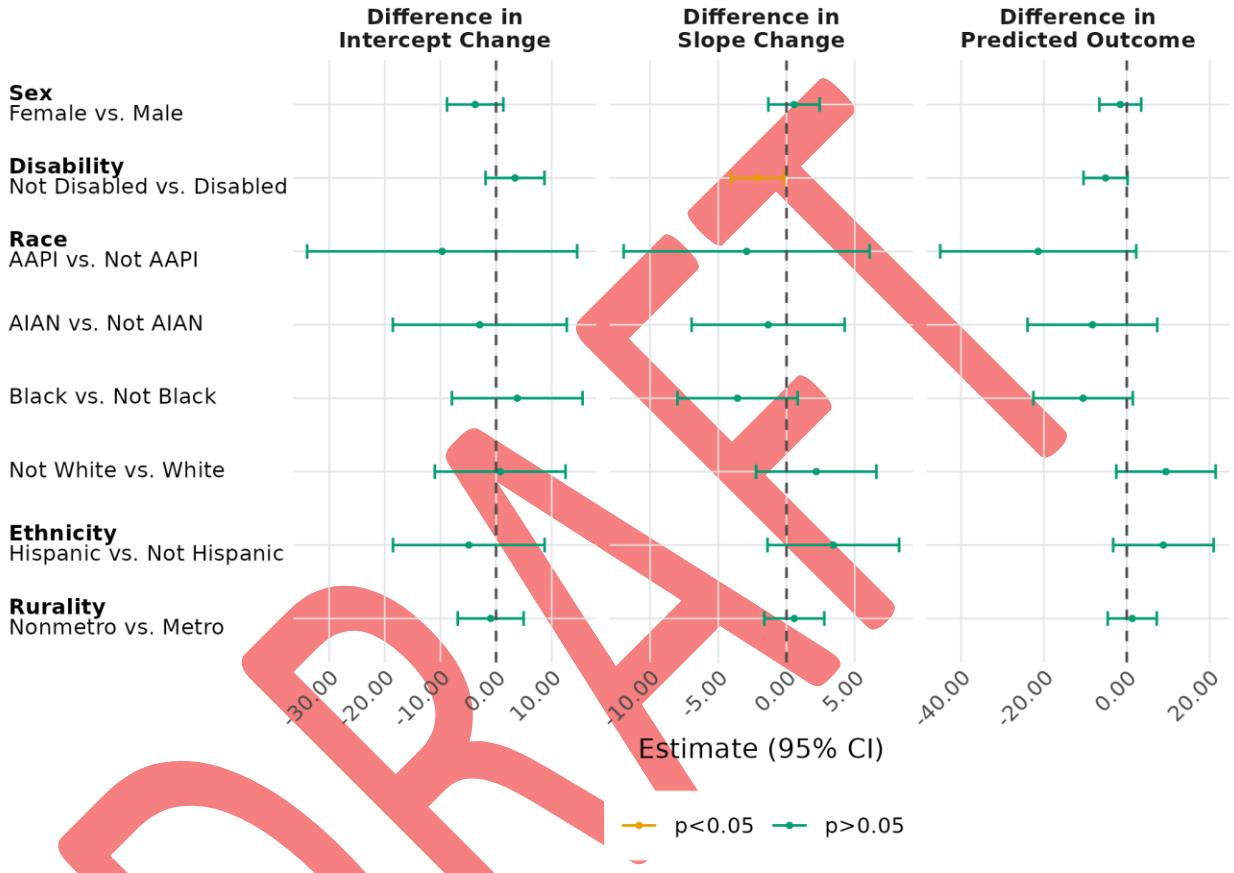
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	38.76* (36.26, 41.27)	35.02* (31.38, 38.67)	-3.74* (-6.93, -0.55)
Monthly Change	-0.039 (-0.22, 0.15)	0.13 (-0.99, 1.26)	0.17 (-0.95, 1.29)
Predicted Average Outcome Nov 2024	38.42* (35.67, 41.18)	35.36* (31.86, 38.87)	-3.06 (-6.15, 0.031)
N			38,888

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge (Contrast Plot)

Figure 106: Comparison groups in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge

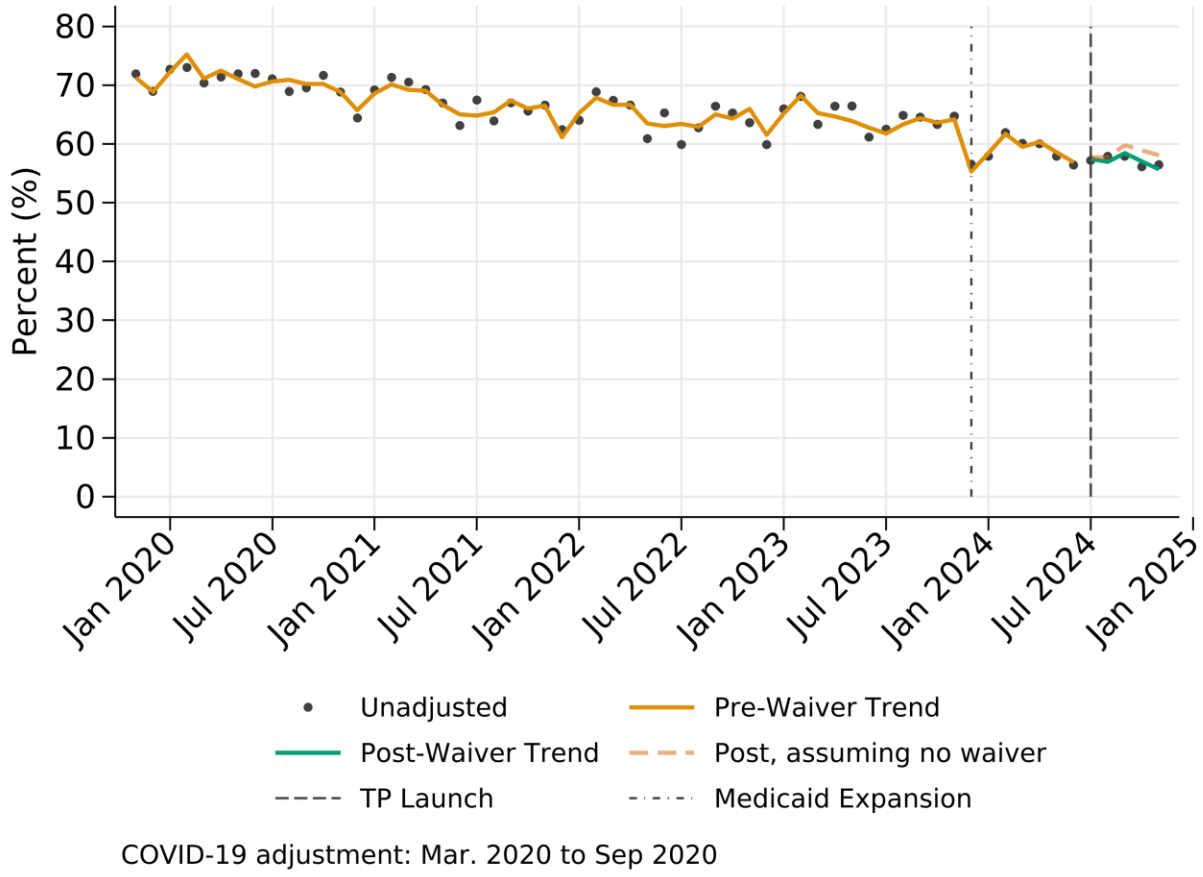


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge (Figure)

Figure 107: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge (Table)

Table 54: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge

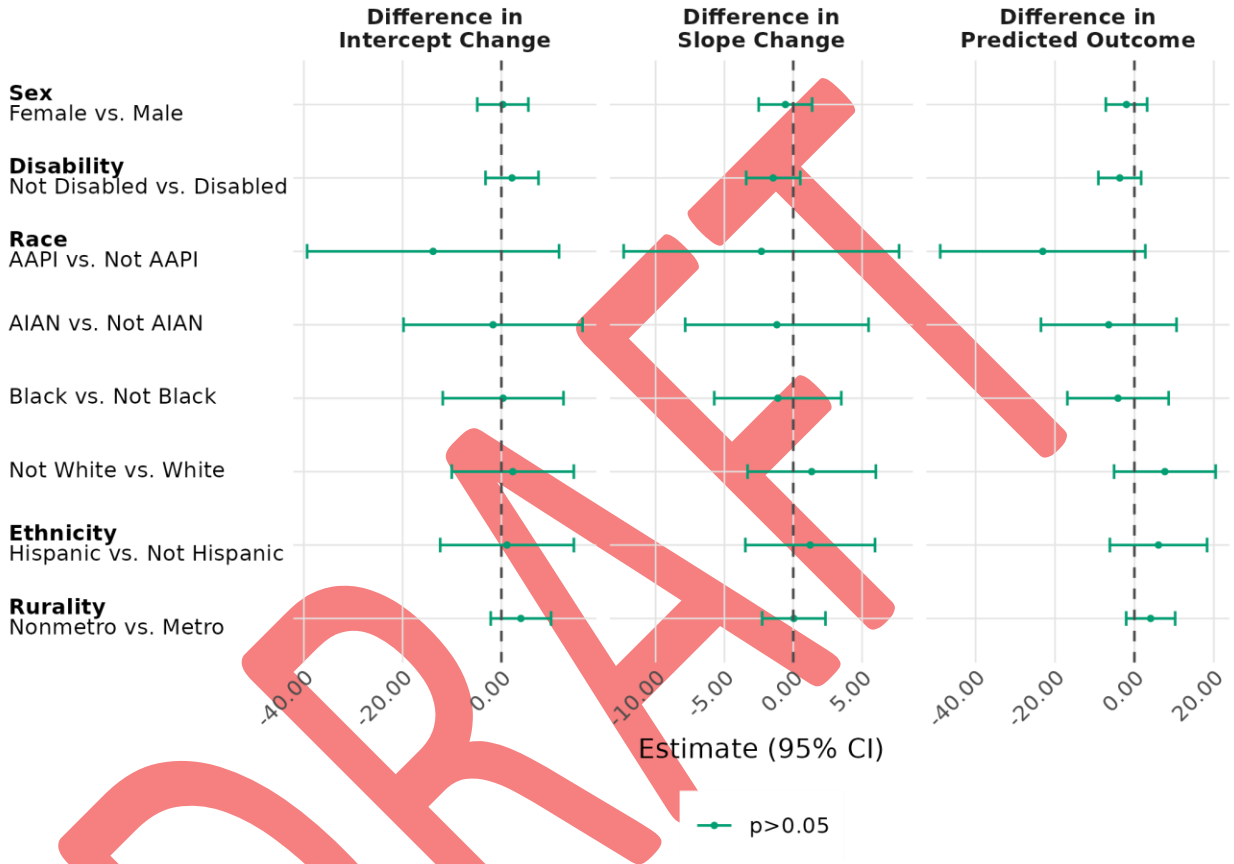
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	62.28* (59.94, 64.62)	62.02* (58.47, 65.56)	-0.26 (-3.45, 2.93)
Monthly Change	-0.11 (-0.28, 0.060)	-0.65 (-1.78, 0.49)	-0.54 (-1.67, 0.60)
Predicted Average Outcome Nov 2024	61.99* (59.41, 64.57)	59.58* (56.15, 63.01)	-2.40 (-5.51, 0.71)
N			38,888

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge (Contrast Plot)

Figure 108: Comparison groups in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge

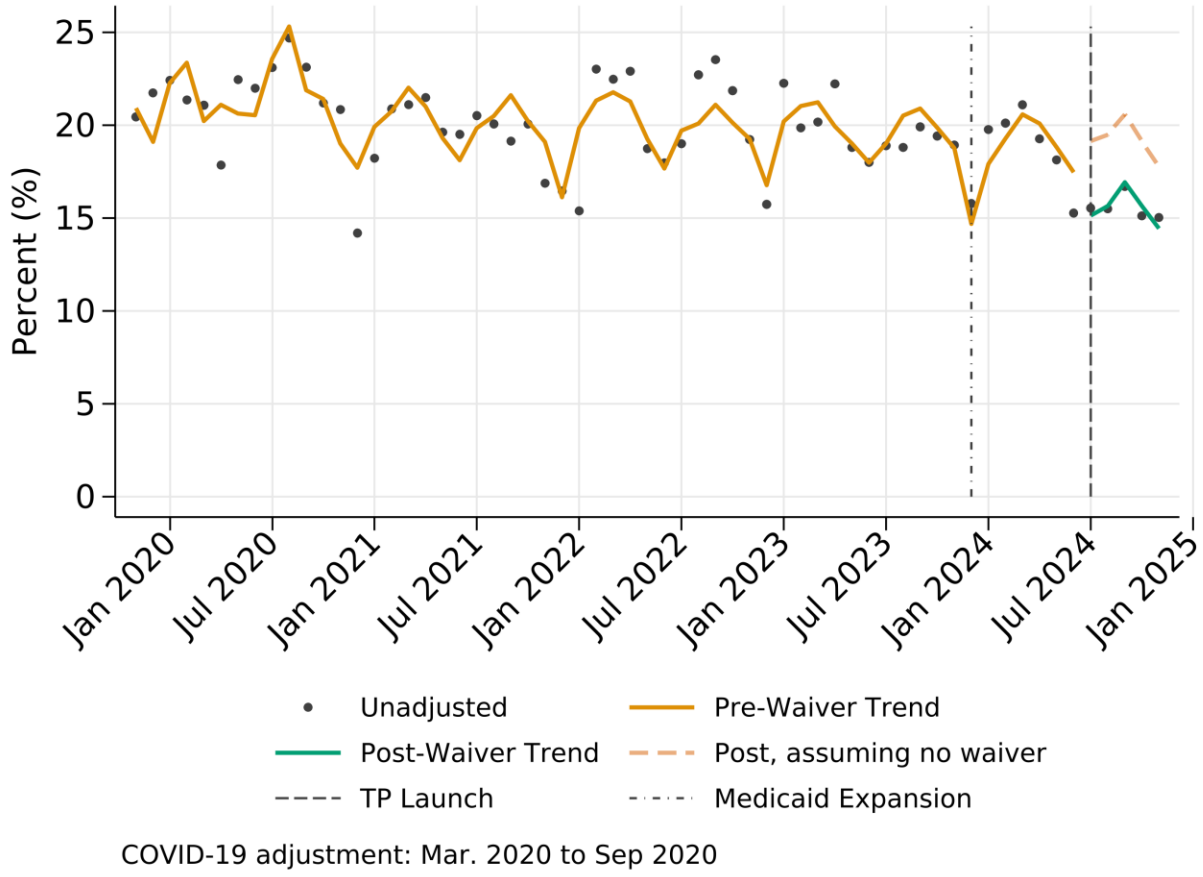


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with PCP (Figure)

Figure 109: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with PCP



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with PCP (Table)

Table 55: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with PCP

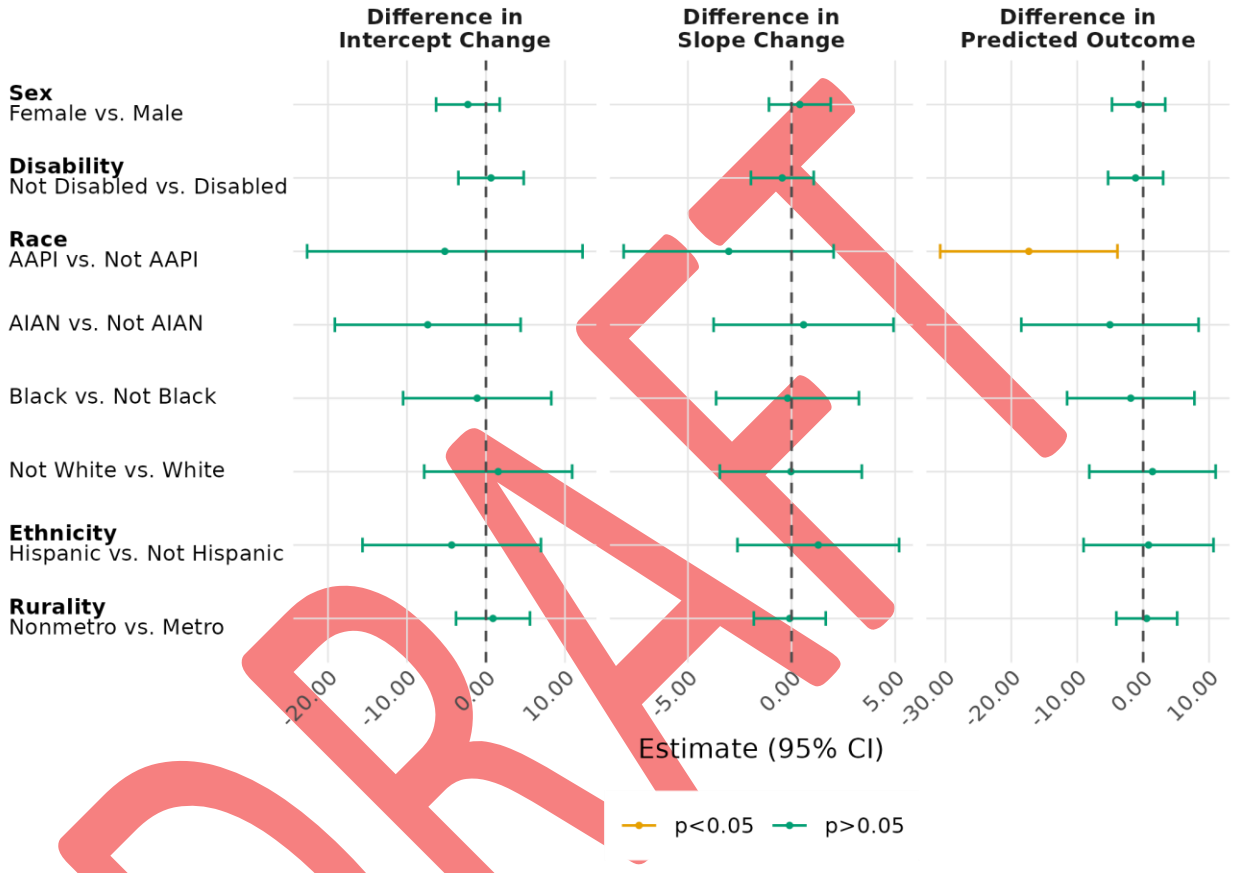
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	18.98* (16.95, 21.01)	14.96* (12.04, 17.89)	-4.02* (-6.56, -1.48)
Monthly Change	-0.069 (-0.22, 0.081)	0.10 (-0.79, 1.00)	0.17 (-0.72, 1.07)
Predicted Average Outcome Nov 2024	18.92* (16.68, 21.15)	15.59* (12.80, 18.39)	-3.33* (-5.78, -0.87)
N			38,888

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with PCP (Contrast Plot)

Figure 110: Comparison groups in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with PCP

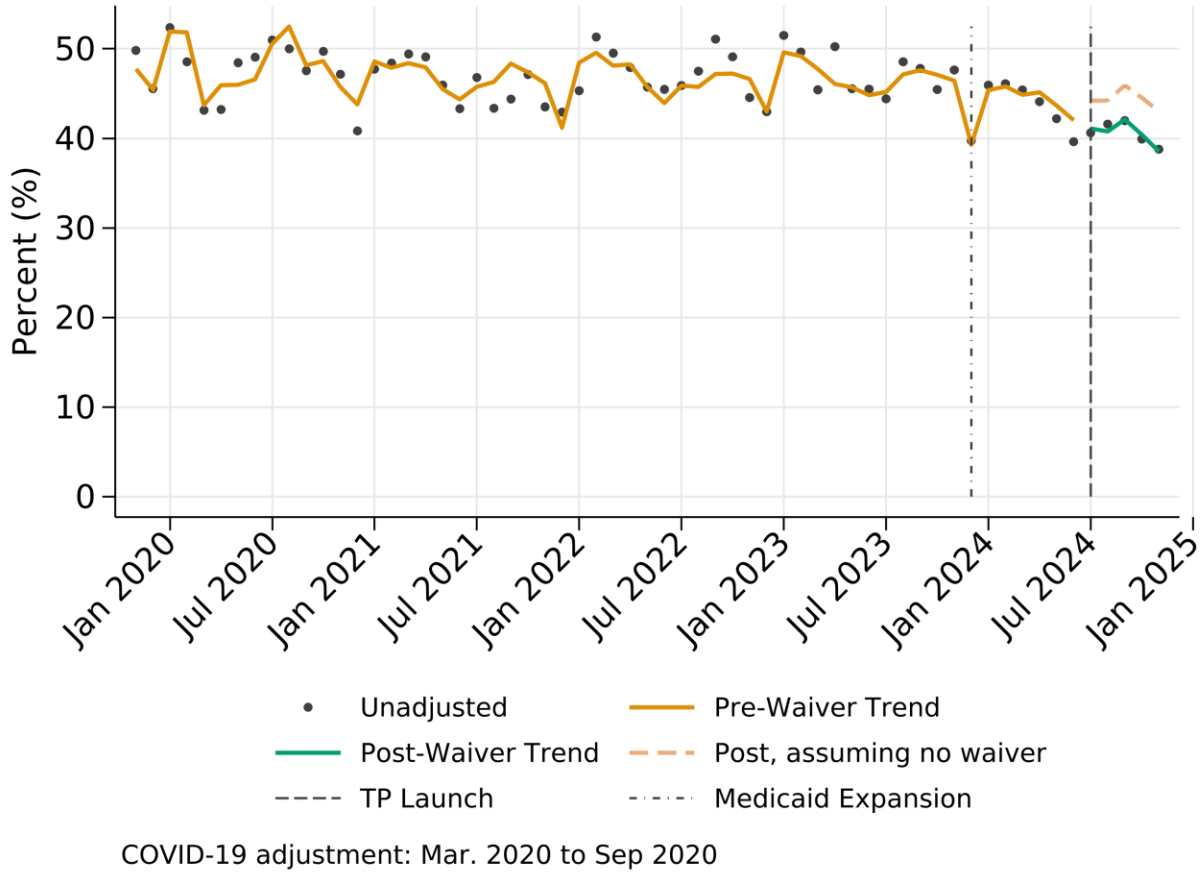


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with PCP (Figure)

Figure 111: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with PCP



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with PCP (Table)

Table 56: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with PCP

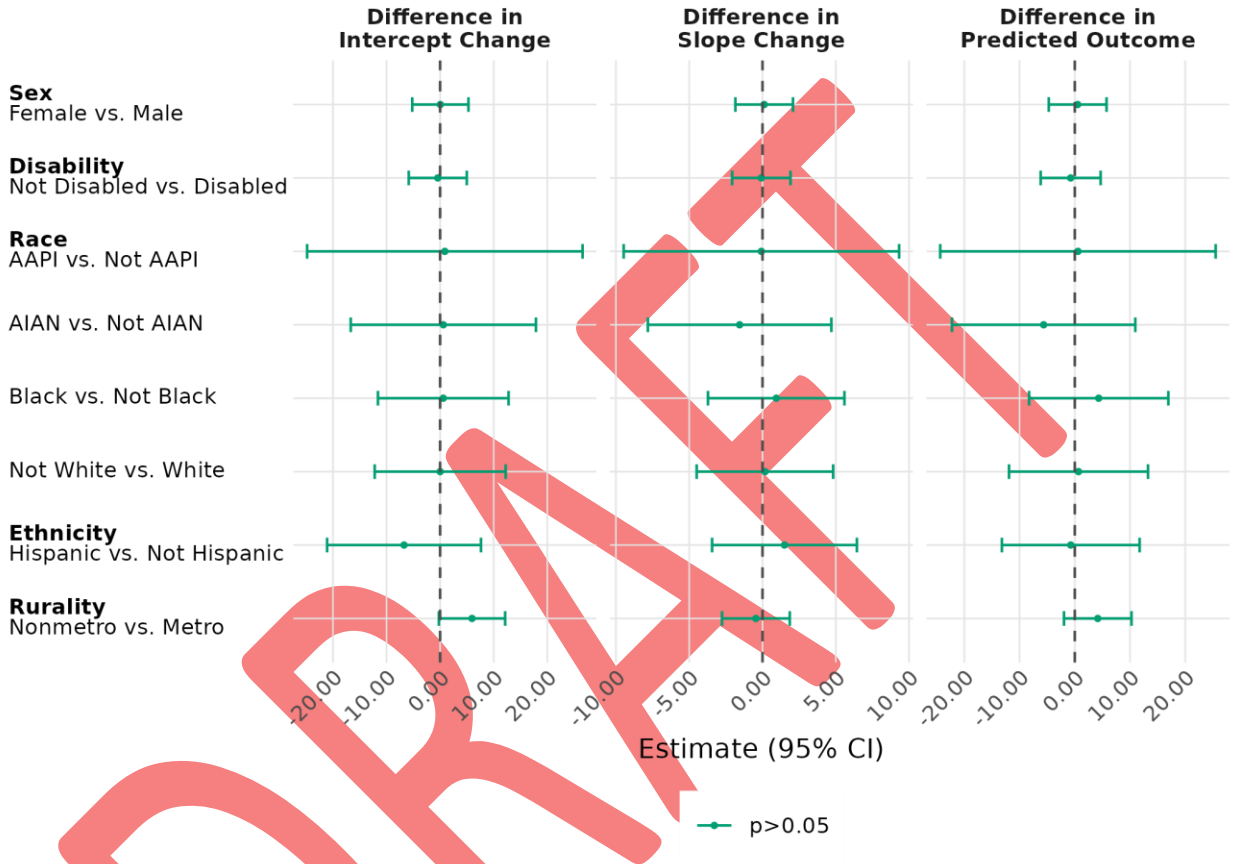
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	46.02* (43.51, 48.53)	42.89* (39.19, 46.60)	-3.13 (-6.39, 0.14)
Monthly Change	-0.050 (-0.23, 0.13)	-0.39 (-1.55, 0.77)	-0.34 (-1.50, 0.82)
Predicted Average Outcome Nov 2024	46.09* (43.33, 48.86)	41.60* (38.05, 45.15)	-4.49* (-7.67, -1.31)
N			38,888

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with PCP (Contrast Plot)

Figure 112: Comparison groups in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with PCP

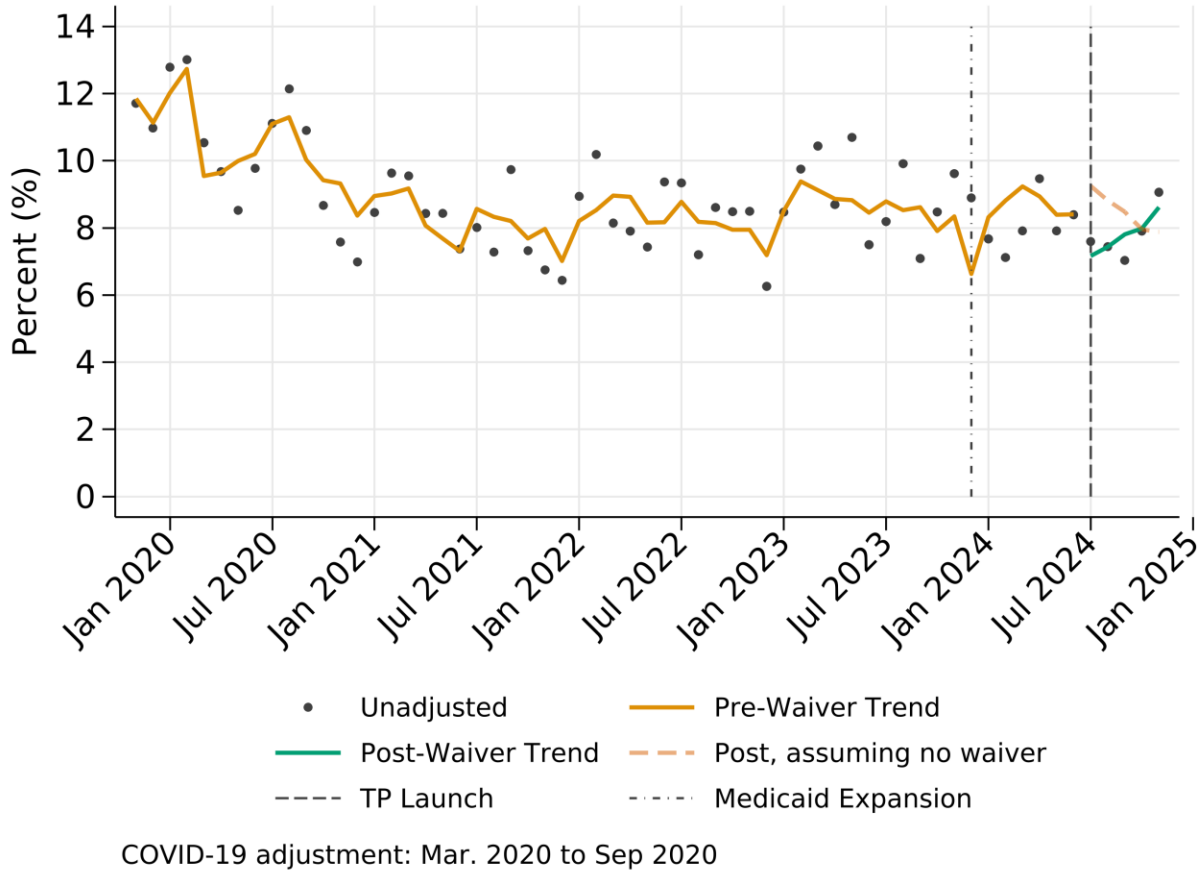


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with enhanced service (Figure)

Figure 113: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with enhanced service



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with enhanced service (Table)

Table 57: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with enhanced service

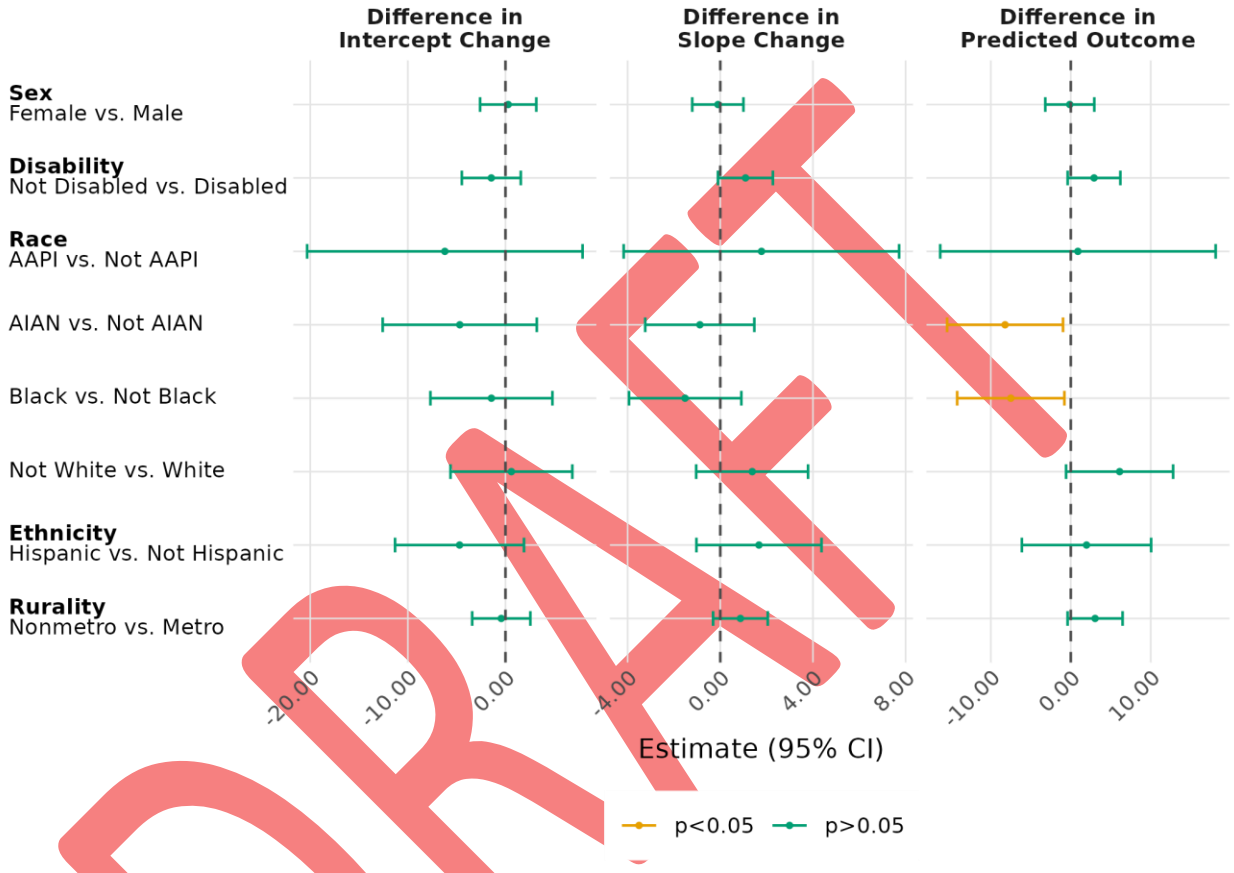
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	6.15* (4.60, 7.70)	4.07* (1.95, 6.19)	-2.08* (-3.90, -0.26)
Monthly Change	-0.23* (-0.34, -0.11)	0.47 (-0.20, 1.14)	0.70* (0.038, 1.36)
Predicted Average Outcome Nov 2024	5.95* (4.25, 7.66)	6.67* (4.52, 8.83)	0.72 (-1.14, 2.58)
N			38,888

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with enhanced service (Contrast Plot)

Figure 114: Comparison groups in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with enhanced service

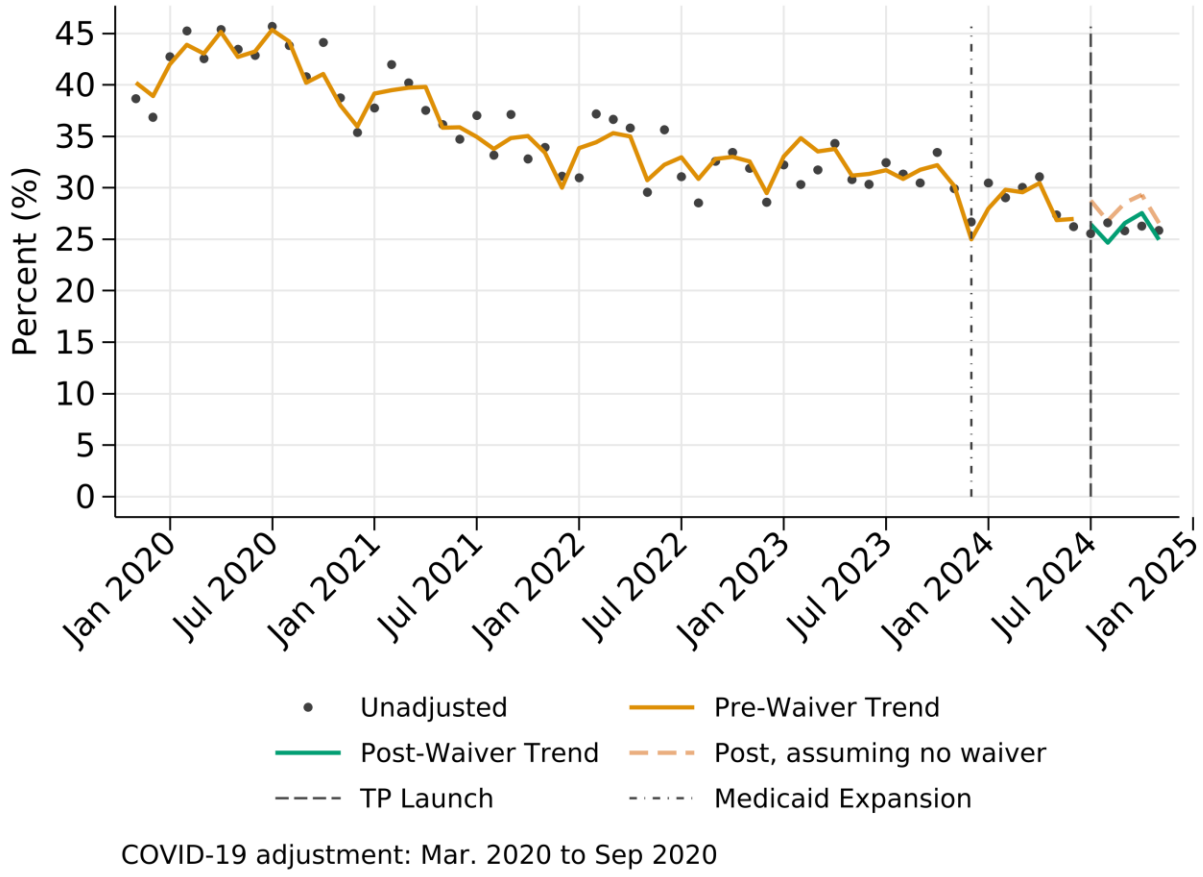


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with mental health provider (Figure)

Figure 115: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with mental health provider



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with mental health provider (Table)

Table 58: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with mental health provider

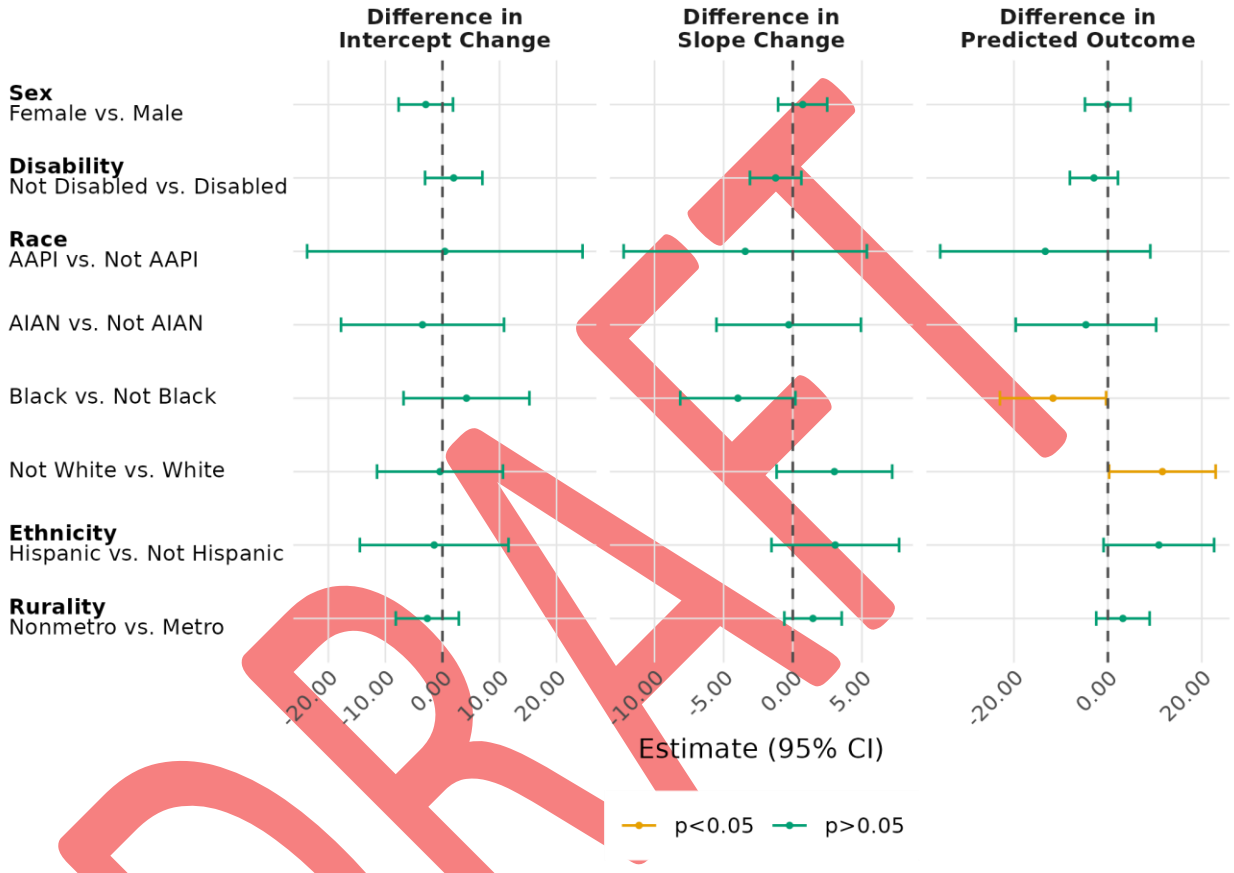
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	30.92* (28.47, 33.37)	28.61* (25.13, 32.10)	-2.31 (-5.35, 0.73)
Monthly Change	-0.11 (-0.29, 0.068)	0.064 (-1.01, 1.13)	0.18 (-0.89, 1.24)
Predicted Average Outcome Nov 2024	30.53* (27.83, 33.22)	28.93* (25.53, 32.32)	-1.60 (-4.55, 1.35)
N			38,888

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with mental health provider (Contrast Plot)

Figure 116: Comparison groups in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge with mental health provider

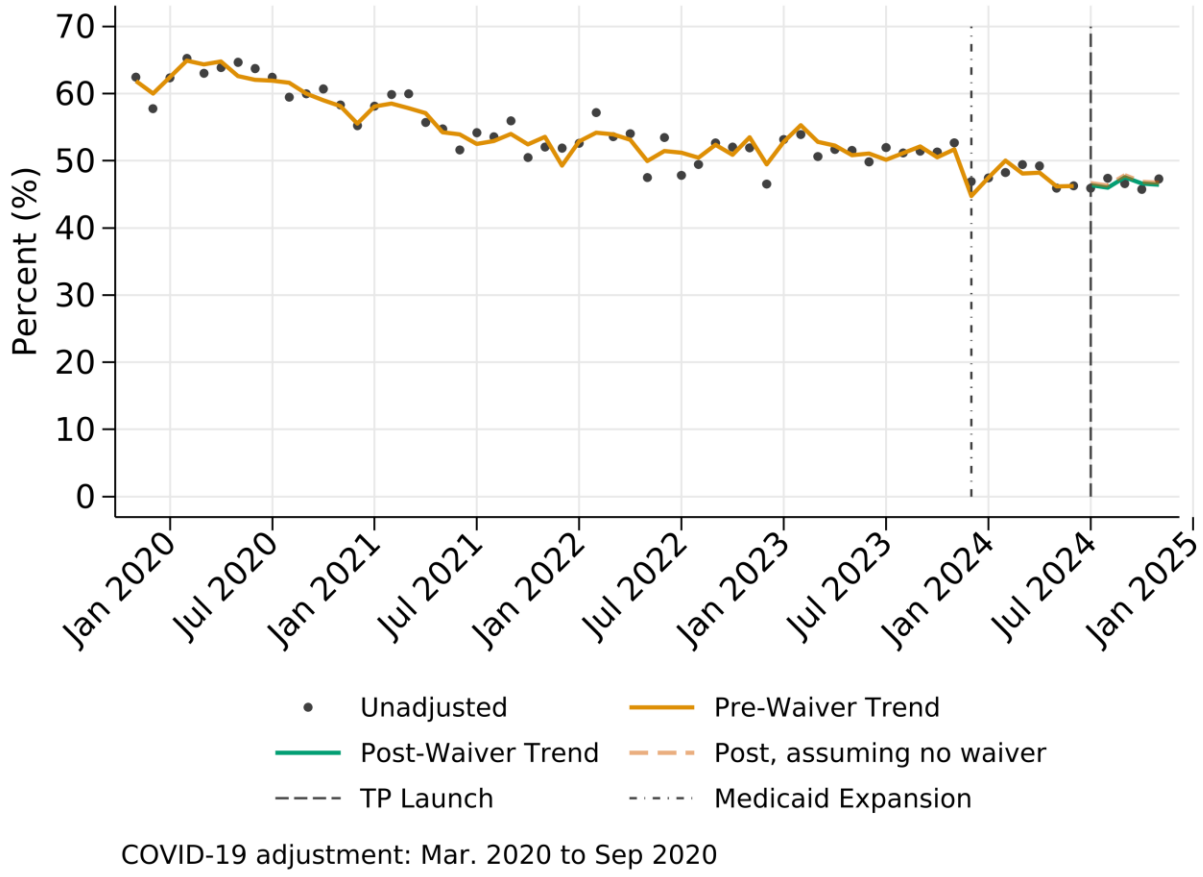


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with mental health provider (Figure)

Figure 117: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with mental health provider



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with mental health provider (Table)

Table 59: Interrupted time series estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with mental health provider

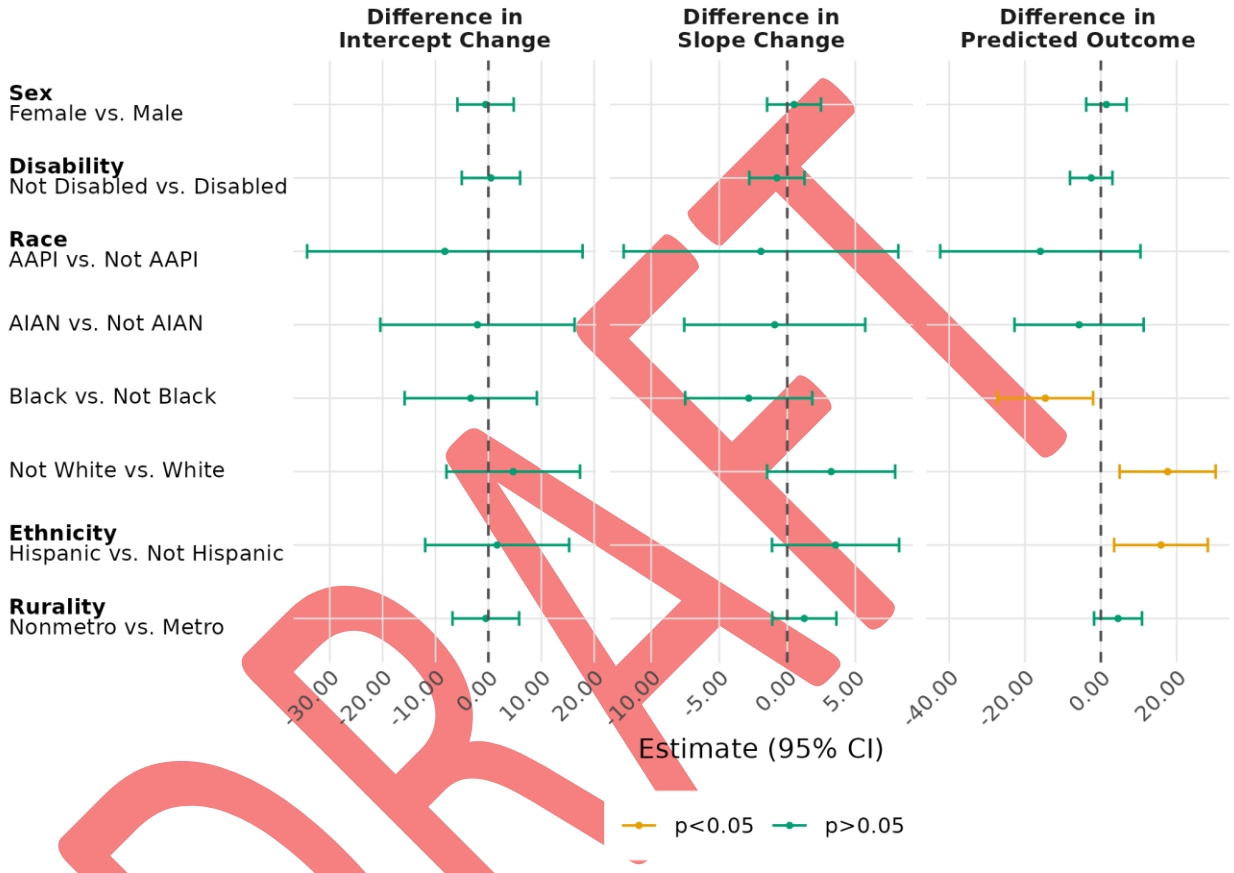
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	49.29* (46.79, 51.78)	48.94* (45.24, 52.64)	-0.35 (-3.64, 2.95)
Monthly Change	-0.22* (-0.41, -0.044)	-0.20 (-1.37, 0.97)	0.021 (-1.14, 1.19)
Predicted Average Outcome Nov 2024	48.93* (46.18, 51.67)	48.66* (45.04, 52.28)	-0.26 (-3.49, 2.96)
N			38,888

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with mental health provider (Contrast Plot)

Figure 118: Comparison groups in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge with mental health provider



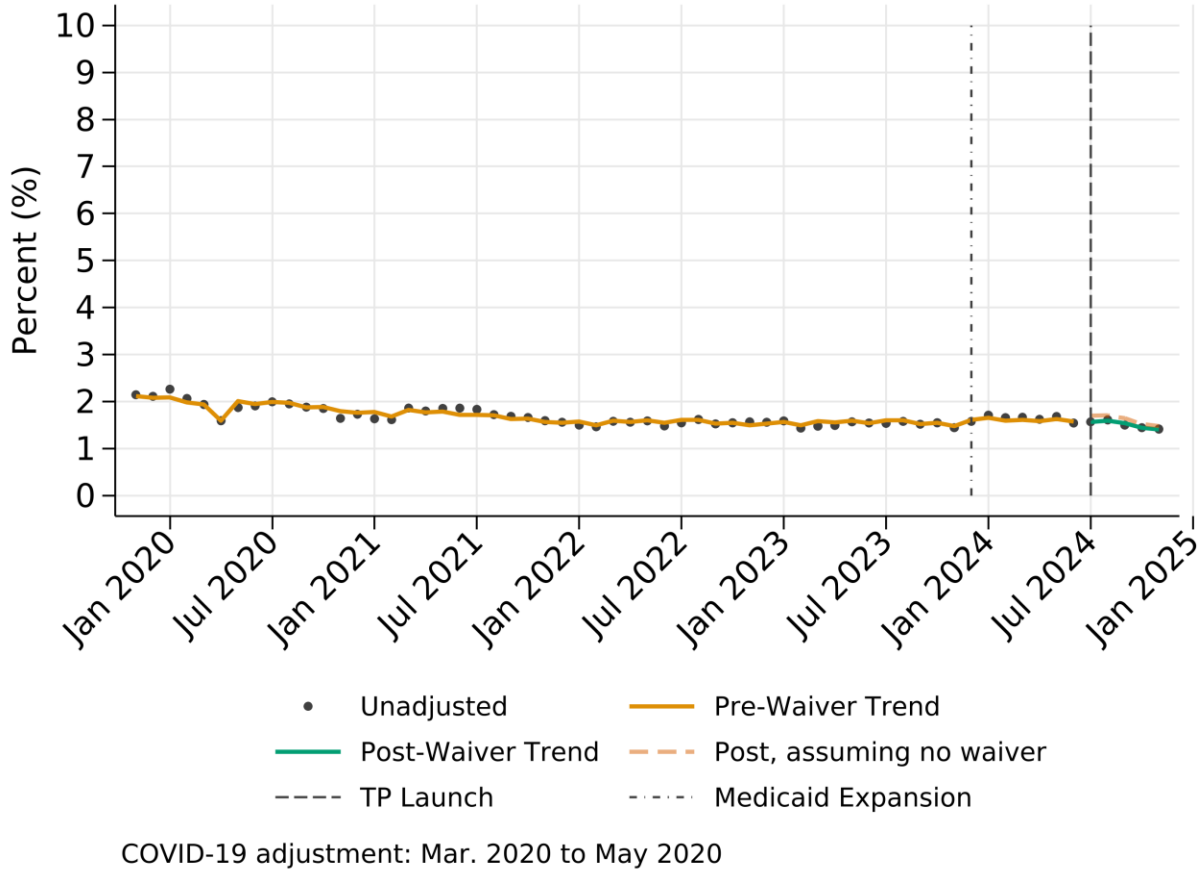
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Hospital Admissions

Hospital Admissions: Proportion of members with a hospital admission (Figure)

Figure 119: Trends in Hospital Admissions: Proportion of members with a hospital admission



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Hospital Admissions: Proportion of members with a hospital admission (Table)

Table 60: Interrupted time series estimates of Hospital Admissions: Proportion of members with a hospital admission

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	1.53* (1.45, 1.60)	1.36* (1.27, 1.46)	-0.17* (-0.24, -0.095)
Monthly Change	-0.013* (-0.018, -0.0093)	0.0005 (-0.017, 0.018)	0.014 (-0.0050, 0.033)
Predicted Average Outcome Nov 2024	1.52* (1.43, 1.60)	1.41* (1.33, 1.48)	-0.11* (-0.18, -0.046)
N			10,784,063

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Hospital Admissions: Proportion of members with a hospital admission (Contrast Plot)

Figure 120: Comparison groups in Hospital Admissions: Proportion of members with a hospital admission

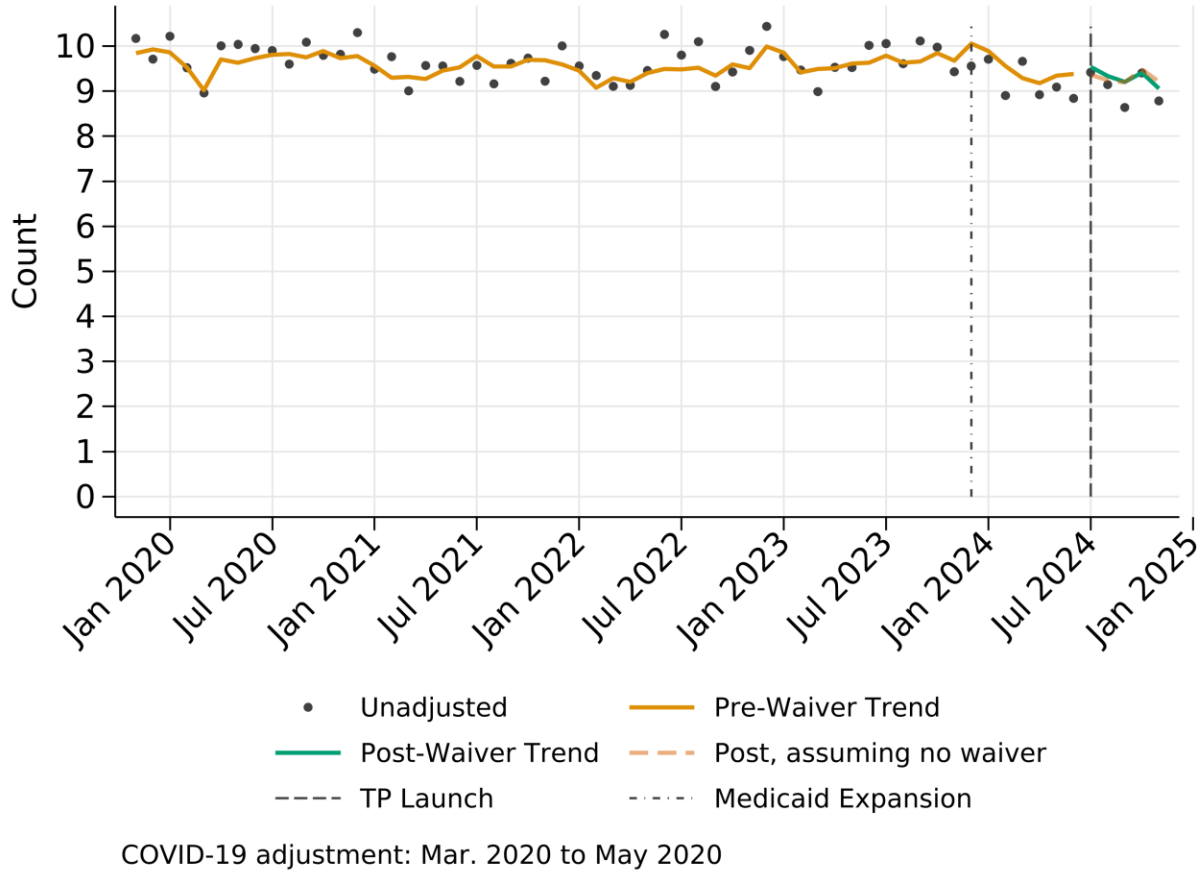


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Hospital Admissions: Number of days per month for beneficiaries with a hospital admission (Figure)

Figure 121: Trends in Hospital Admissions: Number of days per month for beneficiaries with a hospital admission



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE negative binomial regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Hospital Admissions: Number of days per month for beneficiaries with a hospital admission (Table)

Table 61: Interrupted time series estimates of Hospital Admissions: Number of days per month for beneficiaries with a hospital admission

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	9.53* (9.28, 9.78)	9.74* (9.35, 10.12)	0.20 (-0.13, 0.54)
Monthly Change	0.0013 (-0.0004, 0.0031)	-0.0085 (-0.021, 0.0043)	-0.0098 (-0.022, 0.0029)
Predicted Average Outcome Nov 2024	9.51* (9.23, 9.79)	9.34* (8.97, 9.72)	-0.17 (-0.50, 0.16)
N			177,288

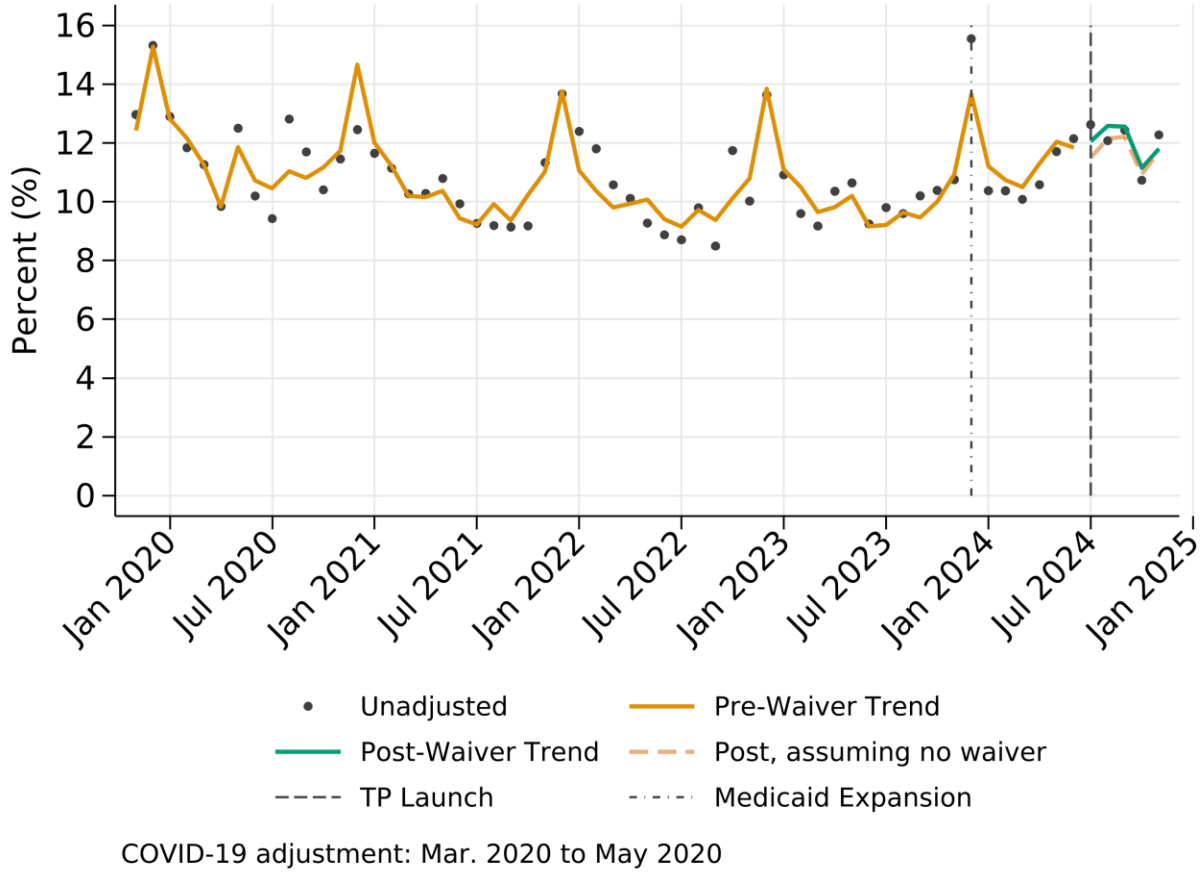
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE negative binomial regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Plan All-Cause Readmissions (PCR)

Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions (Figure)

Figure 122: Trends in Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18-64) in the NC Medicaid population as determined in the metric specifications.

Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions (Table)

Table 62: Interrupted time series estimates of Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	9.98* (8.95, 11.00)	10.53* (8.95, 12.12)	0.56 (-0.89, 2.01)
Monthly Change	-0.069 (-0.15, 0.0067)	-0.18 (-0.72, 0.36)	-0.11 (-0.65, 0.42)
Predicted Average Outcome Nov 2024	9.89* (8.76, 11.02)	10.00* (8.39, 11.60)	0.10 (-1.35, 1.56)
N			89,098

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18-64) in the NC Medicaid population as determined in the metric specifications.*

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Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions (Contrast Plot)

Figure 123: Comparison groups in Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions



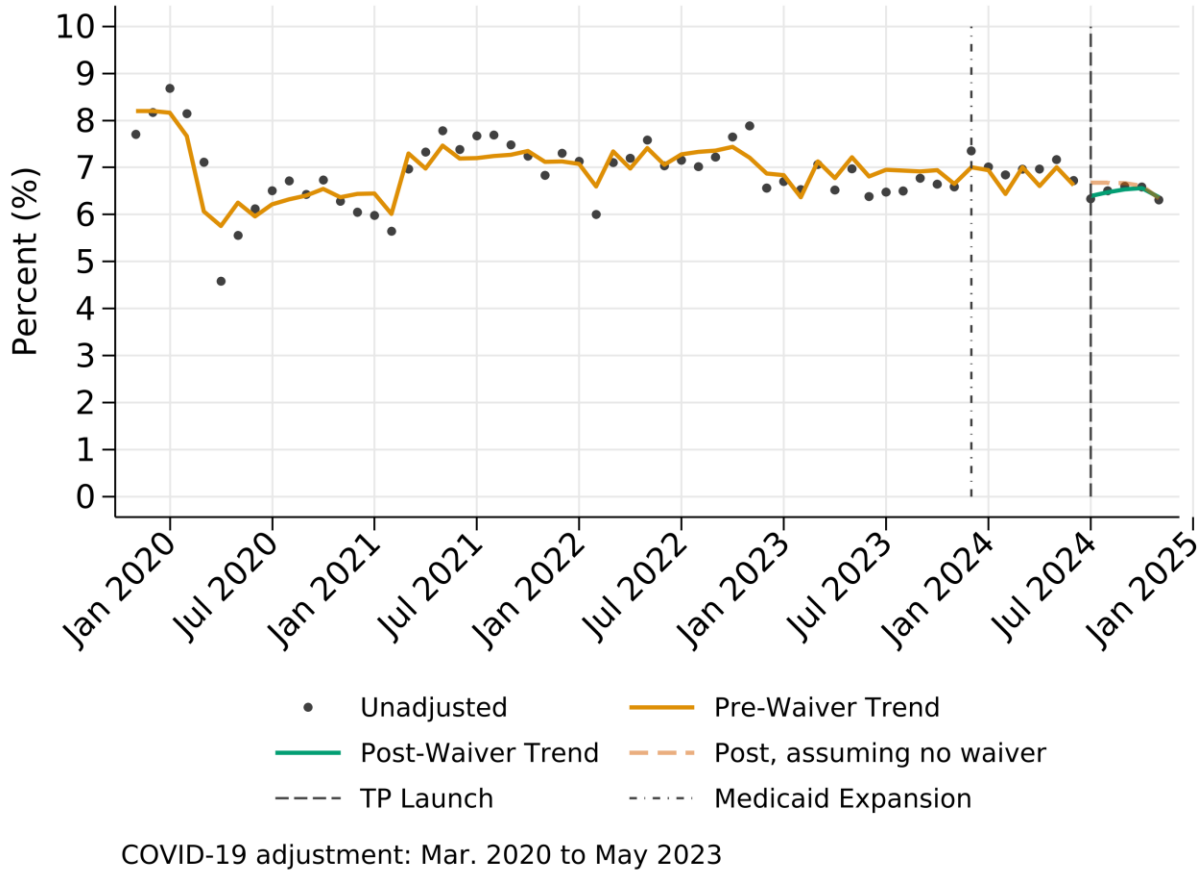
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Emergency Department Visits

Emergency Department Visits: Rate of members with emergency department visits (Figure)

Figure 124: Trends in Emergency Department Visits: Rate of members with emergency department visits



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Emergency Department Visits: Rate of members with emergency department visits (Table)

Table 63: Interrupted time series estimates of Emergency Department Visits: Rate of members with emergency department visits

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	6.86* (6.73, 6.99)	6.54* (6.30, 6.77)	-0.32* (-0.53, -0.11)
Monthly Change	-0.010* (-0.020, -0.0005)	0.065* (0.019, 0.11)	0.075* (0.028, 0.12)
Predicted Average Outcome Nov 2024	6.69* (6.54, 6.84)	6.67* (6.46, 6.87)	-0.022 (-0.22, 0.17)
N			10,784,063

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Emergency Department Visits: Rate of members with emergency department visits (Contrast Plot)

Figure 125: Comparison groups in Emergency Department Visits: Rate of members with emergency department visits



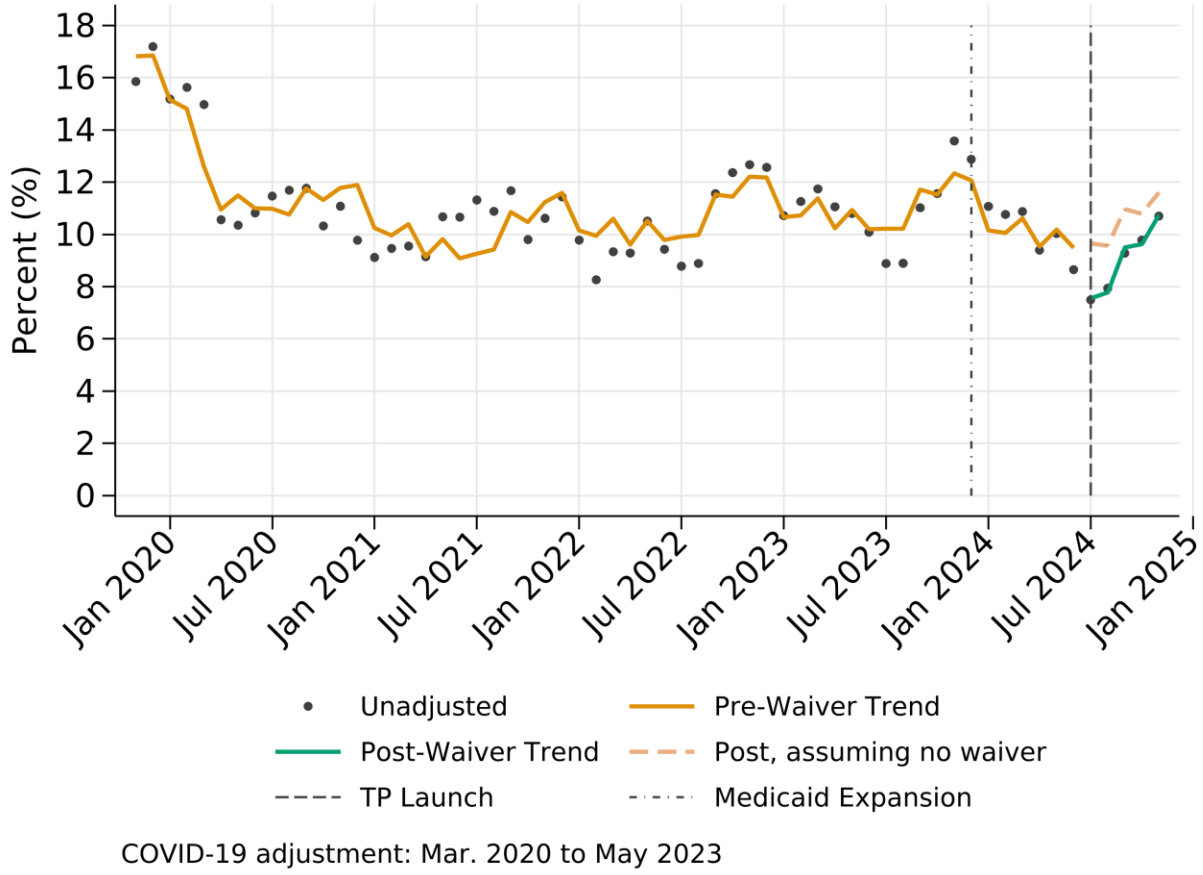
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Avoidable or Preventable Emergency Department Visits

Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit (Figure)

Figure 126: Trends in Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit (Table)

Table 64: Interrupted time series estimates of Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	8.46* (8.07, 8.85)	6.35* (5.79, 6.92)	-2.11* (-2.57, -1.64)
Monthly Change	-0.25* (-0.28, -0.22)	0.061 (-0.11, 0.24)	0.32* (0.14, 0.49)
Predicted Average Outcome Nov 2024	8.18* (7.77, 8.59)	7.33* (6.73, 7.93)	-0.85* (-1.35, -0.34)
N			730,596

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit (Contrast Plot)

Figure 127: Comparison groups in Proportion of Members with an ED Visit with an Avoidable or Preventable Emergency Department Visit



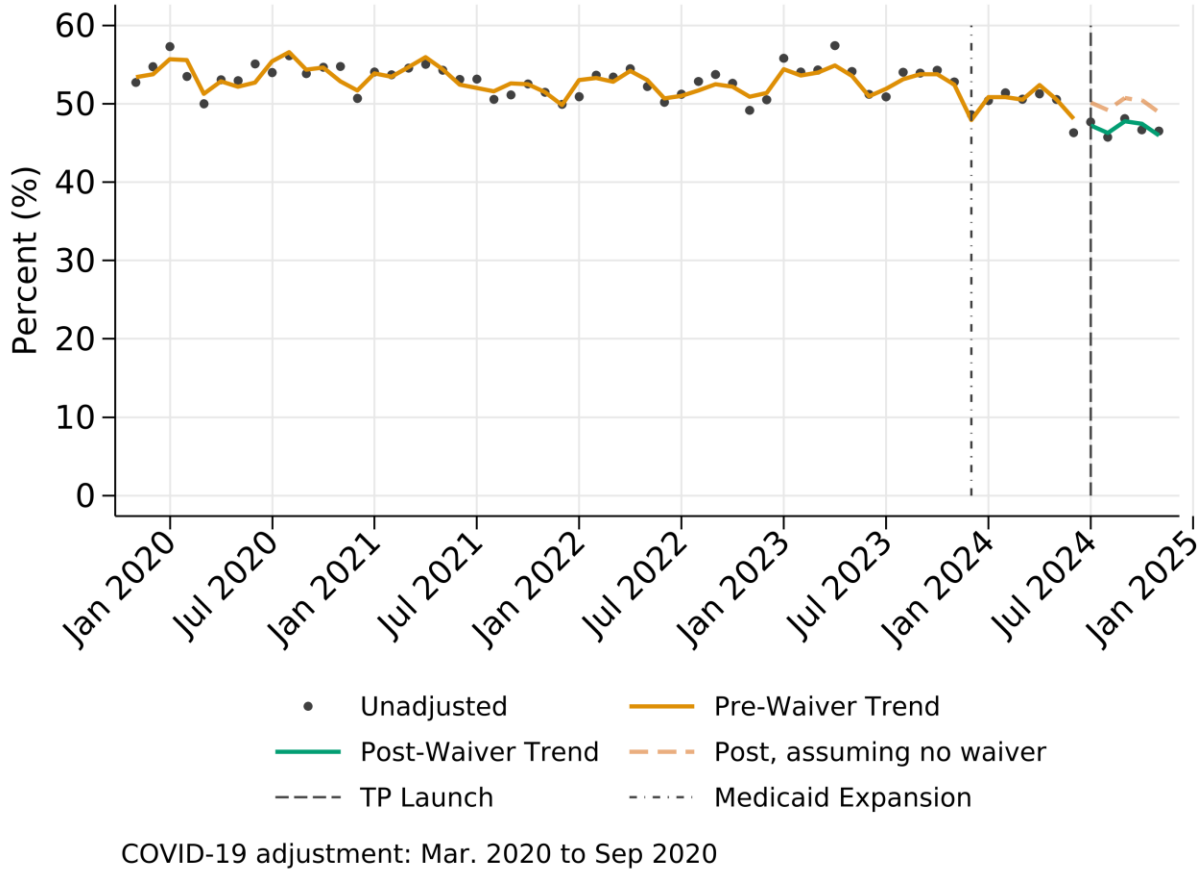
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Transitions of Care (TRC)

Transitions of Care (TRC) (Figure)

Figure 128: Trends in Transitions of Care (TRC)



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

Transitions of Care (TRC) (Table)

Table 65: Interrupted time series estimates of Transitions of Care (TRC)

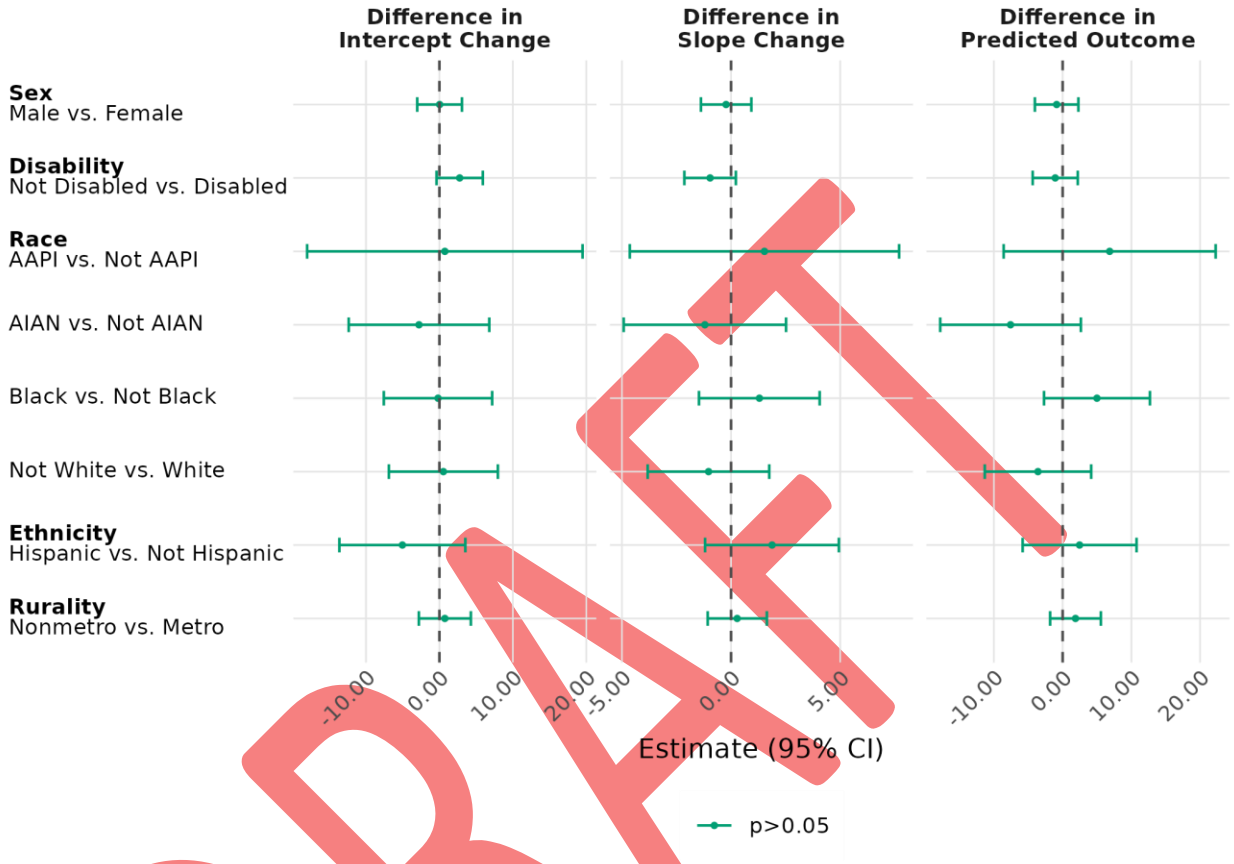
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	51.92* (50.50, 53.34)	48.99* (46.90, 51.08)	-2.93* (-4.78, -1.09)
Monthly Change	-0.029 (-0.13, 0.073)	-0.046 (-0.71, 0.62)	-0.017 (-0.68, 0.65)
Predicted Average Outcome Nov 2024	51.90* (50.34, 53.46)	48.89* (46.82, 50.97)	-3.00* (-4.86, -1.14)
N			122,342

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

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Transitions of Care (TRC) (Contrast Plot)

Figure 129: Comparison groups in Transitions of Care (TRC)



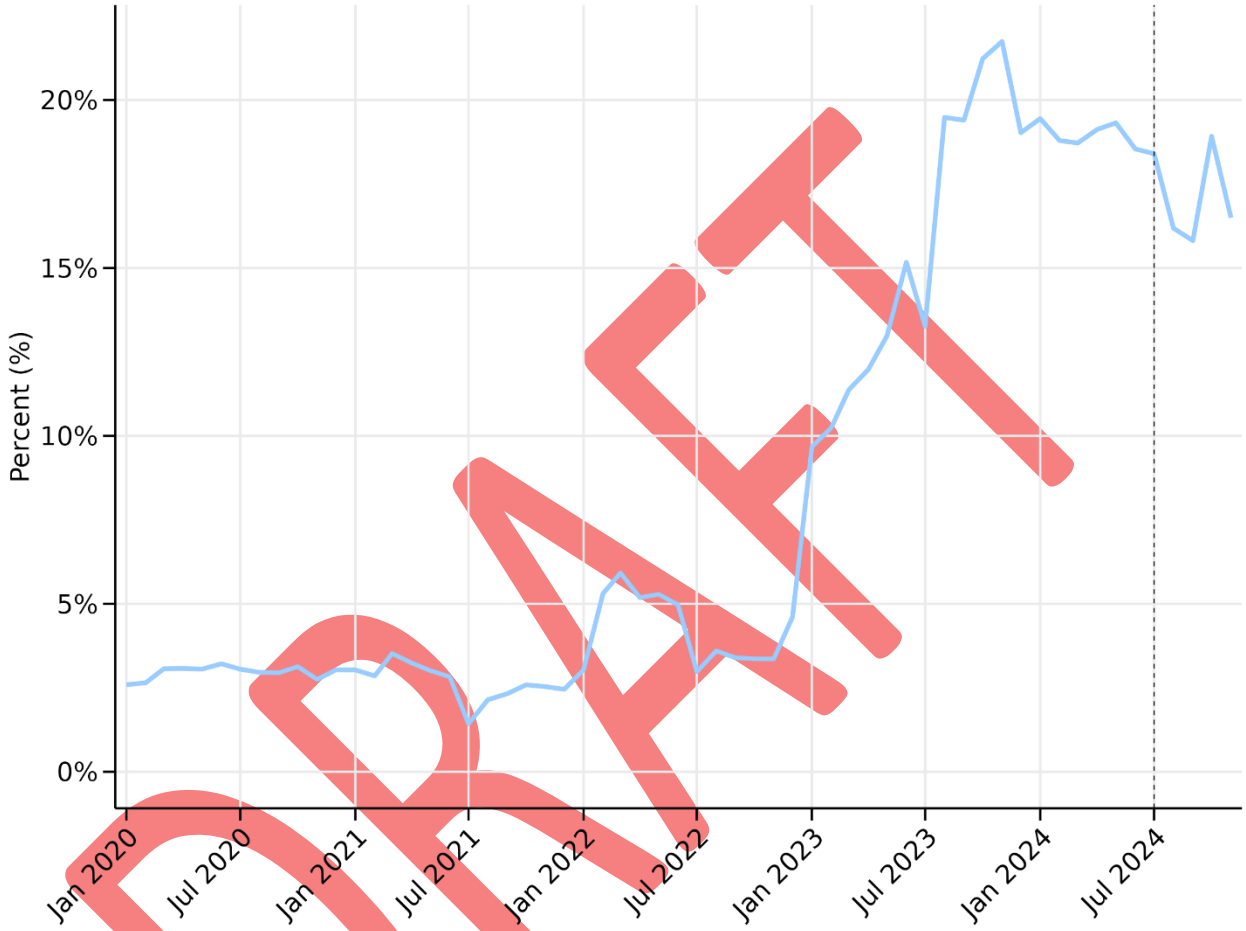
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Percent of Enrollees Receiving Care Management

Percent of Enrollees Receiving Care Management (Figure)

Figure 130: Trends in Percent of Enrollees Receiving Care Management



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Notes: Tailored Care Management began in December 2022, prior to the launch of Tailored Plans in July 2024.

Percent of Enrollees Receiving Care Management (Table)

Table 66: Interrupted time series estimates of Percent of Enrollees Receiving Care Management

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	-0.24 (-0.54, 0.058)	1.36* (1.08, 1.64)	1.60* (1.42, 1.78)
Monthly Change	-0.029* (-0.050, -0.0087)	-0.12* (-0.16, -0.085)	-0.092* (-0.13, -0.055)
Predicted Average Outcome Nov 2024	-0.72* (-1.06, -0.37)	0.51* (0.24, 0.79)	1.23* (1.08, 1.38)
N			2,113,128

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Percent of Enrollees Receiving Care Management (Contrast Plot)

Figure 131: Comparison groups in Percent of Enrollees Receiving Care Management



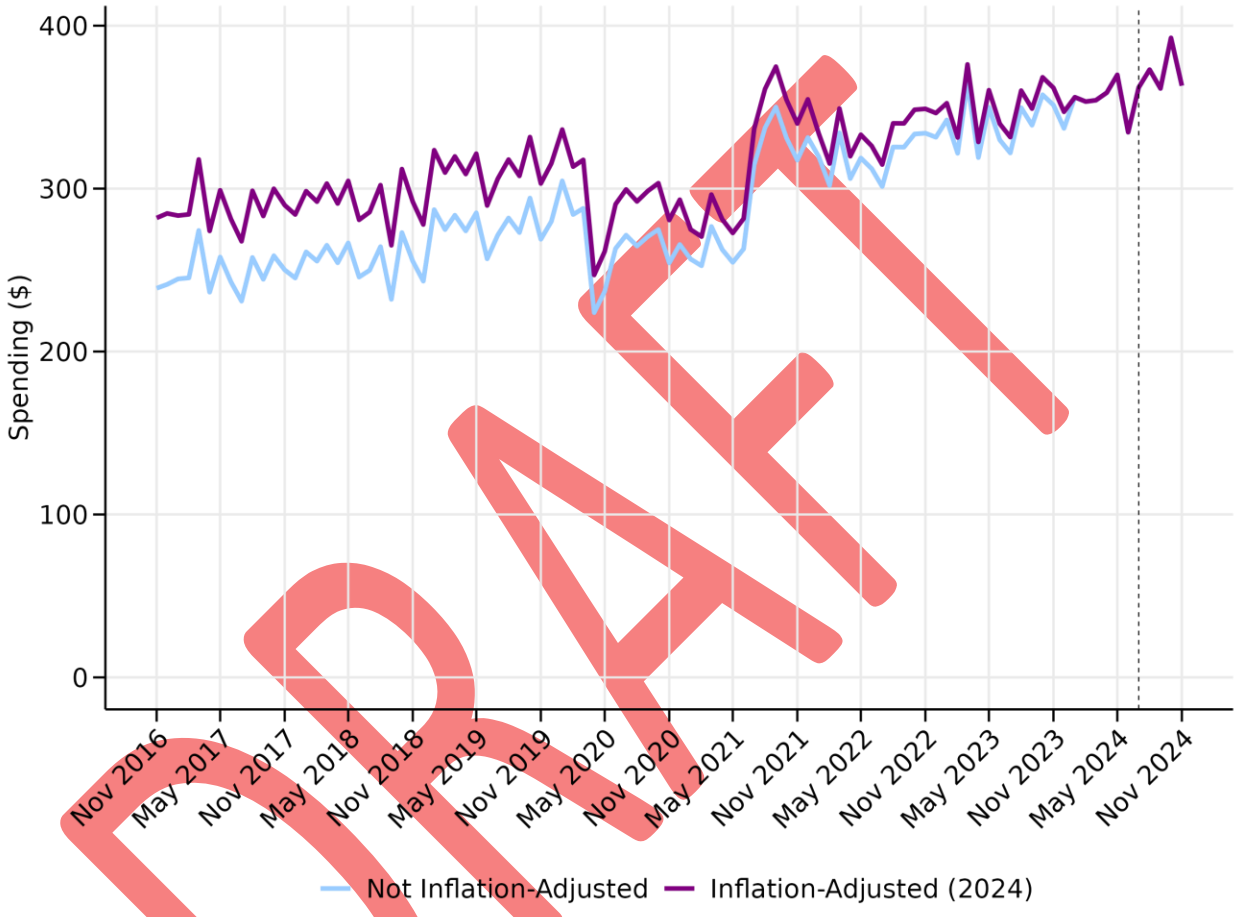
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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medicaid Expenditures

Medicaid Expenditures: Per Member Per Month Total Medicaid Service Expenditures (Figure)

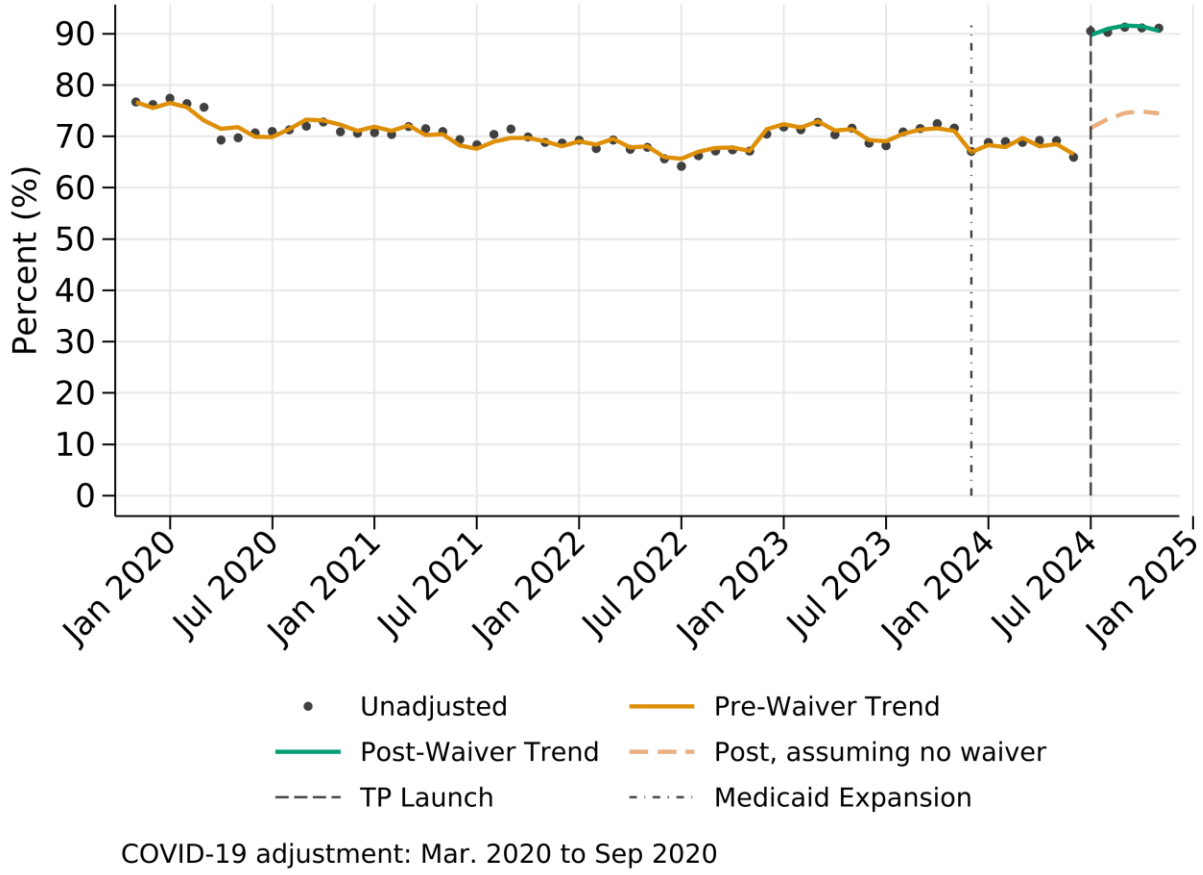
Figure 132: Trends in Medicaid Expenditures: Per Member Per Month Total Medicaid Service Expenditures



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Medicaid Expenditures: Proportion of beneficiaries with a expenditure (Figure)

Figure 133: Trends in Medicaid Expenditures: Proportion of beneficiaries with a expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Proportion of beneficiaries with a expenditure (Table)

Table 67: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with a expenditure

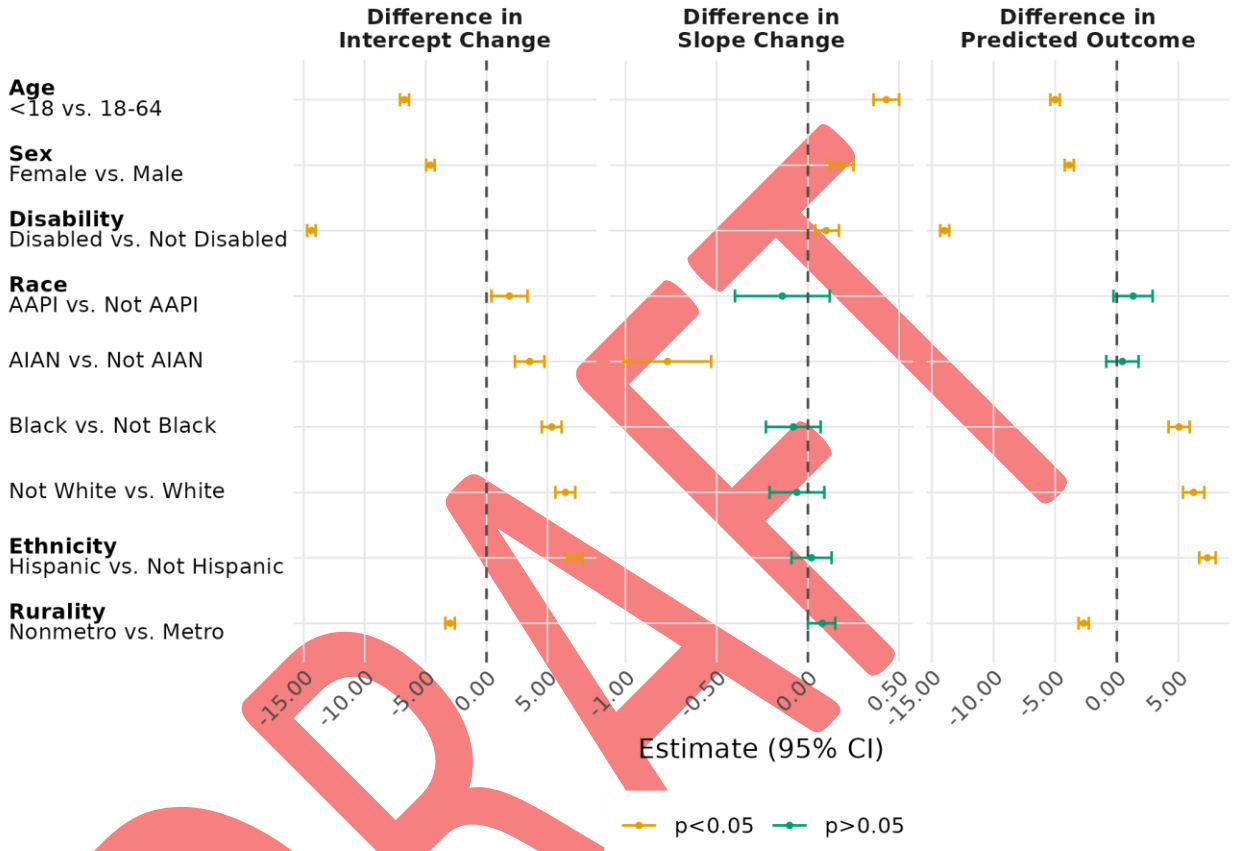
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	65.33* (64.70, 65.96)	89.05* (85.75, 92.34)	23.71* (19.88, 27.55)
Monthly Change	-0.24* (-0.26, -0.22)	-0.41* (-0.52, -0.29)	-0.17* (-0.28, -0.055)
Predicted Average Outcome Nov 2024	64.67* (63.99, 65.35)	87.72* (84.54, 90.90)	23.05* (19.30, 26.80)
N			10,784,063

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Proportion of beneficiaries with a expenditure (Contrast Plot)

Figure 134: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with a expenditure

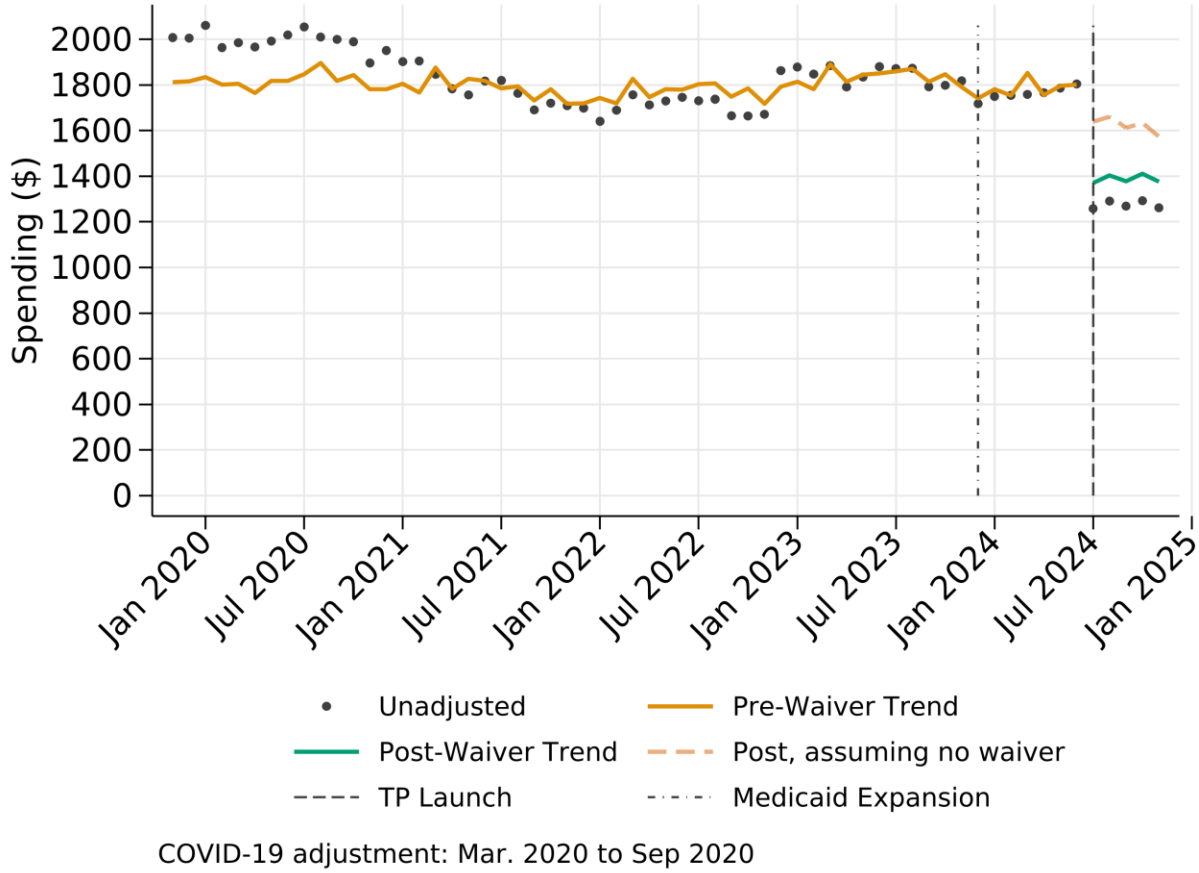


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries (Figure)

Figure 135: Trends in Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries (Table)

Table 68: Interrupted time series estimates of Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries

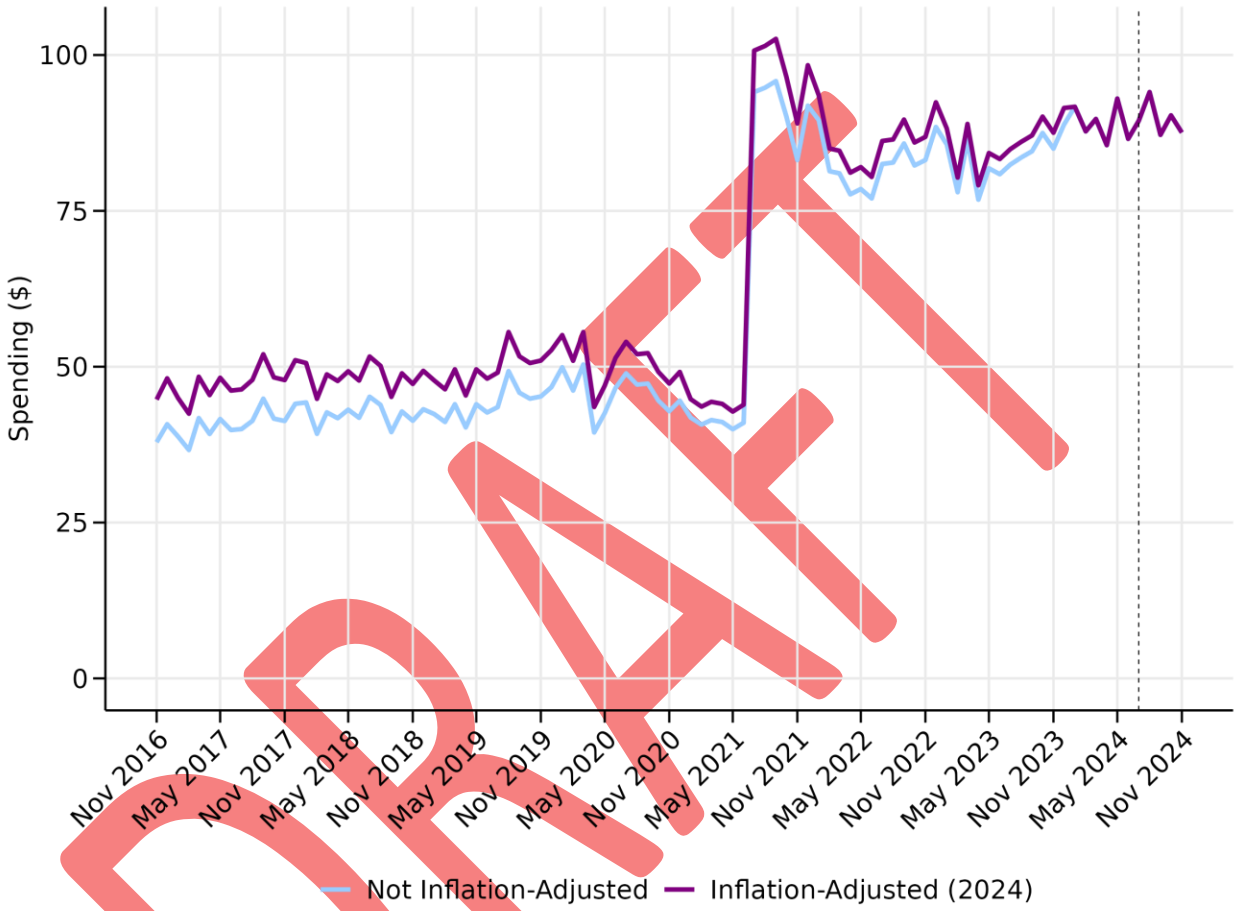
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	1562.50* (1553.22, 1571.78)	1279.40* (1270.12, 1288.68)	-283.10* (-290.15, -276.06)
Monthly Change	3.03* (2.83, 3.22)	17.07* (14.84, 19.31)	14.04* (11.81, 16.28)
Predicted Average Outcome Nov 2024	1574.66* (1564.84, 1584.48)	1349.54* (1339.97, 1359.10)	-225.12* (-232.40, -217.84)
N			7,375,191

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Per Member Per Month Medicaid Service Inpatient Expenditures (Figure)

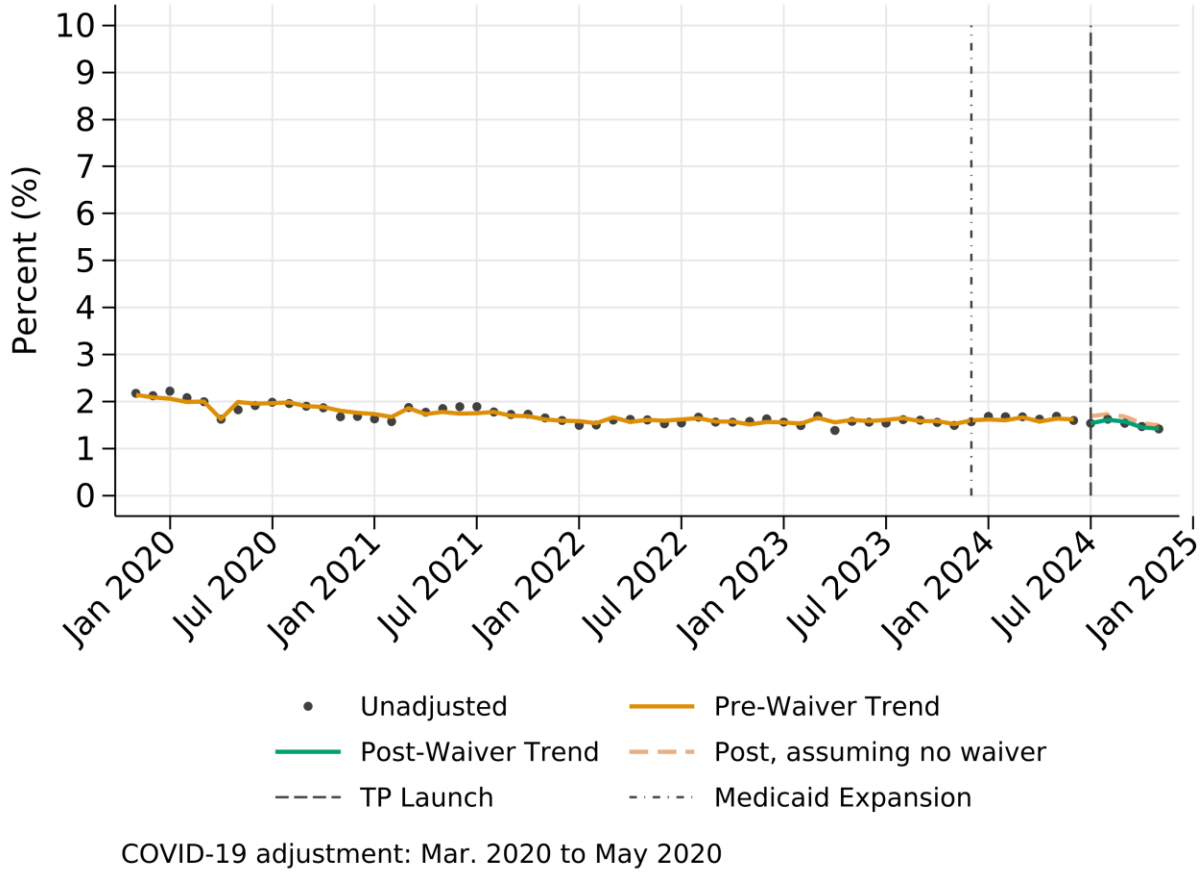
Figure 136: Trends in Medicaid Expenditures: Per Member Per Month Medicaid Service Inpatient Expenditures



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Medicaid Expenditures: Proportion of beneficiaries with an Inpatient expenditure (Figure)

Figure 137: Trends in Medicaid Expenditures: Proportion of beneficiaries with an Inpatient expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Proportion of beneficiaries with an Inpatient expenditure (Table)

Table 69: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with an Inpatient expenditure

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	1.57* (1.49, 1.64)	1.38* (1.28, 1.48)	-0.18* (-0.25, -0.12)
Monthly Change	-0.012* (-0.016, -0.0072)	0.0060 (-0.011, 0.023)	0.018 (-0.0010, 0.036)
Predicted Average Outcome Nov 2024	1.56* (1.47, 1.65)	1.44* (1.36, 1.53)	-0.11* (-0.18, -0.049)
N			10,784,063

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Proportion of beneficiaries with an Inpatient expenditure (Contrast Plot)

Figure 138: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with an Inpatient expenditure

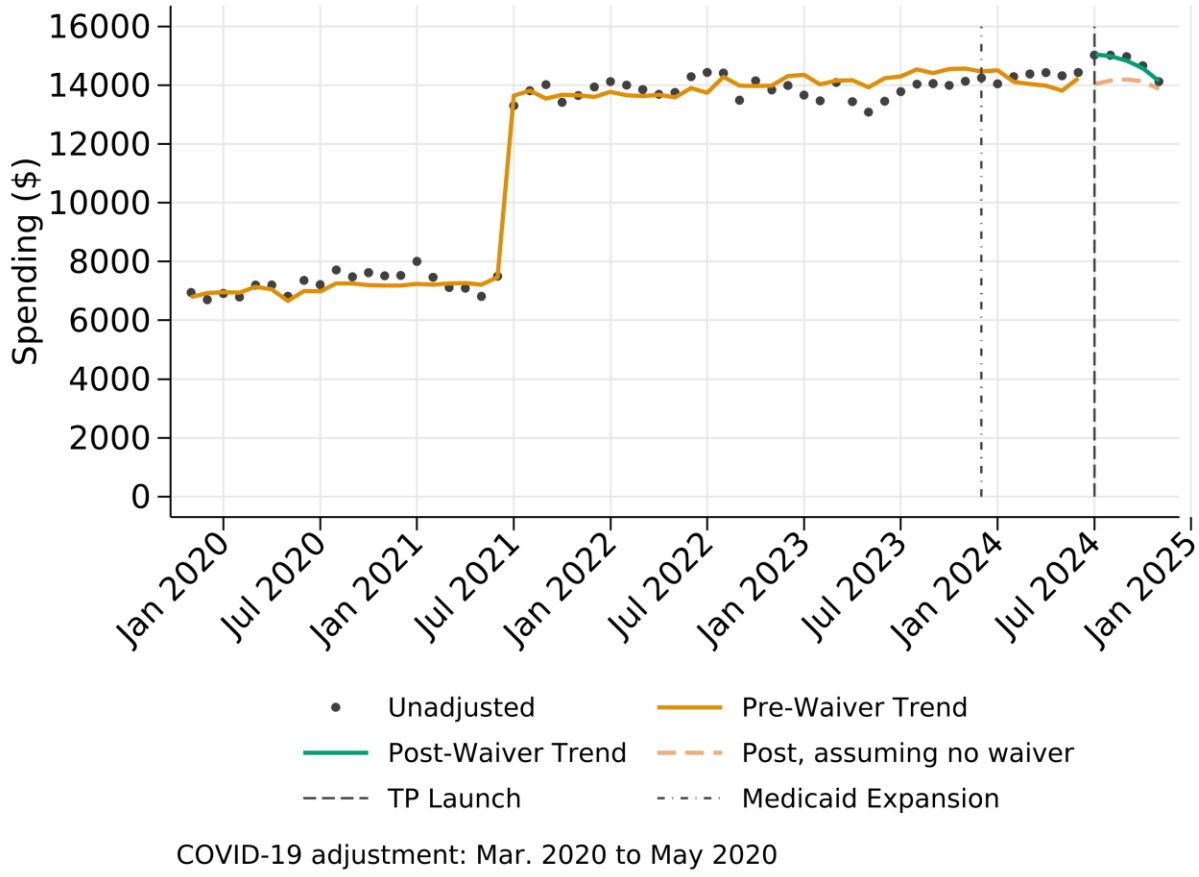


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Inpatient services expenditure (Figure)

Figure 139: Trends in Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Inpatient services expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Inpatient services expenditure (Table)

Table 70: Interrupted time series estimates of Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Inpatient services expenditure

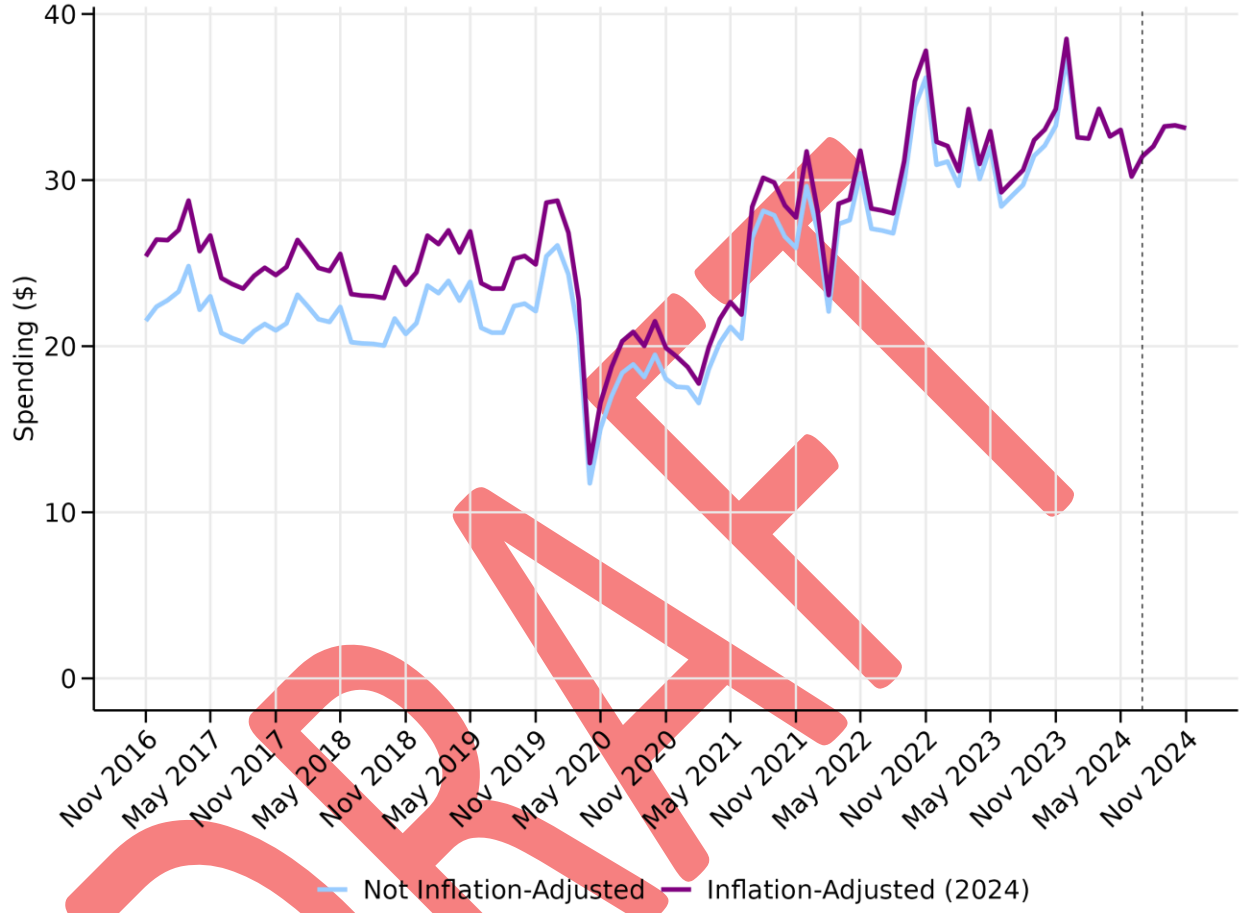
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	13054.20* (12796.41, 13312.00)	14069.23* (13578.15, 14560.31)	1015.03* (532.43, 1497.62)
Monthly Change	29.47* (20.43, 38.51)	-143.81 (-326.74, 39.11)	-173.28 (-356.15, 9.59)
Predicted Average Outcome Nov 2024	13172.78* (12881.84, 13463.72)	13505.75* (13027.53, 13983.97)	332.97 (-139.53, 805.48)
N			177,732

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Per Member Per Month Medicaid Service ER Expenditures (Figure)

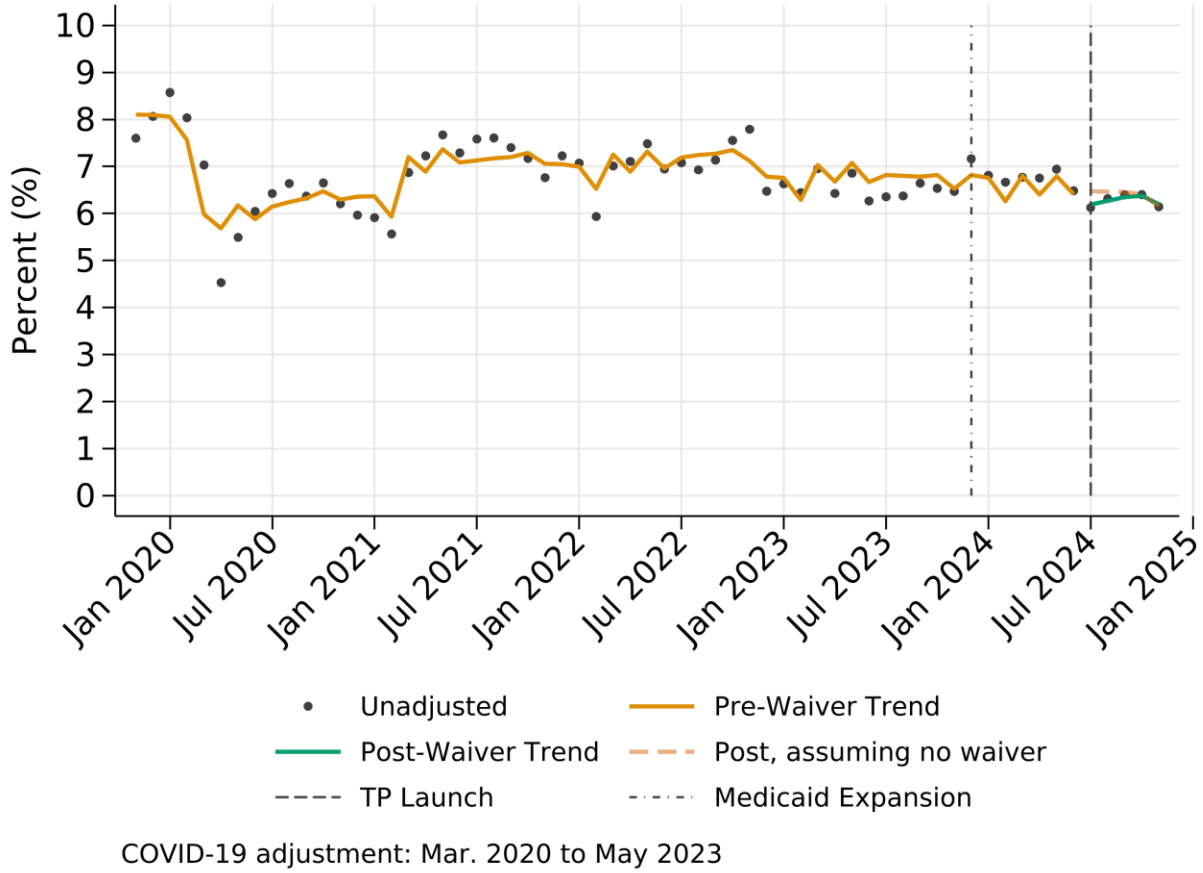
Figure 140: Trends in Medicaid Expenditures: Per Member Per Month Medicaid Service ER Expenditures



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Medicaid Expenditures: Proportion of beneficiaries with an ER expenditure (Figure)

Figure 141: Trends in Medicaid Expenditures: Proportion of beneficiaries with an ER expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Proportion of beneficiaries with an ER expenditure (Table)

Table 71: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with an ER expenditure

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	6.69* (6.56, 6.82)	6.37* (6.15, 6.59)	-0.32* (-0.51, -0.12)
Monthly Change	-0.011* (-0.021, -0.0017)	0.071* (0.024, 0.12)	0.082* (0.035, 0.13)
Predicted Average Outcome Nov 2024	6.51* (6.37, 6.66)	6.53* (6.32, 6.73)	0.011 (-0.18, 0.20)
N			10,784,063

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Proportion of beneficiaries with an ER expenditure (Contrast Plot)

Figure 142: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with an ER expenditure

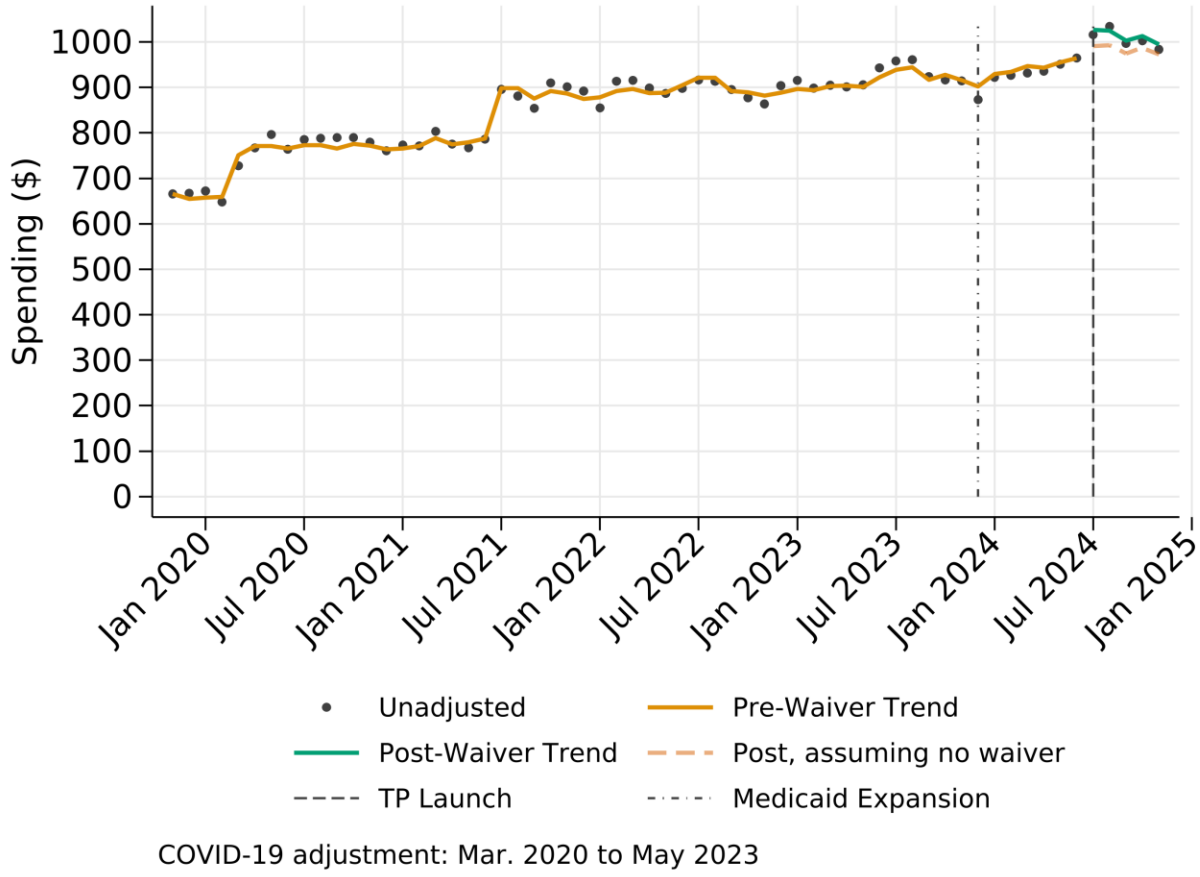


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an ER expenditure (Figure)

Figure 143: Trends in Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an ER expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an ER expenditure (Table)

Table 72: Interrupted time series estimates of Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an ER expenditure

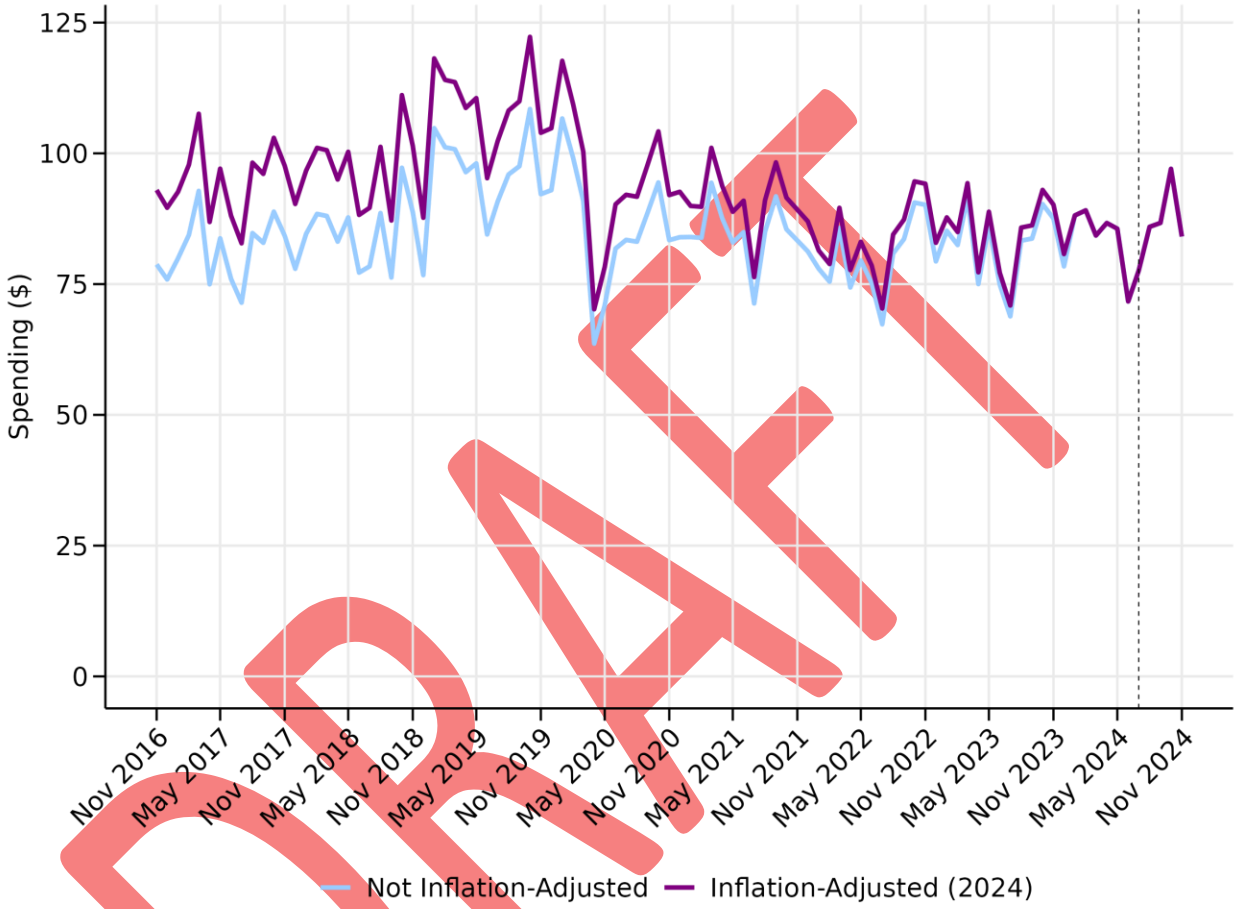
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	913.34* (902.81, 923.88)	949.50* (932.06, 966.94)	36.16* (20.99, 51.33)
Monthly Change	4.18* (3.84, 4.52)	1.20 (-4.29, 6.69)	-2.97 (-8.46, 2.52)
Predicted Average Outcome Nov 2024	930.20* (918.93, 941.47)	954.33* (936.59, 972.08)	24.13* (8.90, 39.36)
N			724,354

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Per Member Per Month Medicaid Service Outpatient Expenditures (Figure)

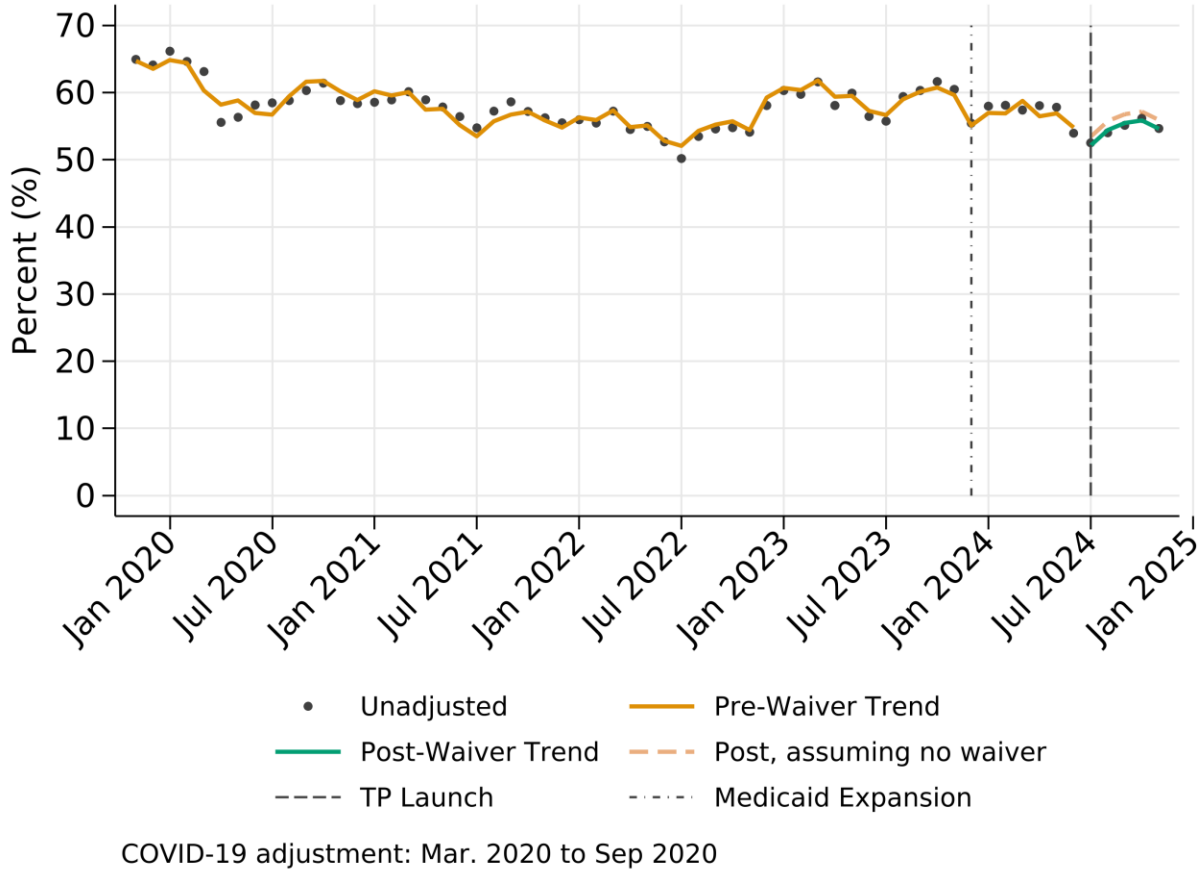
Figure 144: Trends in Medicaid Expenditures: Per Member Per Month Medicaid Service Outpatient Expenditures



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Medicaid Expenditures: Proportion of beneficiaries with an Outpatient expenditure (Figure)

Figure 145: Trends in Medicaid Expenditures: Proportion of beneficiaries with an Outpatient expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Proportion of beneficiaries with an Outpatient expenditure (Table)

Table 73: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with an Outpatient expenditure

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	53.66* (53.31, 54.01)	51.92* (51.35, 52.48)	-1.75* (-2.19, -1.31)
Monthly Change	-0.25* (-0.28, -0.23)	-0.28* (-0.38, -0.17)	-0.025 (-0.13, 0.075)
Predicted Average Outcome Nov 2024	53.11* (52.70, 53.52)	51.27* (50.52, 52.01)	-1.85* (-2.48, -1.21)
N			10,784,063

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Proportion of beneficiaries with an Outpatient expenditure (Contrast Plot)

Figure 146: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with an Outpatient expenditure

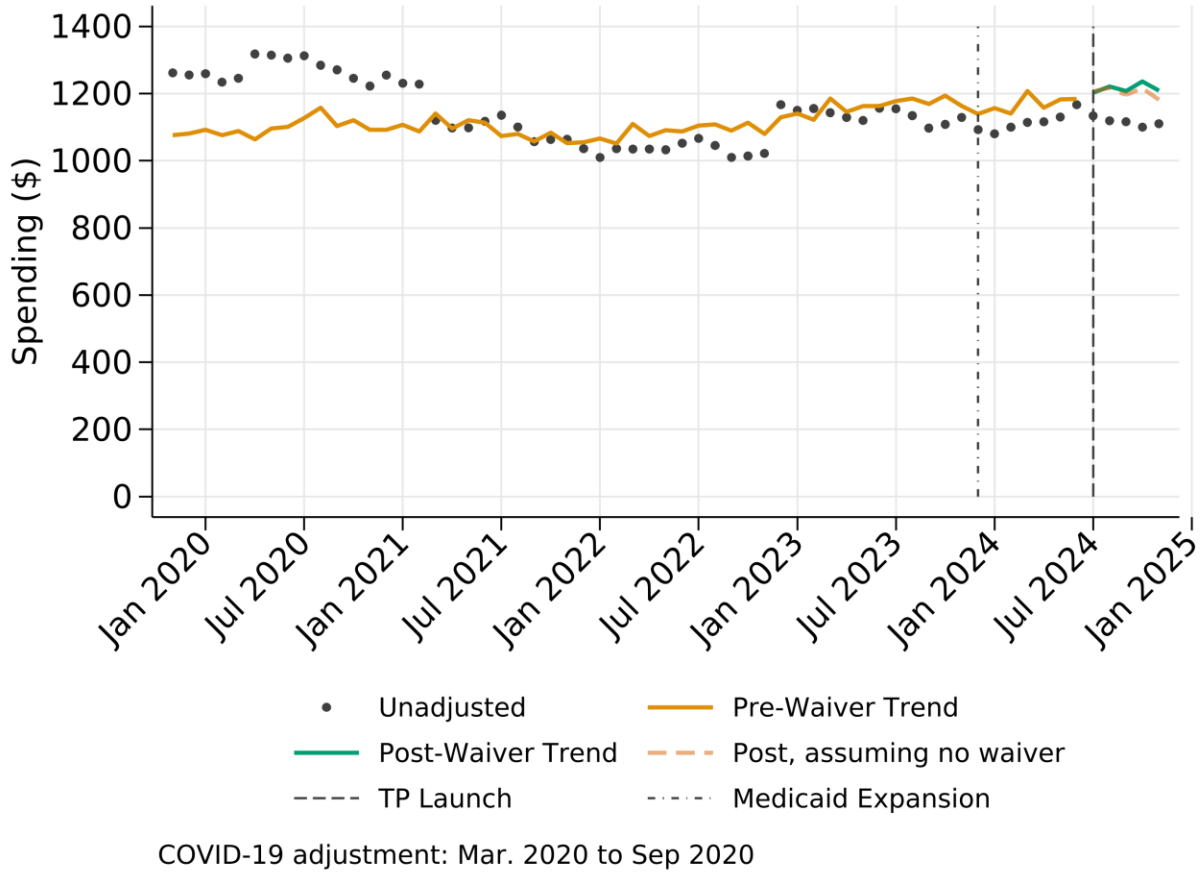


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient expenditure (Figure)

Figure 147: Trends in Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient expenditure (Table)

Table 74: Interrupted time series estimates of Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient expenditure

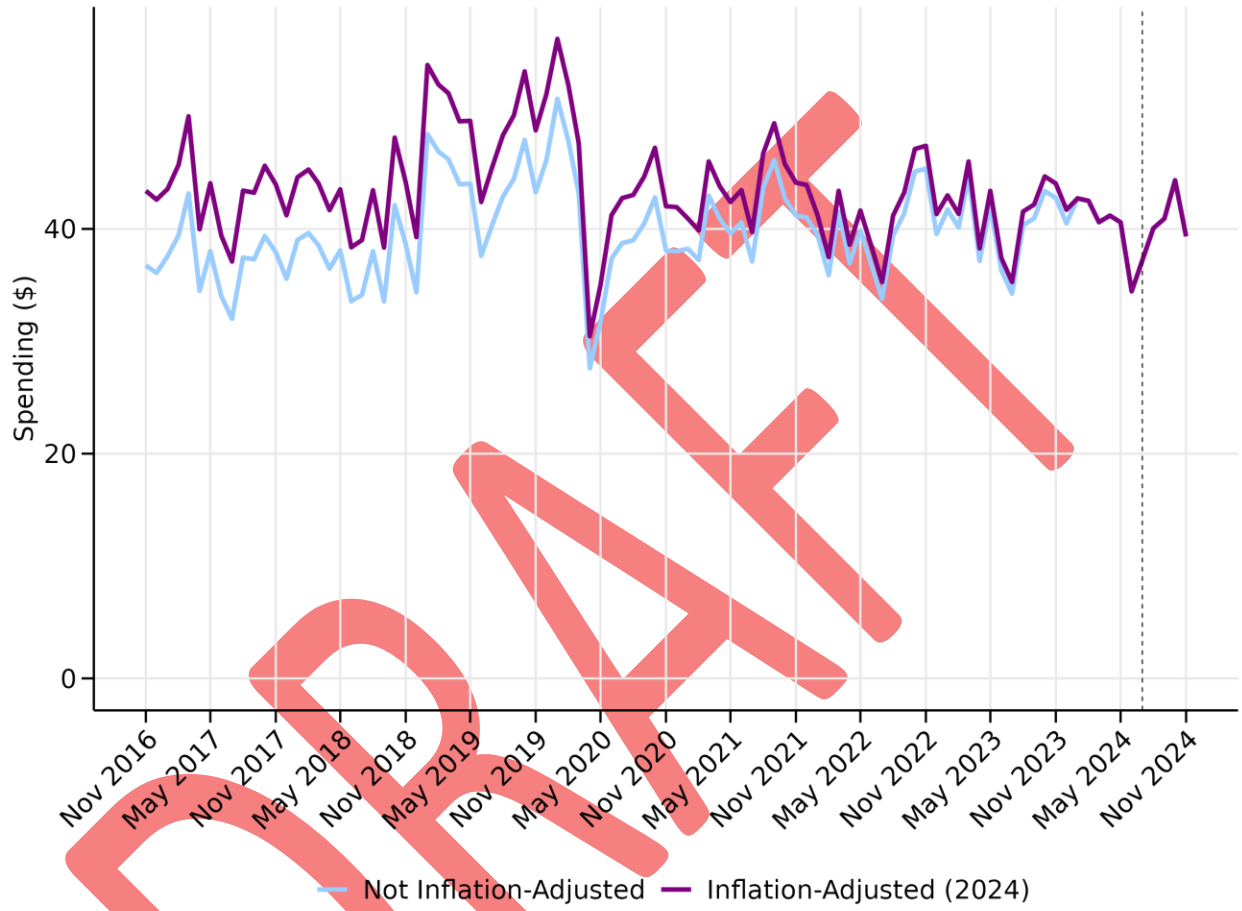
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	980.45* (973.64, 987.26)	978.43* (970.47, 986.39)	-2.03 (-6.88, 2.83)
Monthly Change	3.49* (3.36, 3.61)	9.77* (8.05, 11.48)	6.28* (4.57, 8.00)
Predicted Average Outcome Nov 2024	994.49* (987.36, 1001.63)	1018.28* (1010.13, 1026.44)	23.79* (18.86, 28.72)
N			5,867,578

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Per Member Per Month Medicaid Service Outpatient E&M Expenditures (Figure)

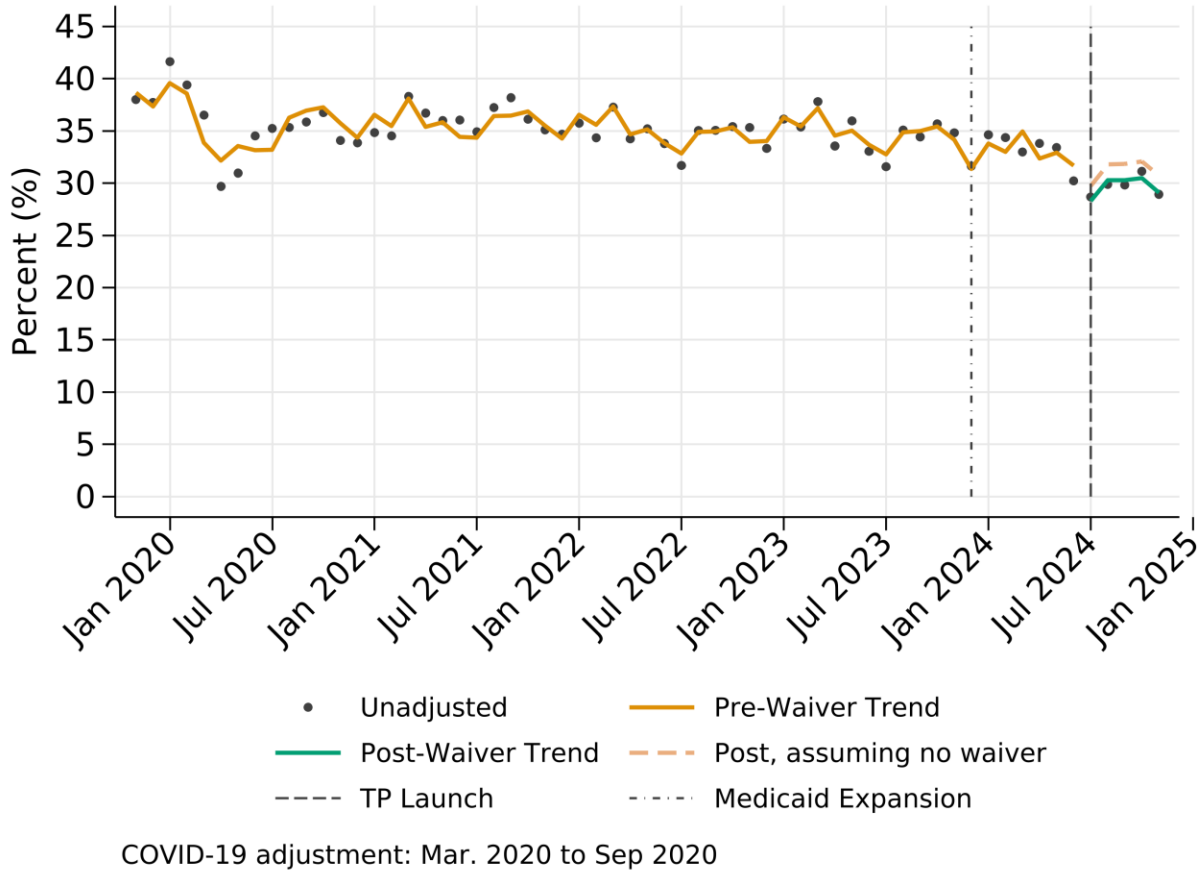
Figure 148: Trends in Medicaid Expenditures: Per Member Per Month Medicaid Service Outpatient E&M Expenditures



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Medicaid Expenditures: Proportion of beneficiaries with an Outpatient E&M expenditure (Figure)

Figure 149: Trends in Medicaid Expenditures: Proportion of beneficiaries with an Outpatient E&M expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Proportion of beneficiaries with an Outpatient E&M expenditure (Table)

Table 75: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with an Outpatient E&M expenditure

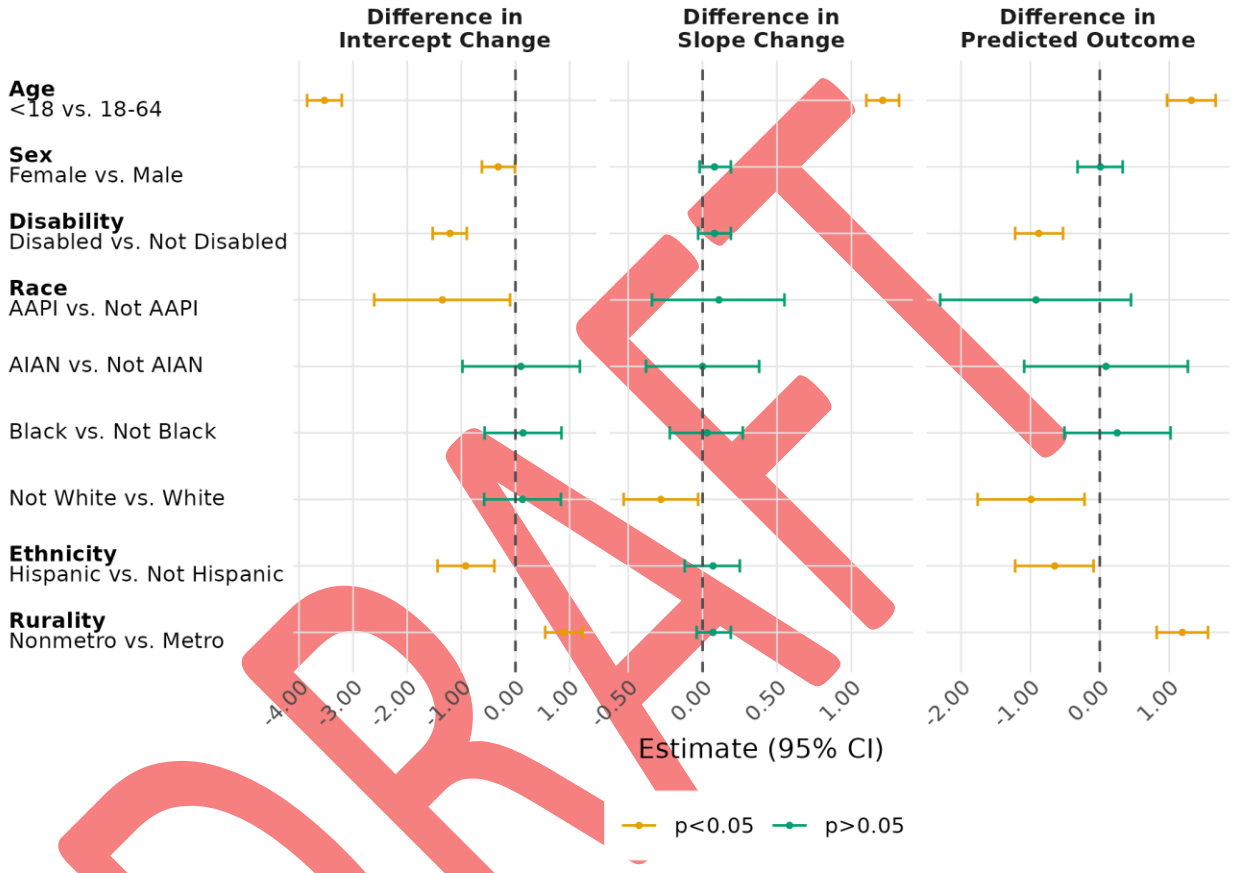
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	30.22* (29.78, 30.65)	28.28* (27.73, 28.82)	-1.94* (-2.46, -1.43)
Monthly Change	-0.26* (-0.28, -0.23)	-0.35* (-0.45, -0.25)	-0.093* (-0.18, -0.0015)
Predicted Average Outcome Nov 2024	29.52* (29.02, 30.02)	27.21* (26.59, 27.83)	-2.31* (-2.82, -1.81)
N			10,784,063

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Proportion of beneficiaries with an Outpatient E&M expenditure (Contrast Plot)

Figure 150: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with an Outpatient E&M expenditure

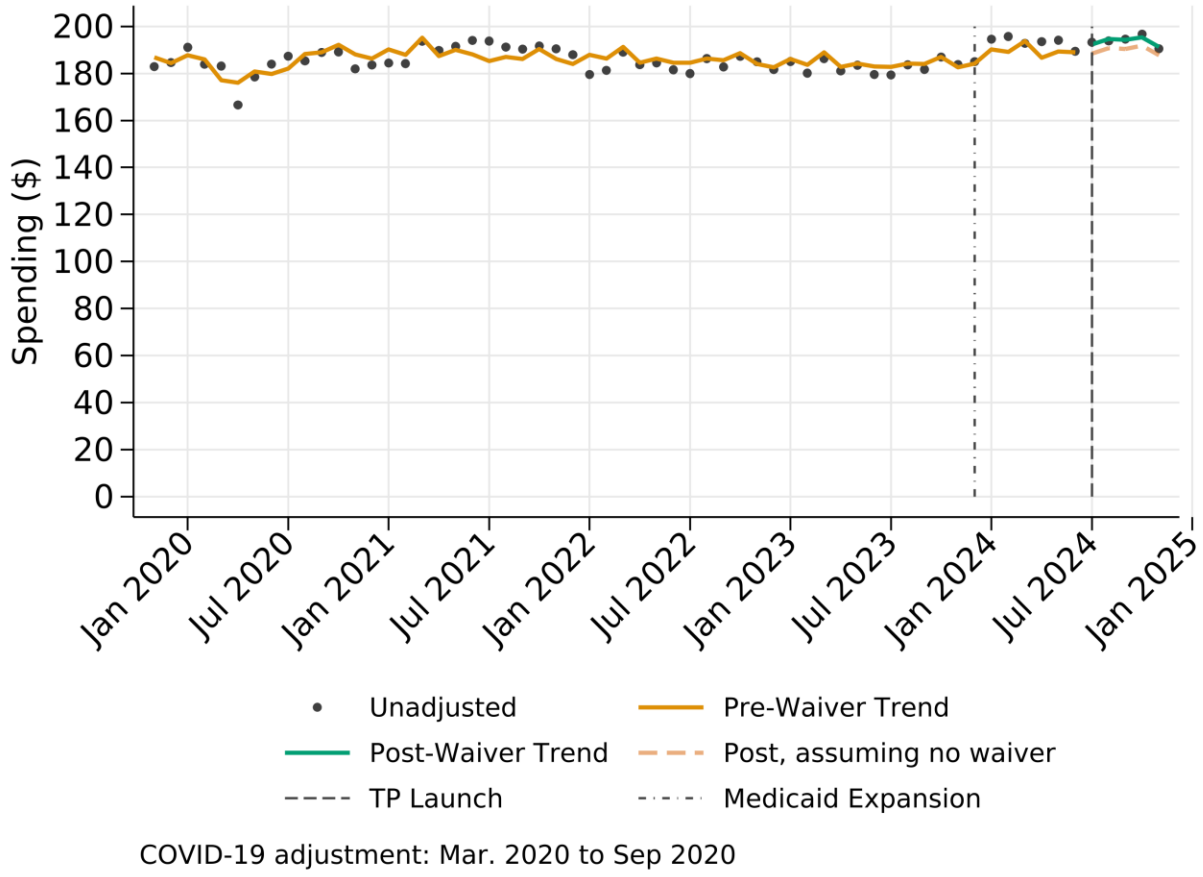


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient E&M expenditure (Figure)

Figure 151: Trends in Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient E&M expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient E&M expenditure (Table)

Table 76: Interrupted time series estimates of Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had an Outpatient E&M expenditure

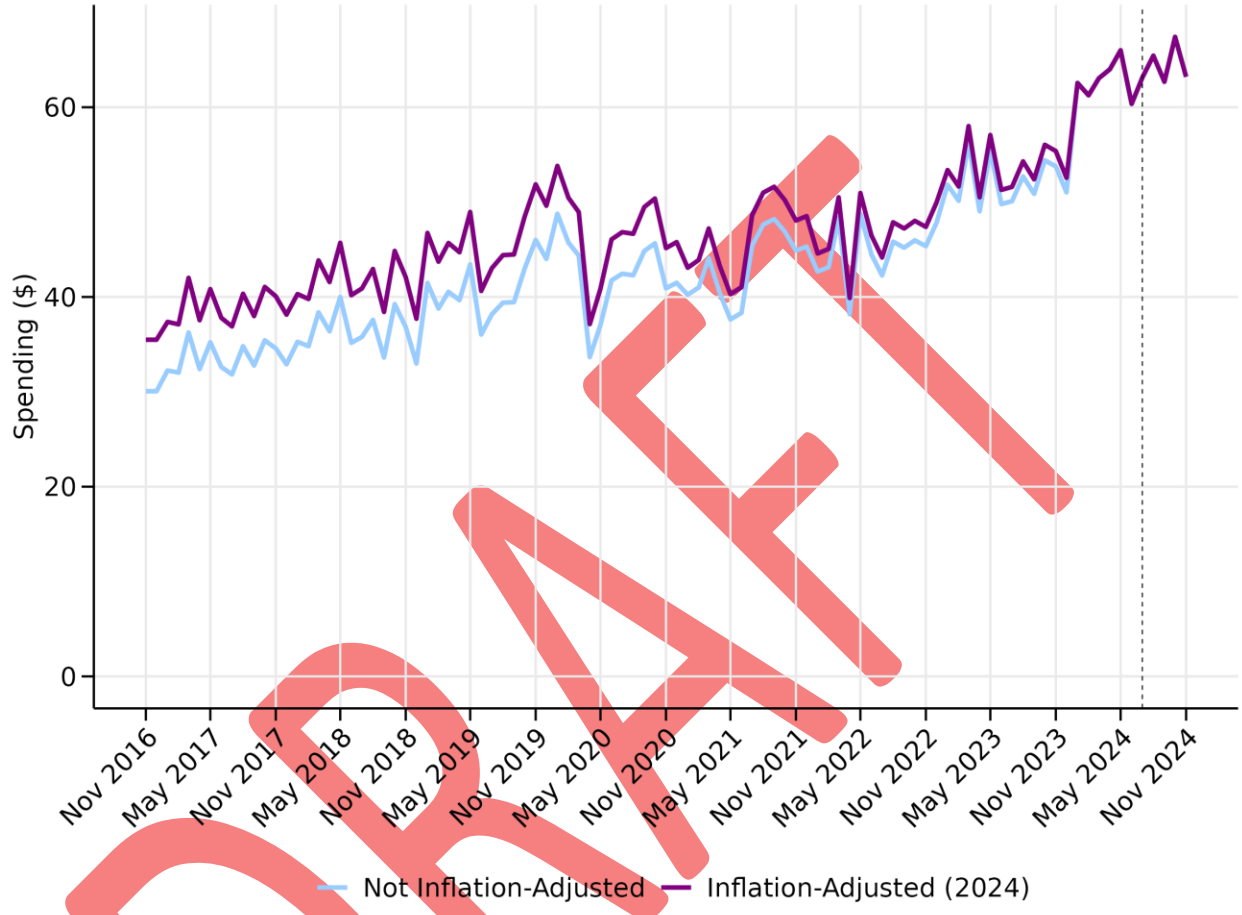
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	180.47* (179.52, 181.42)	184.62* (183.13, 186.11)	4.15* (2.84, 5.45)
Monthly Change	0.023 (-0.0022, 0.049)	-0.088 (-0.56, 0.39)	-0.11 (-0.59, 0.37)
Predicted Average Outcome Nov 2024	180.57* (179.53, 181.60)	184.27* (182.83, 185.70)	3.70* (2.43, 4.97)
N			3,669,659

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Behavioral Health Expenditures Per Member Per Month (Figure)

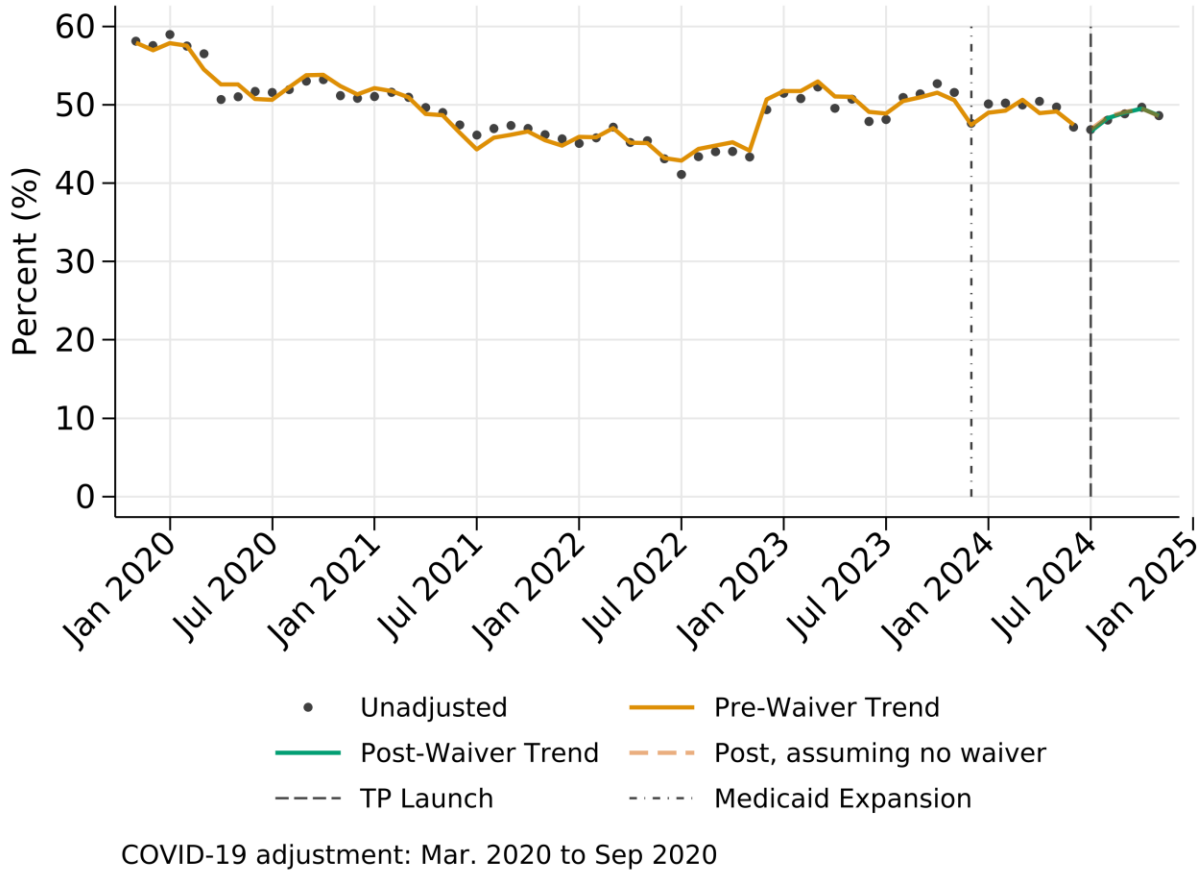
Figure 152: Trends in Medicaid Expenditures: Behavioral Health Expenditures Per Member Per Month



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Medicaid Expenditures: Proportion of beneficiaries with a behavioral health expenditure (Figure)

Figure 153: Trends in Medicaid Expenditures: Proportion of beneficiaries with a behavioral health expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Proportion of beneficiaries with a behavioral health expenditure (Table)

Table 77: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with a behavioral health expenditure

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	45.04* (44.65, 45.42)	44.76* (44.19, 45.33)	-0.28 (-0.77, 0.22)
Monthly Change	-0.28* (-0.31, -0.25)	-0.21* (-0.32, -0.094)	0.072 (-0.031, 0.18)
Predicted Average Outcome Nov 2024	44.54* (44.09, 44.98)	44.55* (43.80, 45.30)	0.011 (-0.61, 0.64)
N			10,784,063

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Proportion of beneficiaries with a behavioral health expenditure (Contrast Plot)

Figure 154: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with a behavioral health expenditure

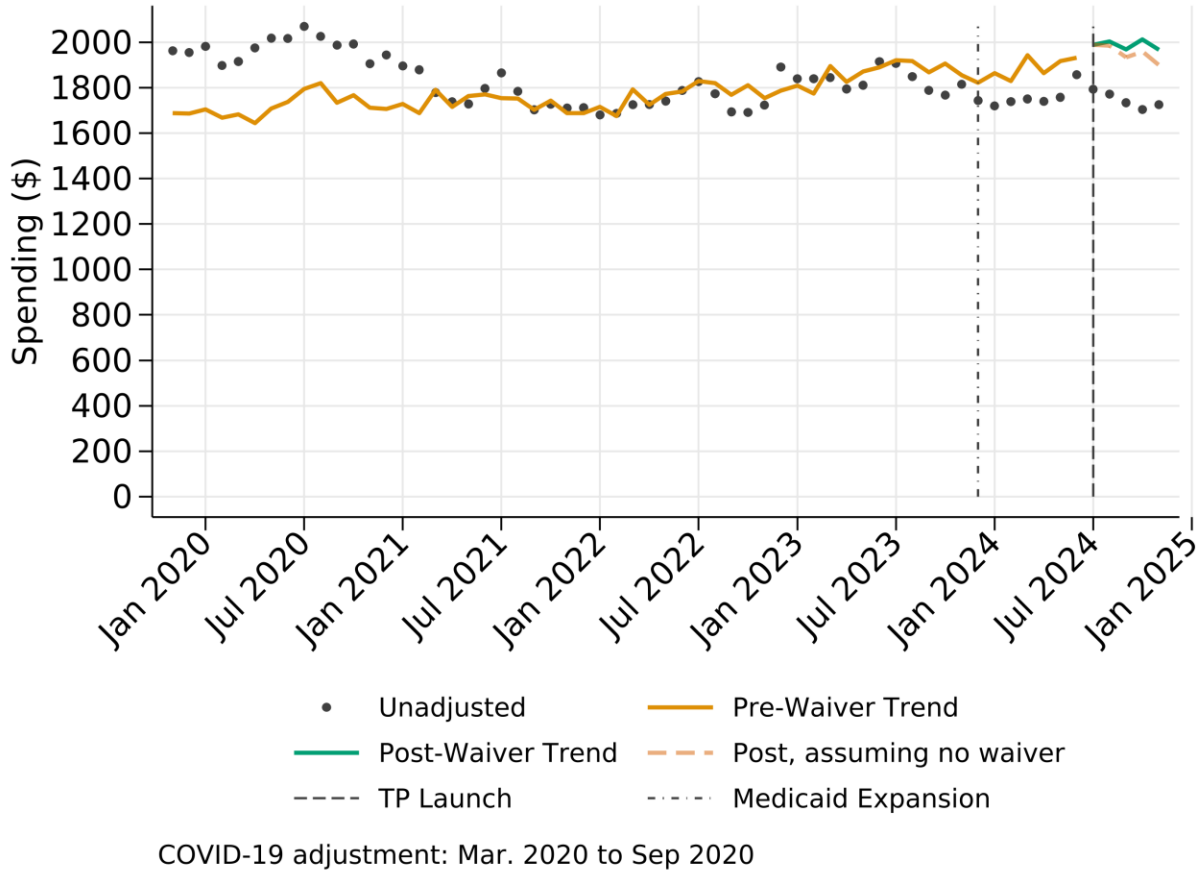


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medicaid Expenditures: Behavioral health expenditures among beneficiaries with a BH expenditure (Figure)

Figure 155: Trends in Medicaid Expenditures: Behavioral health expenditures among beneficiaries with a BH expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Behavioral health expenditures among beneficiaries with a BH expenditure (Table)

Table 78: Interrupted time series estimates of Medicaid Expenditures: Behavioral health expenditures among beneficiaries with a BH expenditure

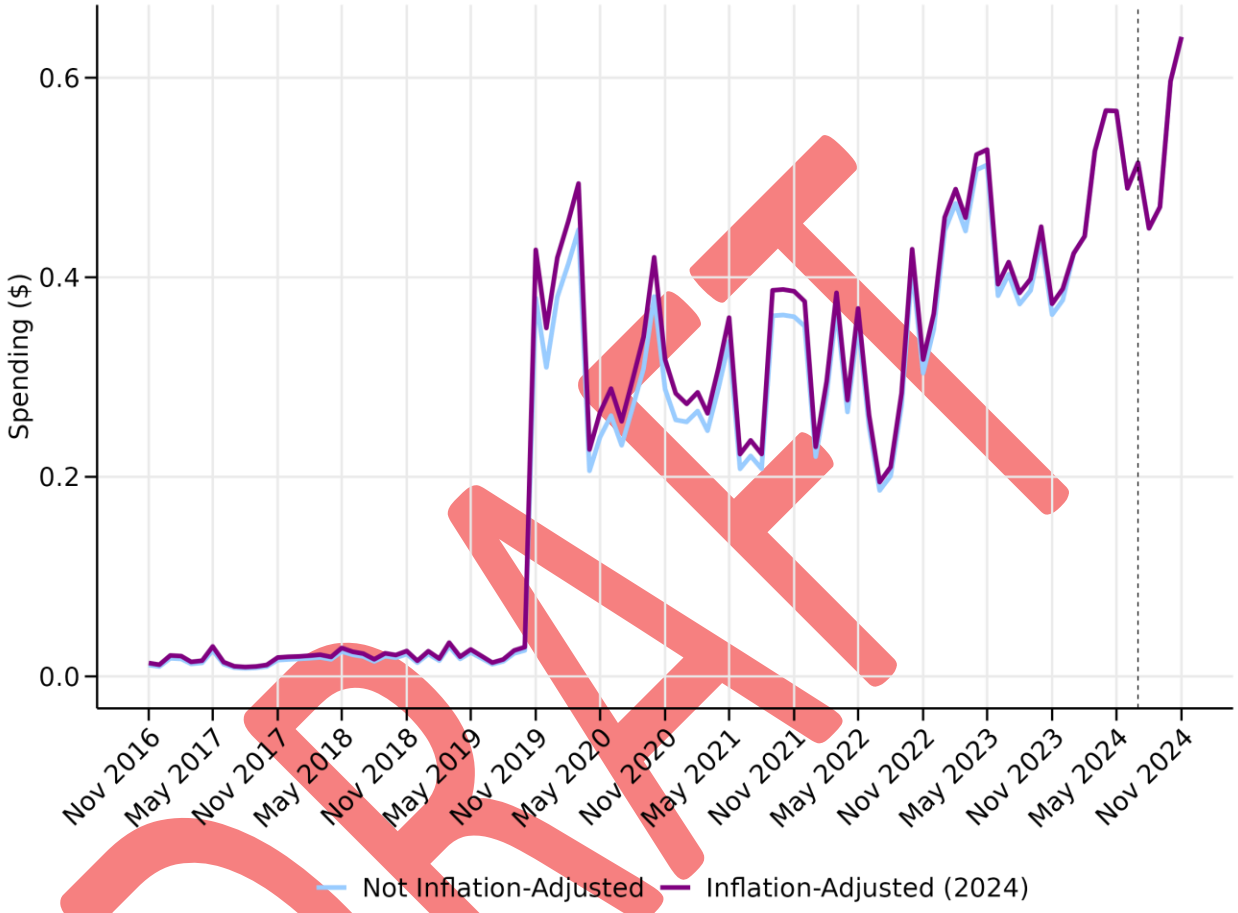
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	1473.15* (1462.71, 1483.58)	1475.79* (1463.28, 1488.30)	2.64 (-5.48, 10.76)
Monthly Change	5.57* (5.37, 5.76)	18.85* (16.00, 21.69)	13.28* (10.44, 16.12)
Predicted Average Outcome Nov 2024	1495.58* (1484.63, 1506.53)	1553.14* (1540.24, 1566.03)	57.56* (49.23, 65.88)
N			5,007,375

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Acute Care Crisis Expenditures Per Member Per Month (Figure)

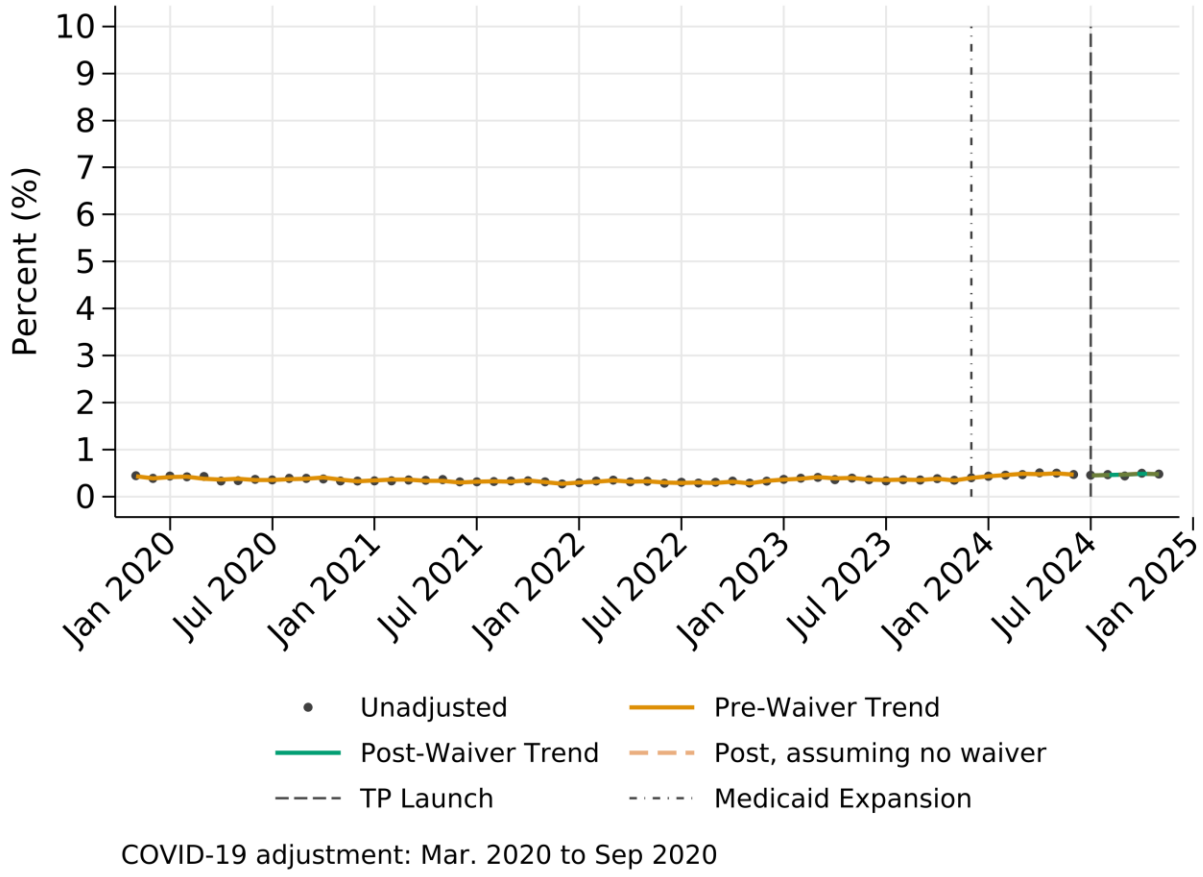
Figure 156: Trends in Medicaid Expenditures: Acute Care Crisis Expenditures Per Member Per Month



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Medicaid Expenditures: Proportion of beneficiaries with an Acute Care Crisis ependiture (Figure)

Figure 157: Trends in Medicaid Expenditures: Proportion of beneficiaries with an Acute Care Crisis ependiture



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Proportion of beneficiaries with an Acute Care Crisis ependiture (Table)

Table 79: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with an Acute Care Crisis ependiture

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	0.28* (0.24, 0.32)	0.28* (0.24, 0.33)	0.0011 (-0.033, 0.035)
Monthly Change	-0.0060* (-0.0083, -0.0038)	-0.0064 (-0.029, 0.016)	-0.0003 (-0.023, 0.022)
Predicted Average Outcome Nov 2024	0.27* (0.22, 0.32)	0.27* (0.19, 0.35)	-0.0001 (-0.068, 0.067)
N			10,784,063

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Proportion of beneficiaries with an Acute Care Crisis ependiture (Contrast Plot)

Figure 158: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with an Acute Care Crisis ependiture

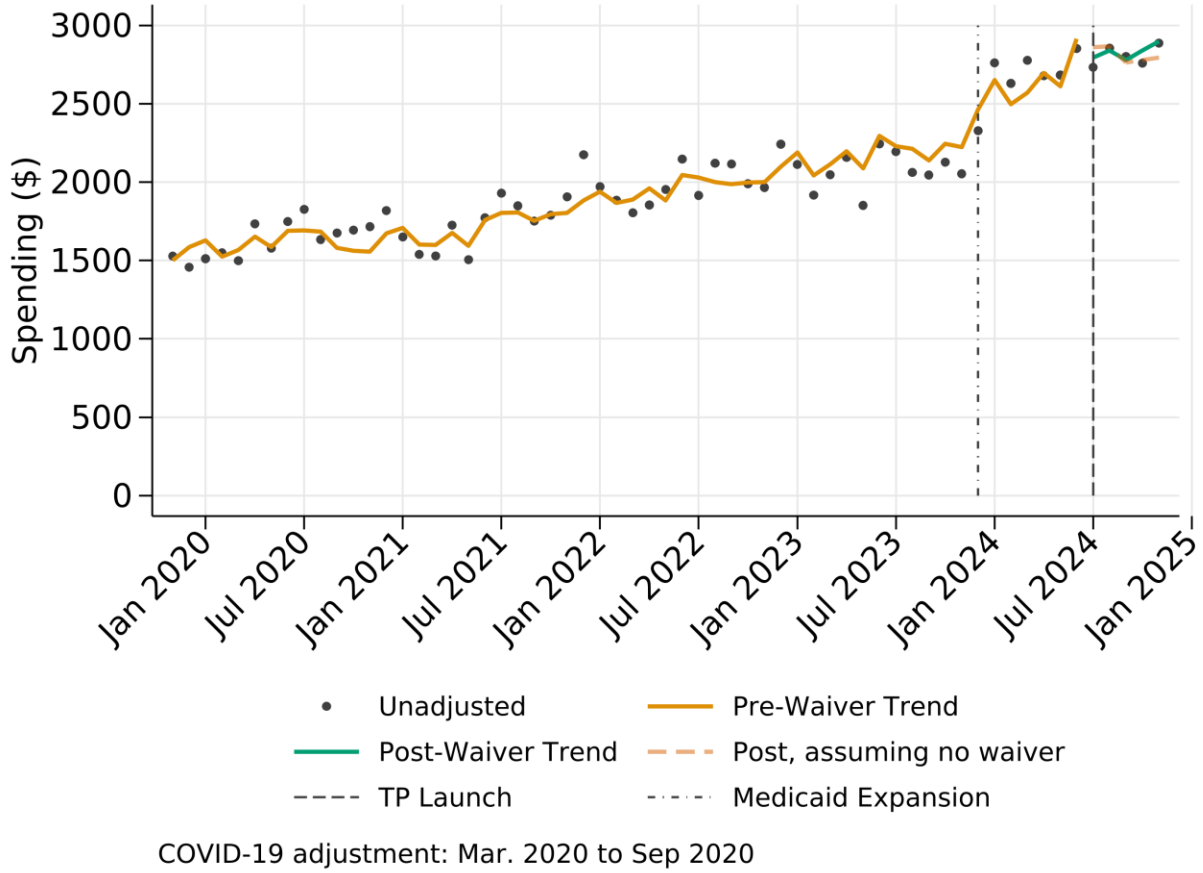


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Mediciad Expenditures on Acute Care Crisis Services among users (Figure)

Figure 159: Trends in Mediciad Expenditures on Acute Care Crisis Services among users



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Mediciad Expenditures on Acute Care Crisis Services among users (Table)

Table 80: Interrupted time series estimates of Mediciad Expenditures on Acute Care Crisis Services among users

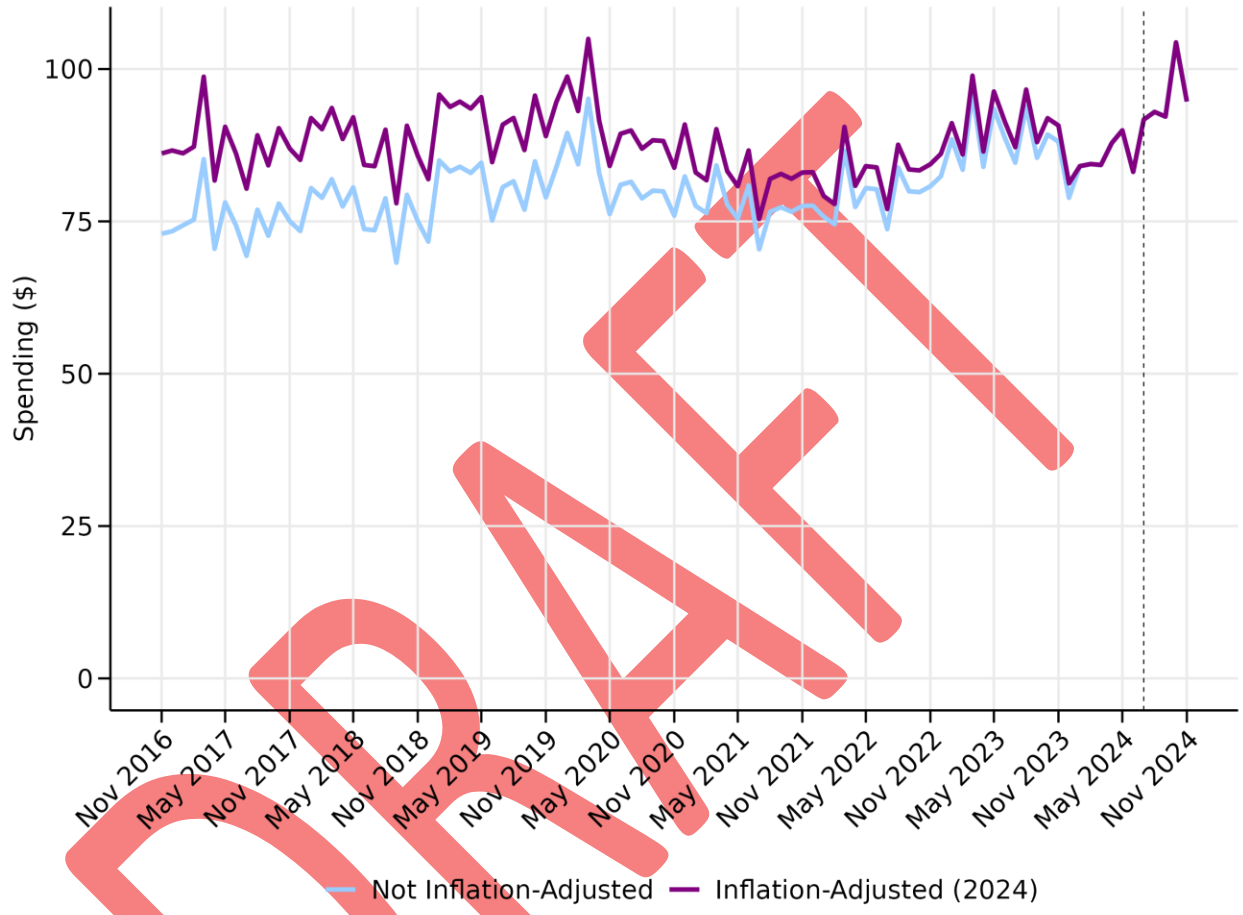
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	2308.50* (2195.61, 2421.39)	2258.24* (2074.94, 2441.53)	-50.27 (-229.78, 129.25)
Monthly Change	17.68* (13.43, 21.93)	51.13 (-8.13, 110.40)	33.45 (-25.86, 92.76)
Predicted Average Outcome Nov 2024	2380.44* (2252.27, 2508.60)	2472.42* (2285.00, 2659.84)	91.99 (-94.69, 278.67)
N			39,824

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Per Member Per Month Medicaid Service Prescription Expenditures (Figure)

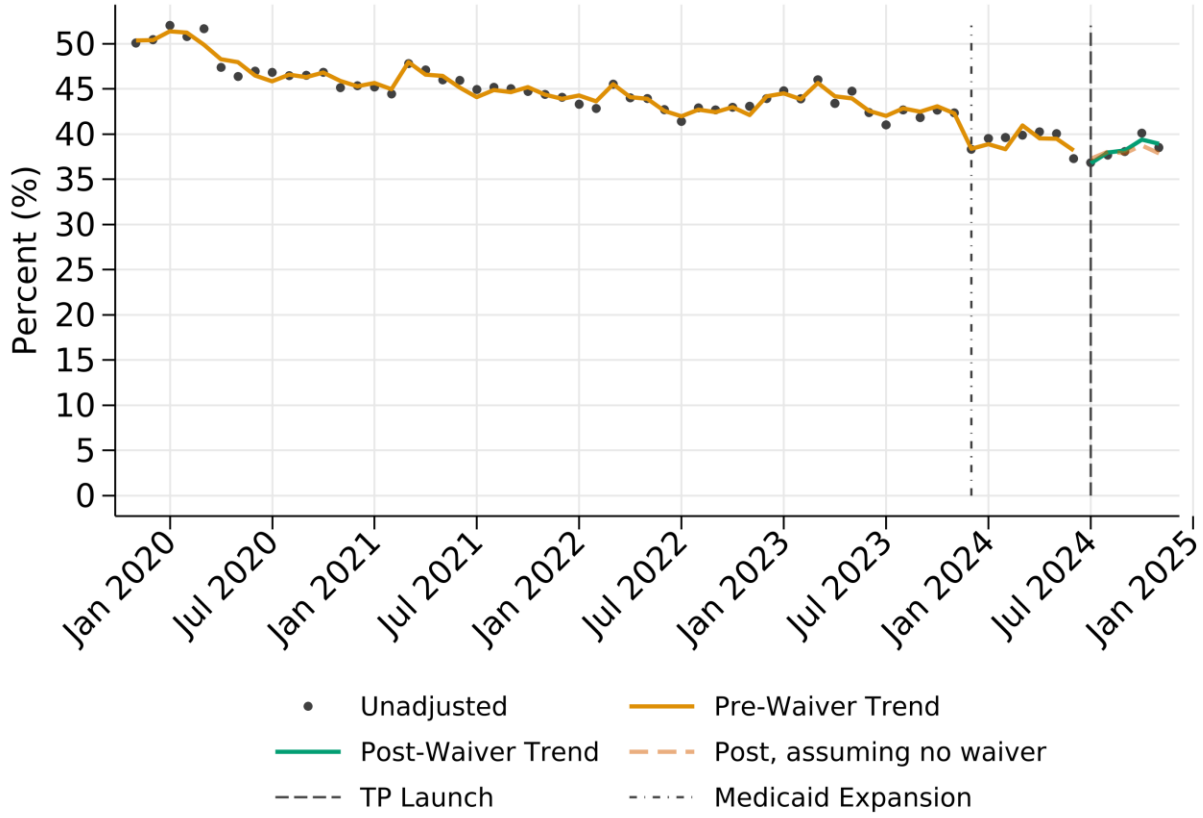
Figure 160: Trends in Medicaid Expenditures: Per Member Per Month Medicaid Service Prescription Expenditures



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Medicaid Expenditures: Proportion of beneficiaries with a Prescription Expenditure (Figure)

Figure 161: Trends in Medicaid Expenditures: Proportion of beneficiaries with a Prescription Expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Proportion of beneficiaries with a Prescription Expenditure (Table)

Table 81: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with a Prescription Expenditure

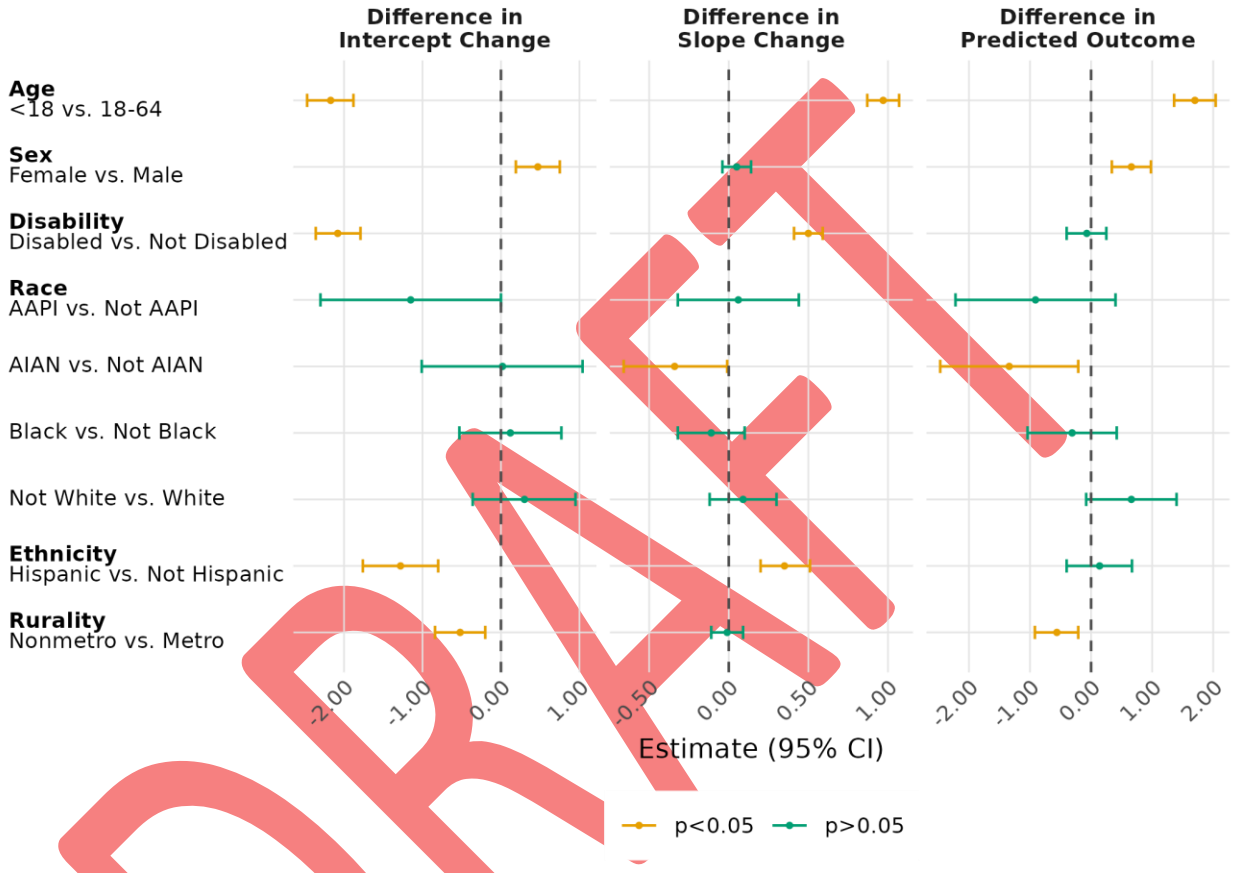
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	41.09* (40.79, 41.39)	40.68* (40.31, 41.05)	-0.41* (-0.78, -0.035)
Monthly Change	0.40* (0.32, 0.49)	0.81* (0.69, 0.92)	0.40* (0.32, 0.48)
Predicted Average Outcome Nov 2024	40.76* (40.42, 41.10)	41.97* (41.52, 42.41)	1.20* (0.86, 1.55)
N			10,784,063

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Proportion of beneficiaries with a Prescription Expenditure (Contrast Plot)

Figure 162: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with a Prescription Expenditure

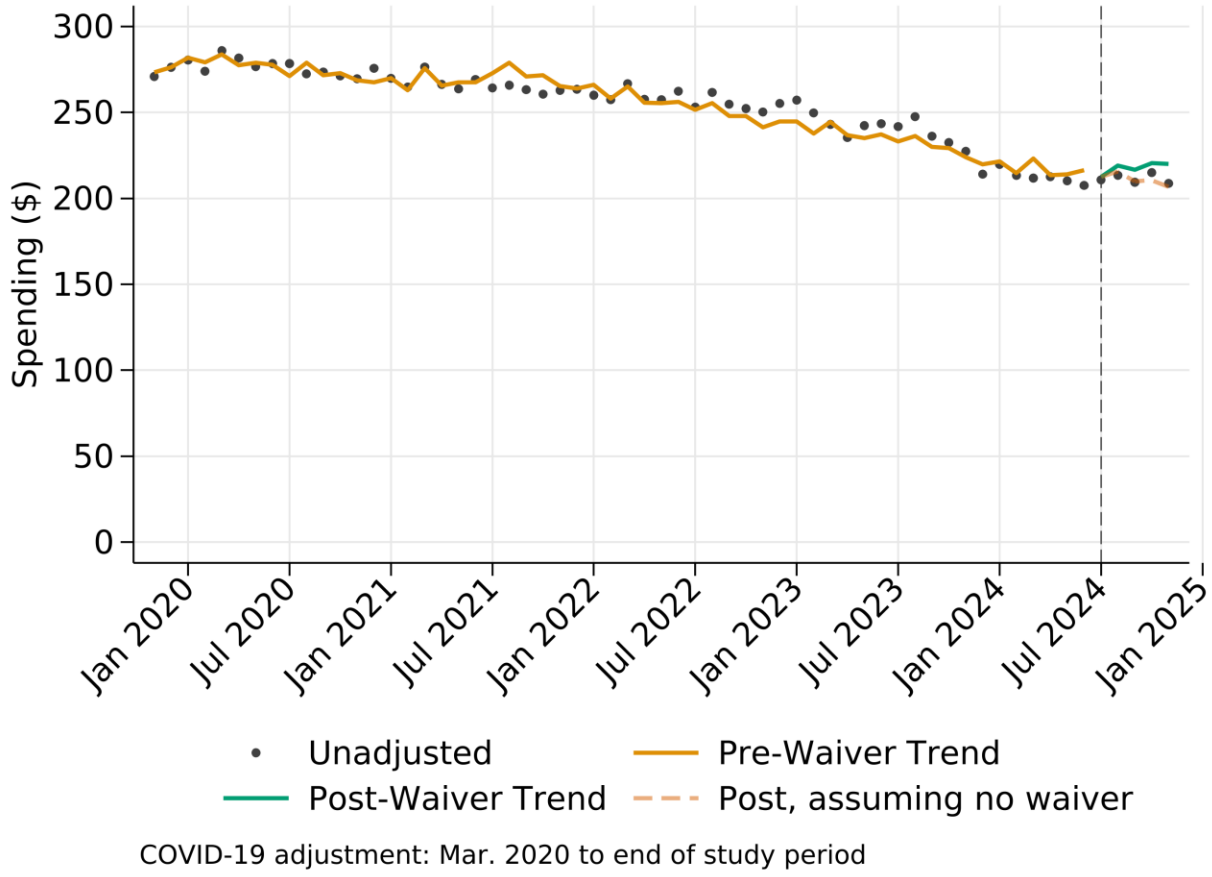


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had a prescription expenditure (Figure)

Figure 163: Trends in Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had a prescription expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had a prescription expenditure (Table)

Table 82: Interrupted time series estimates of Medicaid Expenditures: Total Medicaid Service Expenditures for beneficiaries who had a prescription expenditure

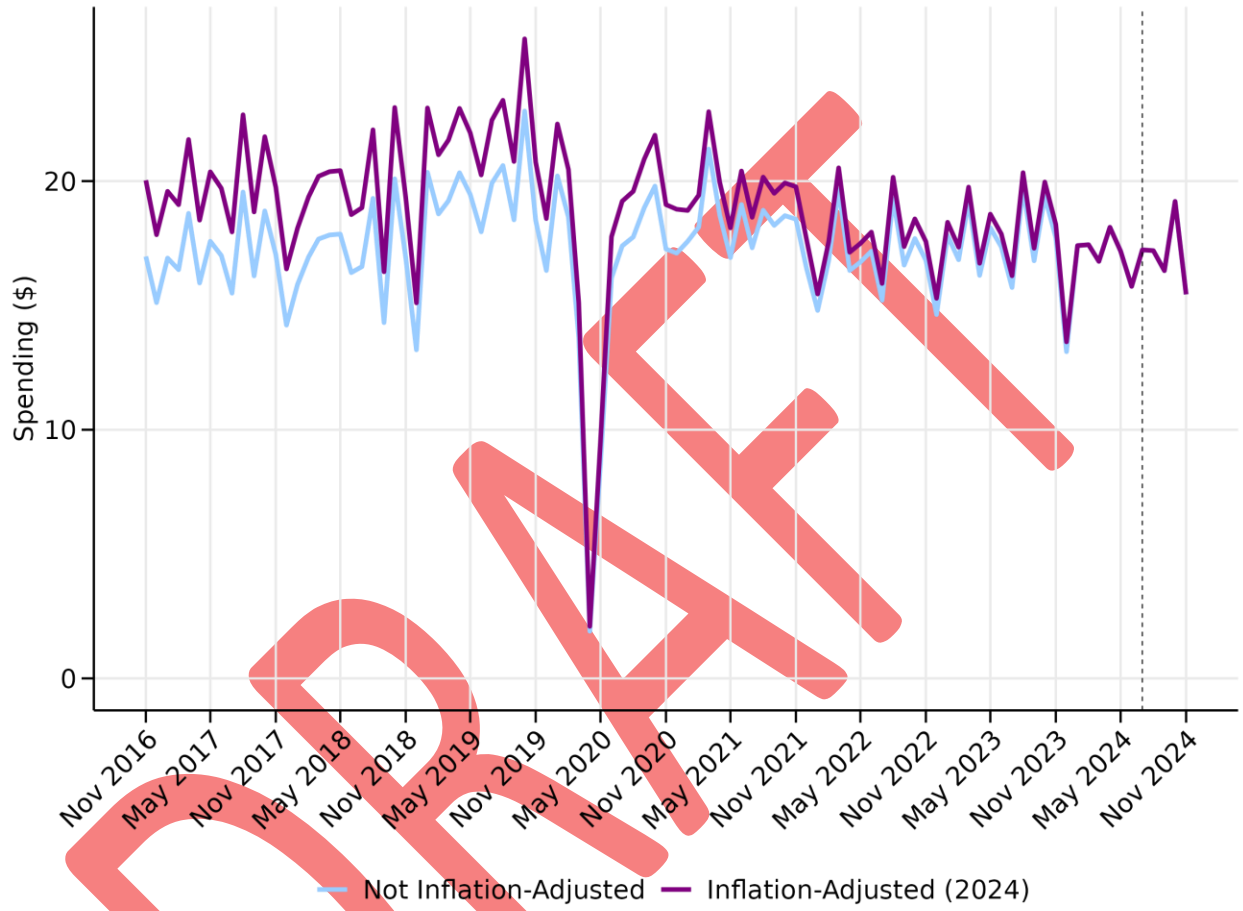
	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	183.06* (181.41, 184.70)	183.49* (181.40, 185.59)	0.44 (-1.15, 2.03)
Monthly Change	-1.02* (-1.05, -0.98)	1.86* (1.29, 2.43)	2.87* (2.31, 3.44)
Predicted Average Outcome Nov 2024	179.04* (177.31, 180.78)	191.08* (188.81, 193.36)	12.04* (10.41, 13.66)
N			4,212,091

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Per Member Per Month Medicaid Service Dental Expenditures (Figure)

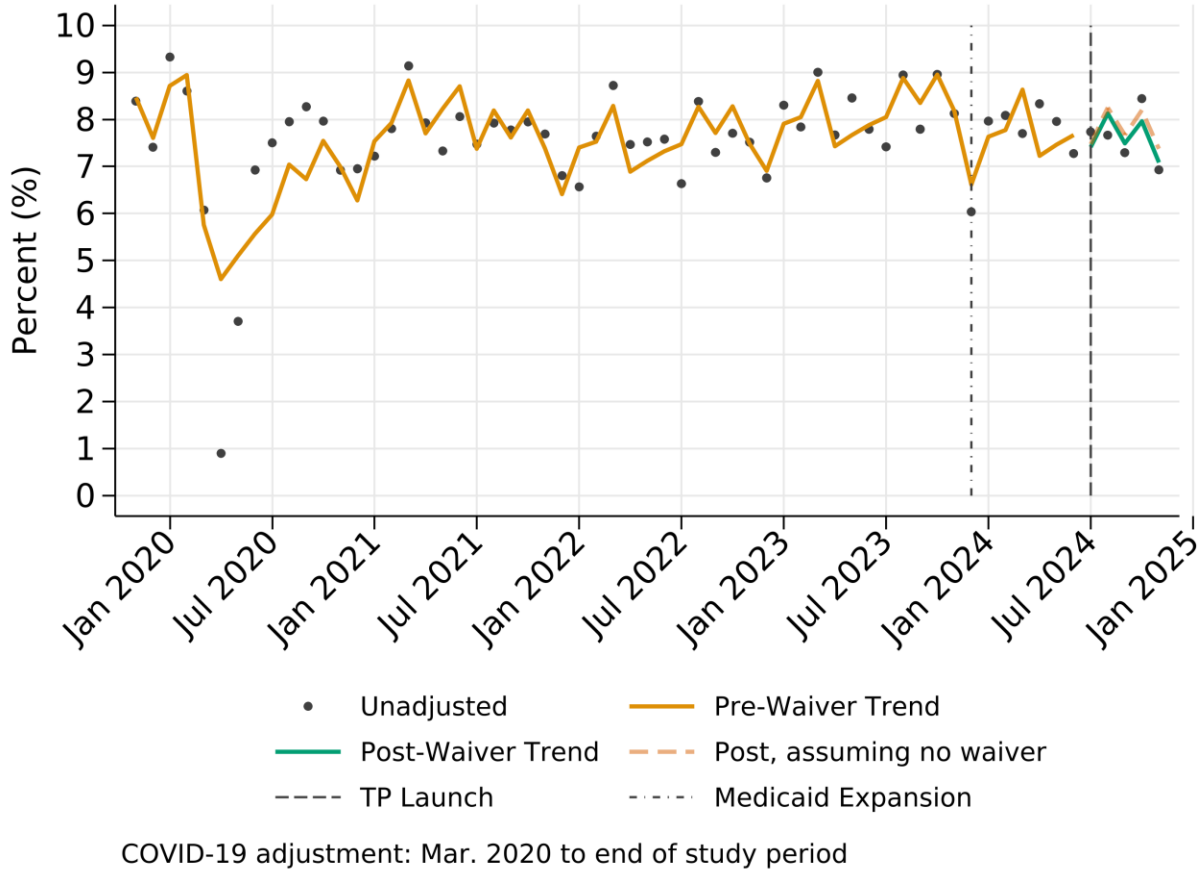
Figure 164: Trends in Medicaid Expenditures: Per Member Per Month Medicaid Service Dental Expenditures



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Medicaid Expenditures: Proportion of beneficiaries with a Dental expenditure (Figure)

Figure 165: Trends in Medicaid Expenditures: Proportion of beneficiaries with a Dental expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Proportion of beneficiaries with a Dental expenditure (Table)

Table 83: Interrupted time series estimates of Medicaid Expenditures: Proportion of beneficiaries with a Dental expenditure

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	10.71* (10.51, 10.91)	10.59* (10.37, 10.80)	-0.13* (-0.24, -0.0061)
Monthly Change	0.10* (0.013, 0.20)	0.041 (-0.058, 0.14)	-0.063* (-0.11, -0.016)
Predicted Average Outcome Nov 2024	11.01* (10.79, 11.24)	10.64* (10.41, 10.87)	-0.38* (-0.53, -0.22)
N			10,784,063

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Medicaid Expenditures: Proportion of beneficiaries with a Dental expenditure (Contrast Plot)

Figure 166: Comparison groups in Medicaid Expenditures: Proportion of beneficiaries with a Dental expenditure

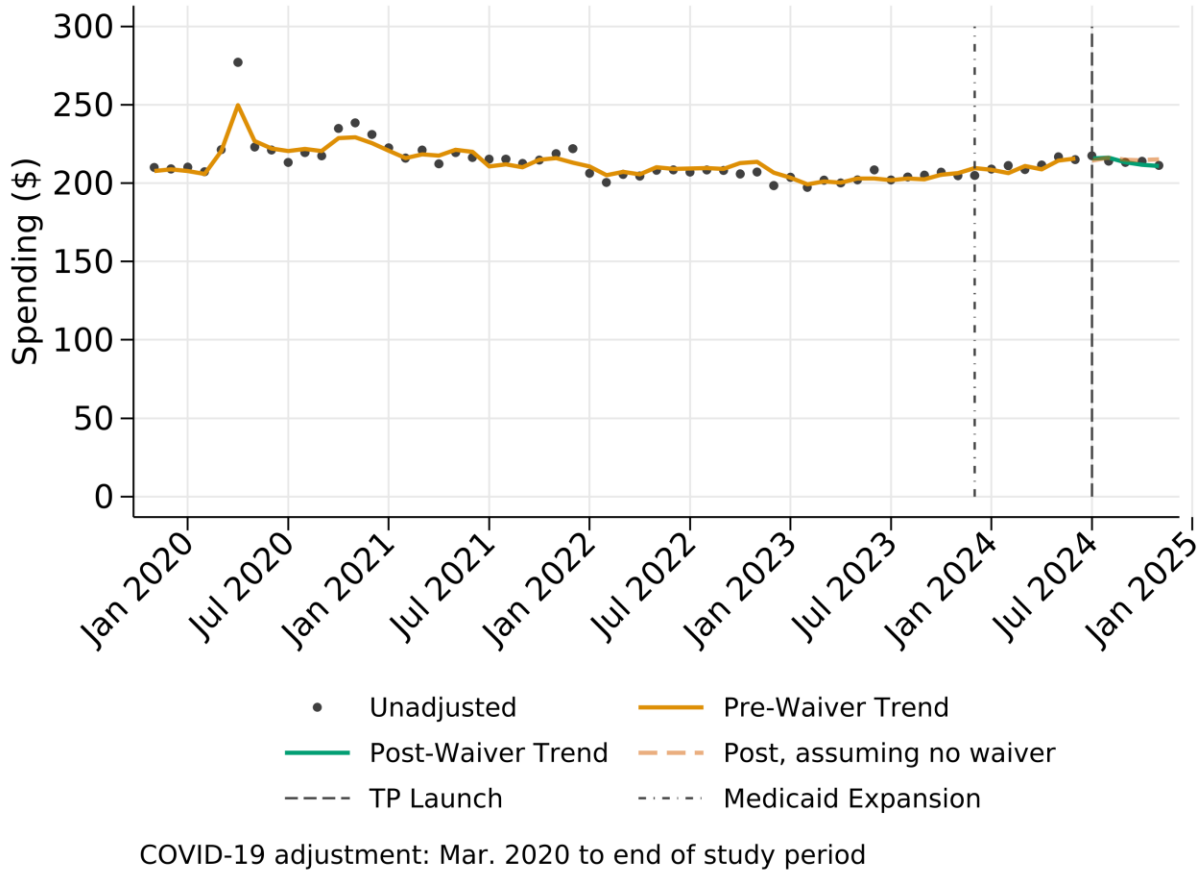


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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).

Medicaid Expenditures: Total Medicaid Services Expenditures for beneficiaries who had a Dental expenditure (Figure)

Figure 167: Trends in Medicaid Expenditures: Total Medicaid Services Expenditures for beneficiaries who had a Dental expenditure



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Medicaid Expenditures: Total Medicaid Services Expenditures for beneficiaries who had a Dental expenditure (Table)

Table 84: Interrupted time series estimates of Medicaid Expenditures: Total Medicaid Services Expenditures for beneficiaries who had a Dental expenditure

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	209.67* (206.20, 213.14)	210.81* (206.25, 215.36)	1.14 (-2.73, 5.01)
Monthly Change	-0.097* (-0.19, -0.0063)	-1.48* (-2.93, -0.031)	-1.38 (-2.82, 0.062)
Predicted Average Outcome Nov 2024	209.28* (205.47, 213.09)	204.98* (200.25, 209.71)	-4.30* (-8.05, -0.56)
N			812,634

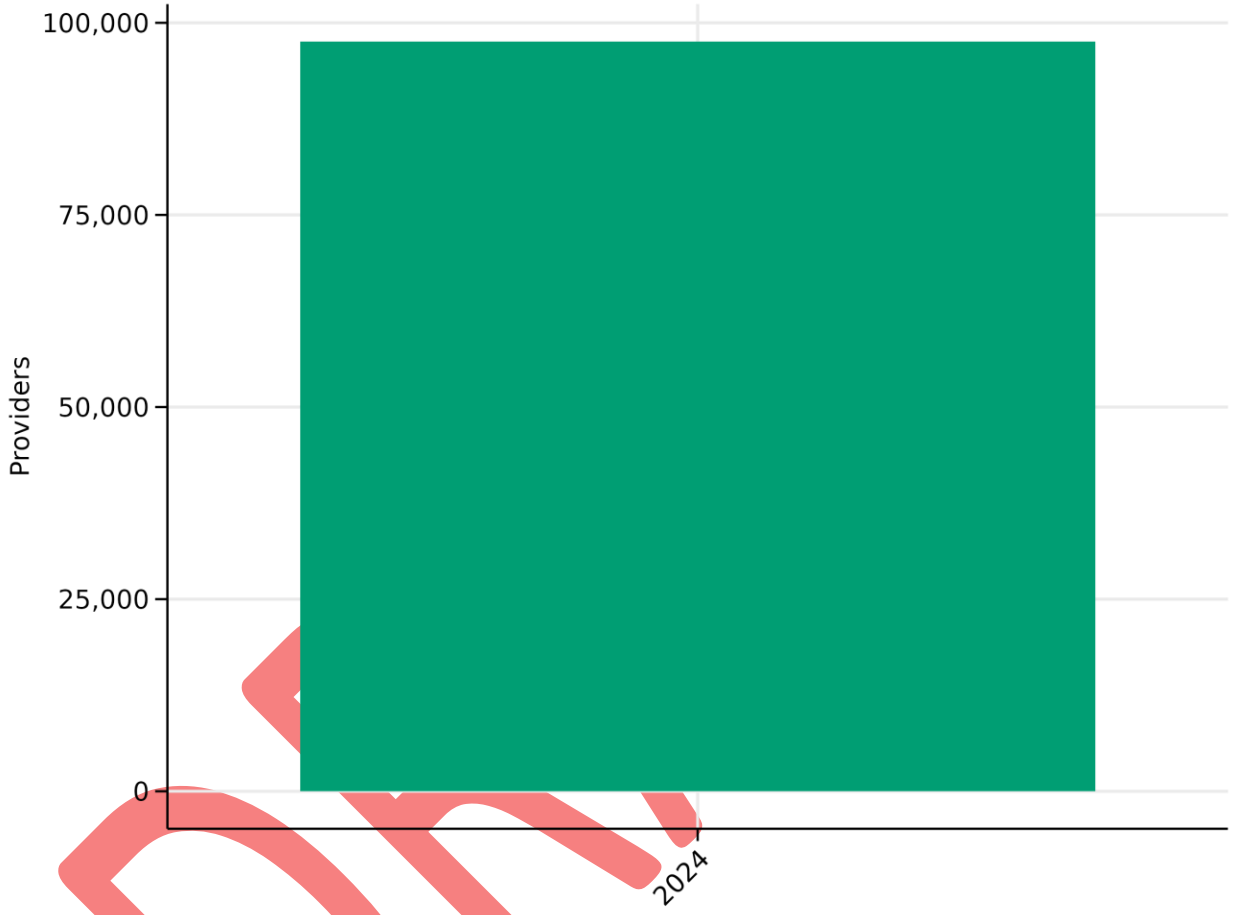
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a GEE gamma regression with an exchangeable correlation structure at the person-level. Estimates were generated from the population of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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Provider Participation in Medicaid

Provider Participation in Medicaid with TP Contract (Figure)

Figure 168: Counts of Provider Participation in Medicaid with TP Contract



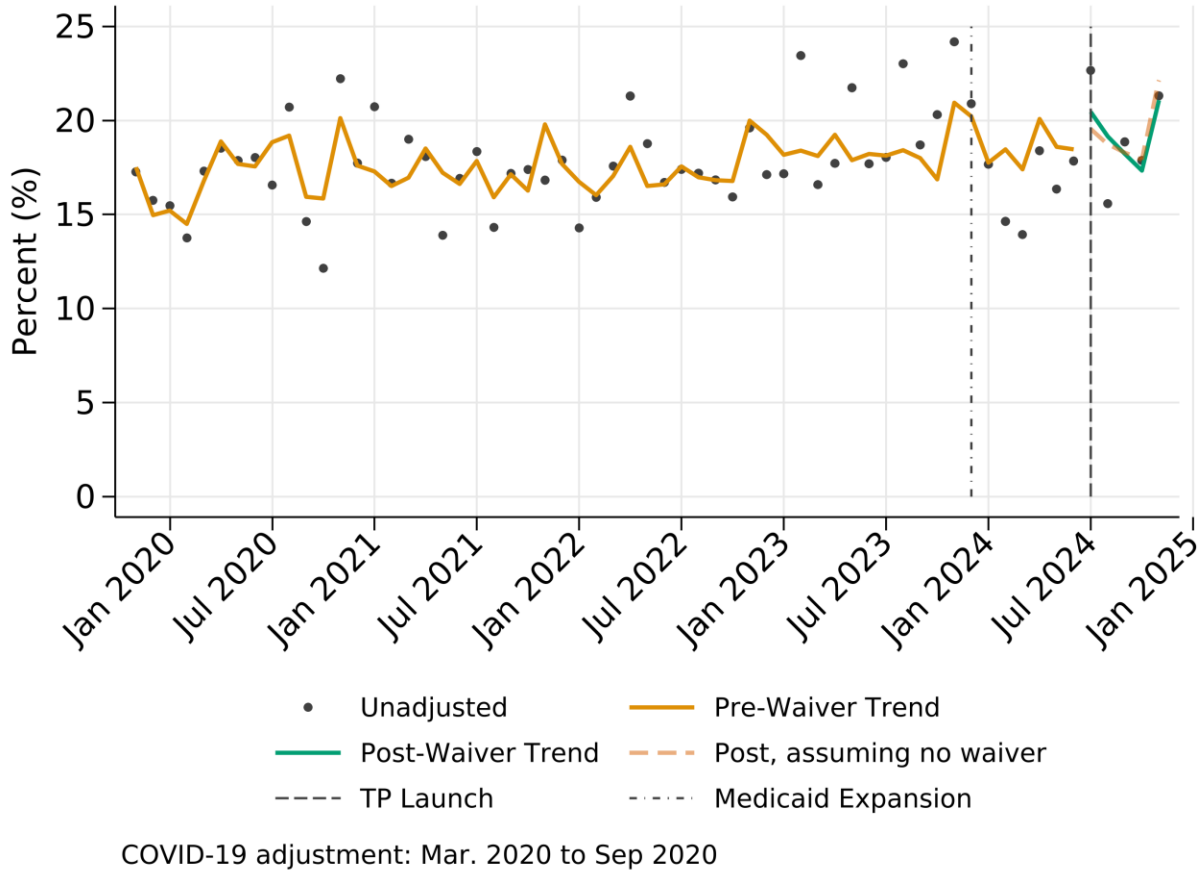
One NPI represents a unique provider.

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Low Birth Weight (LBW)

Low Birth Weight (LBW): Percent of Live Births Weighing Less than 2500 Grams (Figure)

Figure 169: Trends in Low Birth Weight (LBW): Percent of Live Births Weighing Less than 2500 Grams



Notes: Pre-Waiver and Post-Waiver trends are predictions from a multivariate interrupted time series model described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 0-64) in the NC Medicaid population as determined in the metric specifications.

Covariates were derived from the mother. TP attribution was determined by the mother's TP eligibility or enrollment status at the time of delivery.

Low Birth Weight (LBW): Percent of Live Births Weighing Less than 2500 Grams (Table)

Table 85: Interrupted time series estimates of Low Birth Weight (LBW): Percent of Live Births Weighing Less than 2500 Grams

	Baseline	TP Waiver Implementation	Difference
Predicted Average Outcome Jul 2024	19.76* (16.79, 22.73)	20.66* (15.86, 25.46)	0.90 (-3.46, 5.25)
Monthly Change	0.14 (-0.048, 0.33)	-0.35 (-2.01, 1.31)	-0.49 (-2.15, 1.16)
Predicted Average Outcome Nov 2024	19.98* (16.70, 23.25)	18.91* (14.00, 23.83)	-1.07 (-5.60, 3.46)
N			19,872

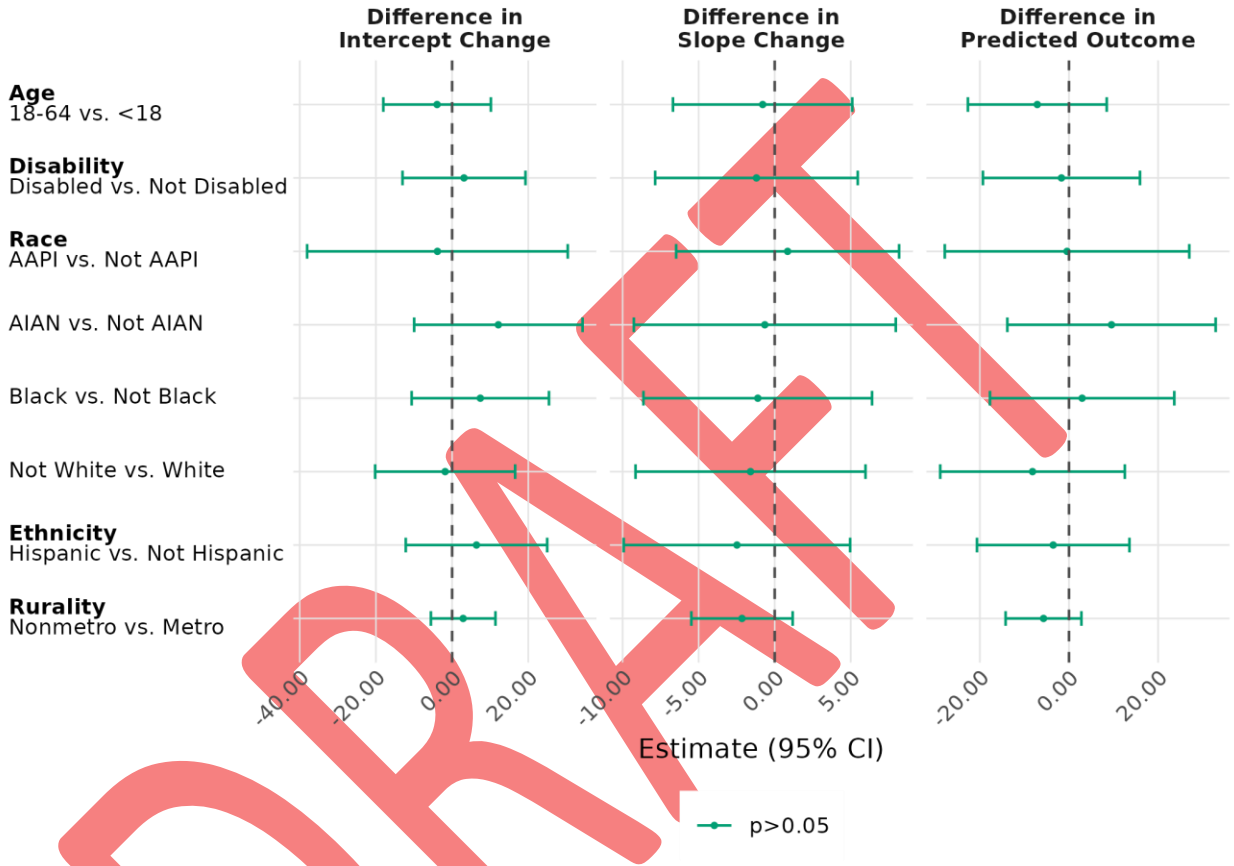
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Estimates were generated from the population of Female (aged 0-64) in the NC Medicaid population as determined in the metric specifications.*

Covariates were derived from the mother. TP attribution was determined by the mother's TP eligibility or enrollment status at the time of delivery.

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Low Birth Weight (LBW): Percent of Live Births Weighing Less than 2500 Grams (Contrast Plot)

Figure 170: Comparison groups in Low Birth Weight (LBW): Percent of Live Births Weighing Less than 2500 Grams



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Notes: Estimates from a multivariate interrupted time series model as described in Methods. Predictions estimated from a linear probability model. Each of the subgroup variables is interacted with the Waiver-specific intercept and slope. The difference in intercept change (for example), is the intercept change for the first subgroup (e.g., Male) minus the intercept change for the second subgroup (e.g., Female).
Covariates were derived from the mother. TP attribution was determined by the mother's TP eligibility or enrollment status at the time of delivery.

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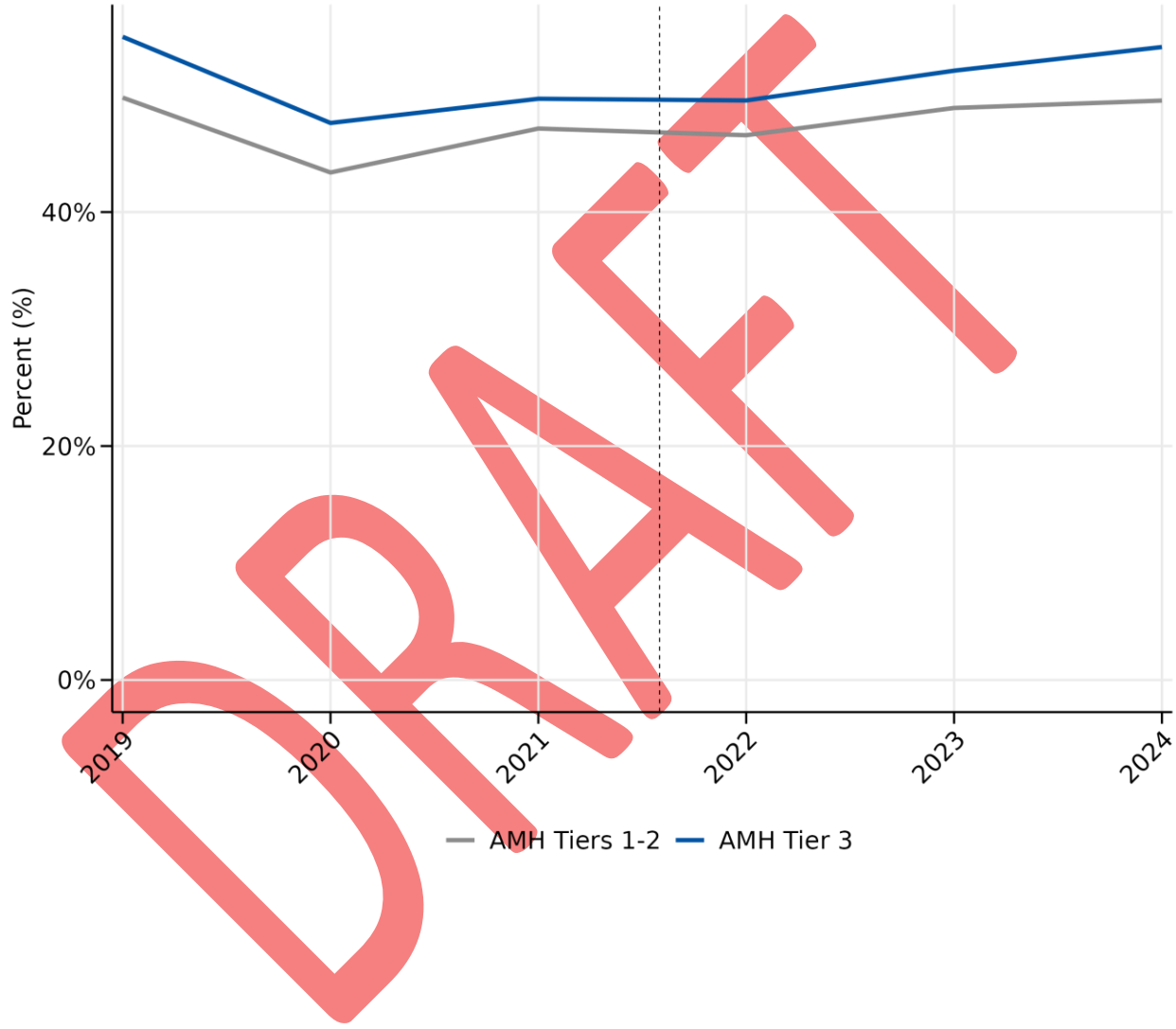
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Appendix C: Advanced Medical Home Measures

Child and Adolescent Well-Care Visits (WCV)

Child and Adolescent Well-Care Visits (WCV) (Figure)

Figure 1: Trends in Child and Adolescent Well-Care Visits (WCV)

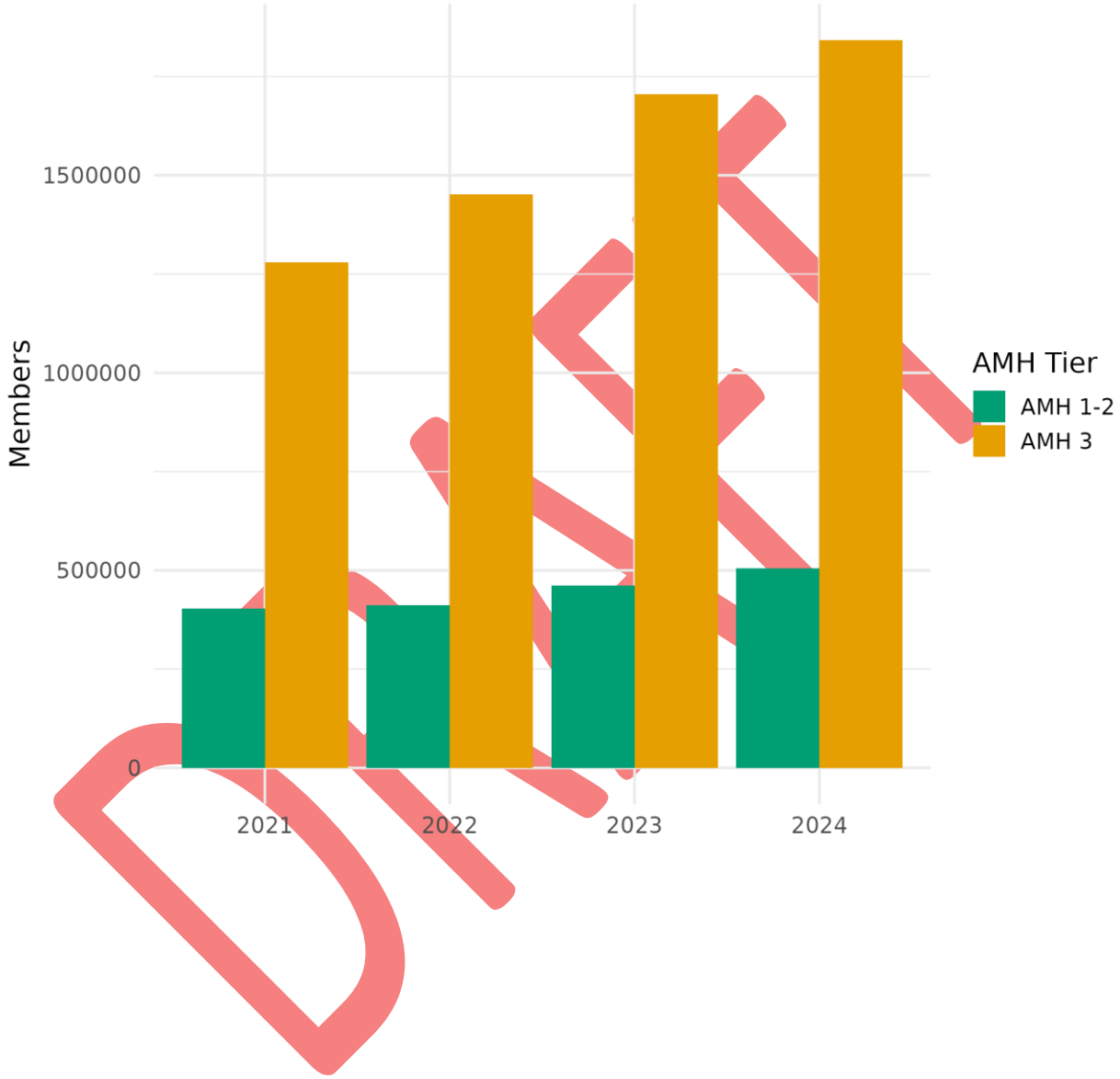


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Number of enrollees attributed to an AMH

Number of SP enrollees attributed to an AMH (Figure)

Figure 2: Counts of Number of SP enrollees attributed to an AMH



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Number of TP enrollees attributed to an AMH (Figure)

Figure 3: Counts of Number of TP enrollees attributed to an AMH

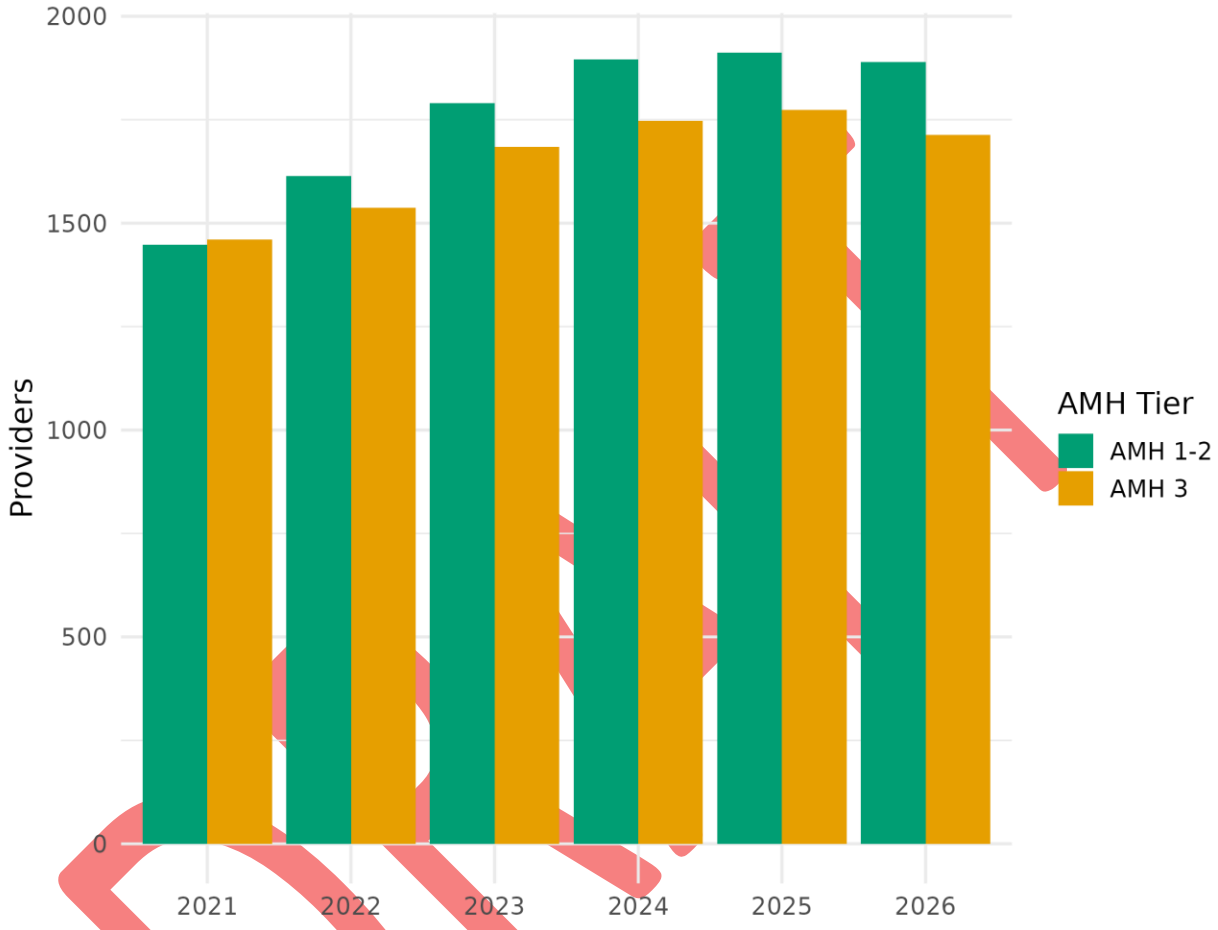


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Number of Providers that contract with a SP by AMH Level

Number of Providers that contract with a SP by AMH Level (Figure)

Figure 4: Counts of Number of Providers that contract with a SP by AMH Level

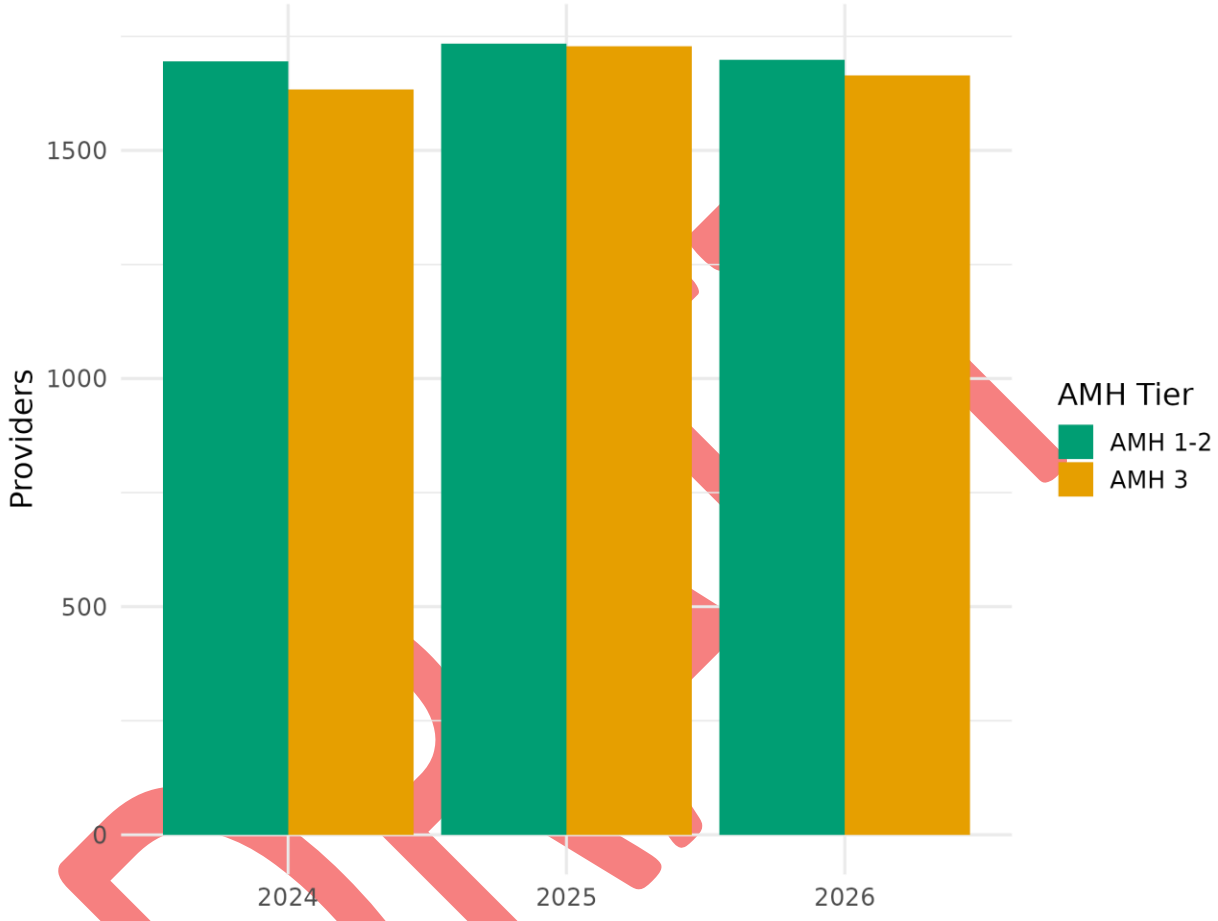


One NPI represents a unique provider.

Number of Providers that contract with a TP by AMH Level

Number of Providers that contract with a TP by AMH Level (Figure)

Figure 5: Counts of Number of Providers that contract with a TP by AMH Level



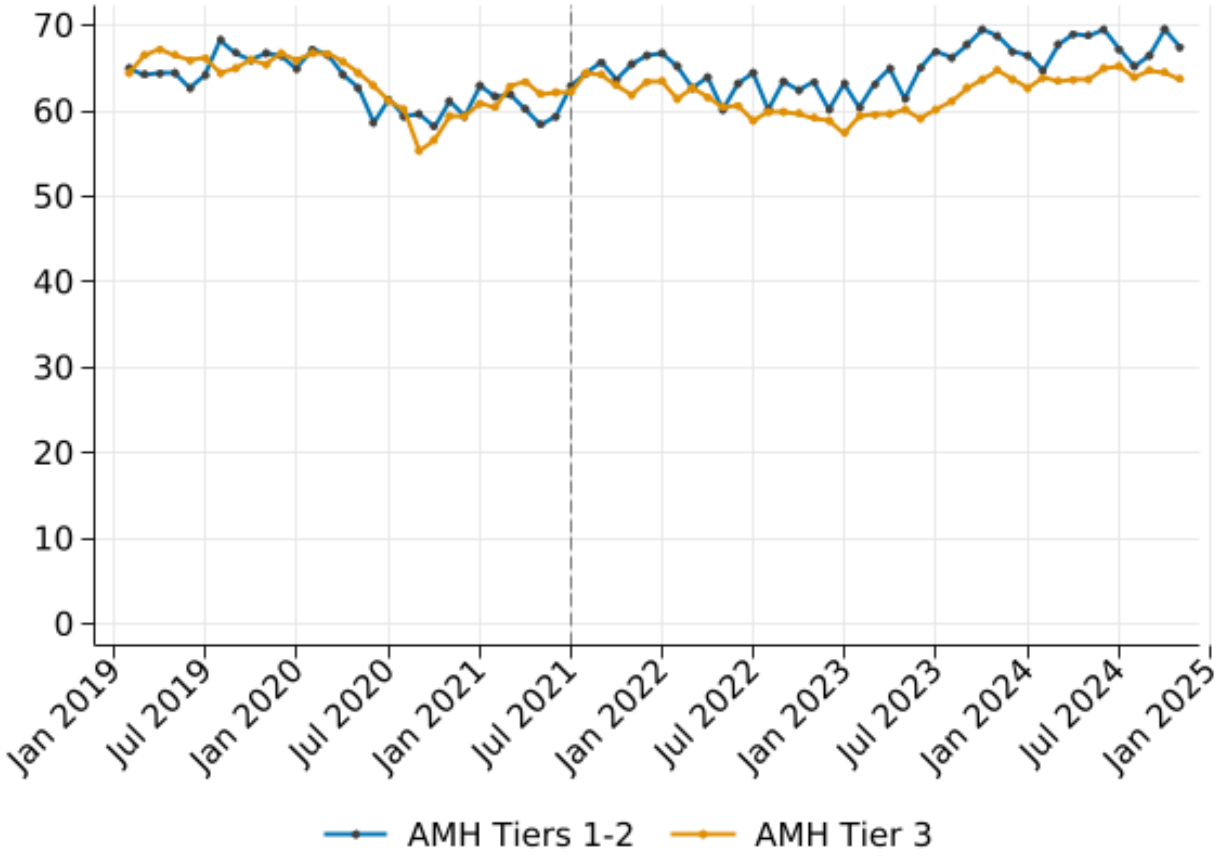
One NPI represents a unique provider.

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Well-Child Visits (W30)

Well-Child Visits (W30): Well-Child Visits in the First 15 Months of Life (Figure)

Figure 6: Trends in Well-Child Visits (W30): Well-Child Visits in the First 15 Months of Life



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 15 month olds) in the NC Medicaid population as determined in the metric specifications.

Well-Child Visits (W30): Well-Child Visits in the First 15 Months of Life (Table)

Table 1: Difference-in-Differences Estimates of Well-Child Visits (W30): Well-Child Visits in the First 15 Months of Life

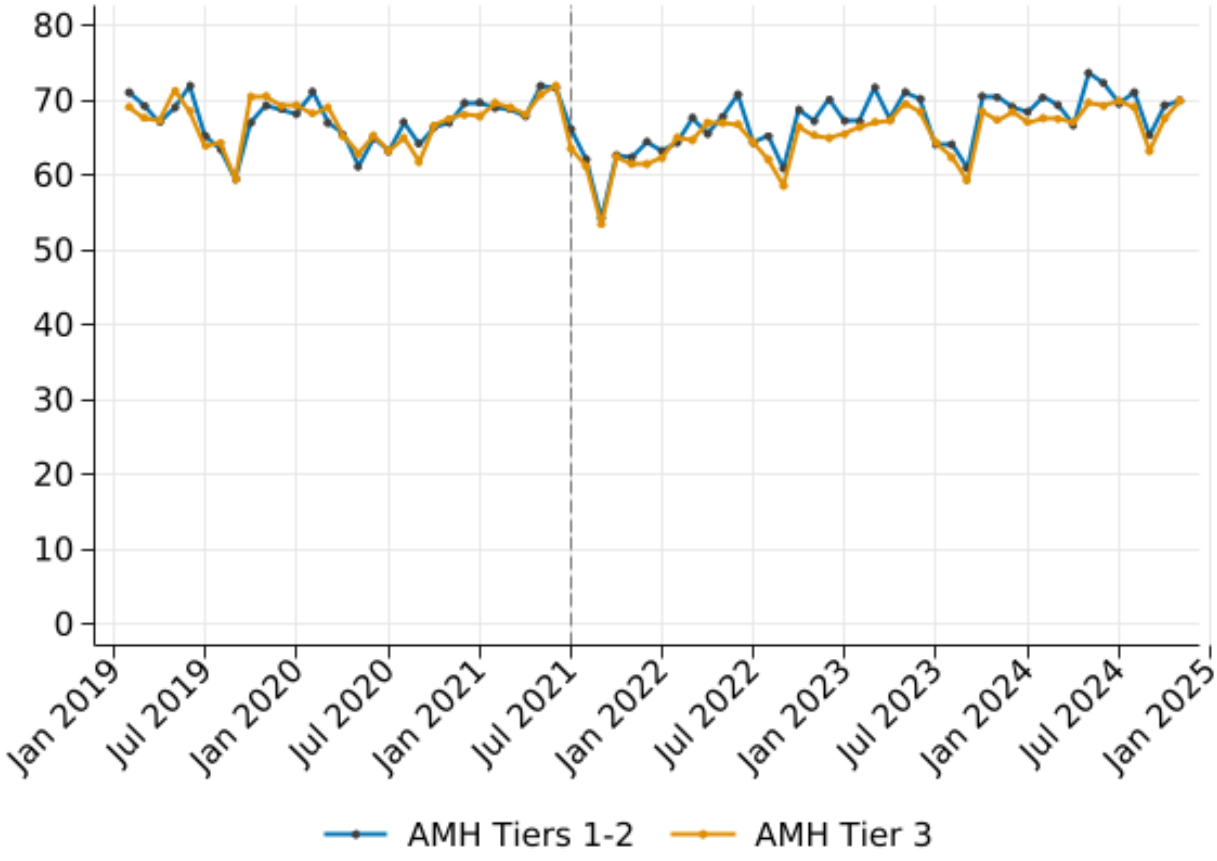
	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	2.813* (0.437,5.189)	2.247 (-0.776,5.271)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.487 (-1.194,2.168)	3.514* (0.601,6.428)
DiD estimate(post*AMH Tier 3 practices)	-3.515*** (-5.211,-1.818)	-2.219 (-4.754,0.315)
N	323,033	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 15 month olds) in the NC Medicaid population as determined in the metric specifications.*

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Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life (Figure)

Figure 7: Trends in Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 30 month olds) in the NC Medicaid population as determined in the metric specifications.

Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life (Table)

Table 2: Difference-in-Differences Estimates of Well-Child Visits (W30): Well-Child Visits in 15-30 Months of Life

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	1.677 (-0.845,4.199)	0.635 (-2.184,3.453)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	-0.220 (-1.485,1.045)	0.321 (-1.952,2.594)
DiD estimate(post*AMH Tier 3 practices)	-1.368 (-2.870,0.135)	-0.332 (-2.271,1.608)
N	368,100	

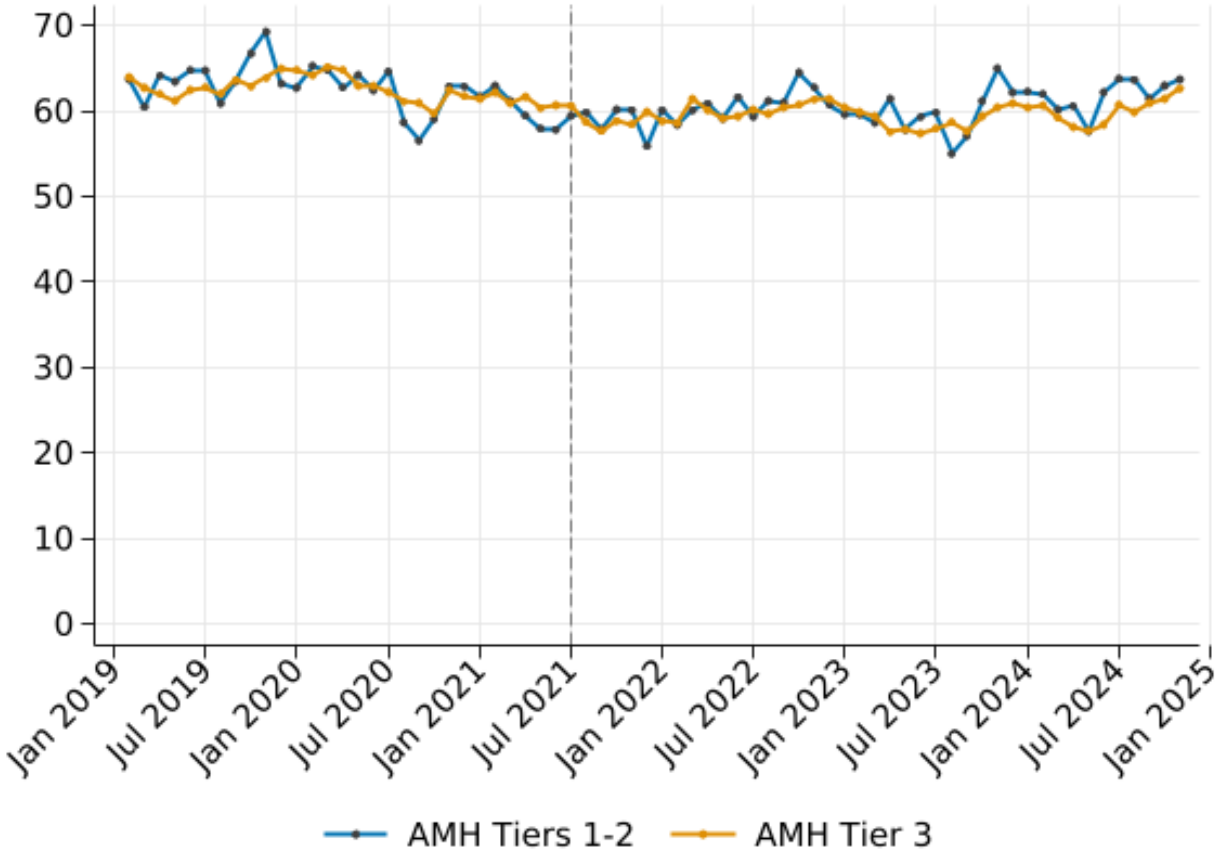
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 30 month olds) in the NC Medicaid population as determined in the metric specifications.*

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Childhood Immunization Status (CIS)

Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2 (Figure)

Figure 8: Trends in Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 1-2) in the NC Medicaid population as determined in the metric specifications.

Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2 (Table)

Table 3: Difference-in-Differences Estimates of Childhood Immunization Status (CIS): Percent of children who received DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV vaccinations by age 2

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-0.244 (-2.782,2.293)	1.528 (-2.457,5.514)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.244 (-1.184,1.672)	8.000** (2.913,13.09)
DiD estimate(post*AMH Tier 3 practices)	-1.090 (-2.582,0.401)	-3.702* (-7.132,-0.272)
N	334,278	

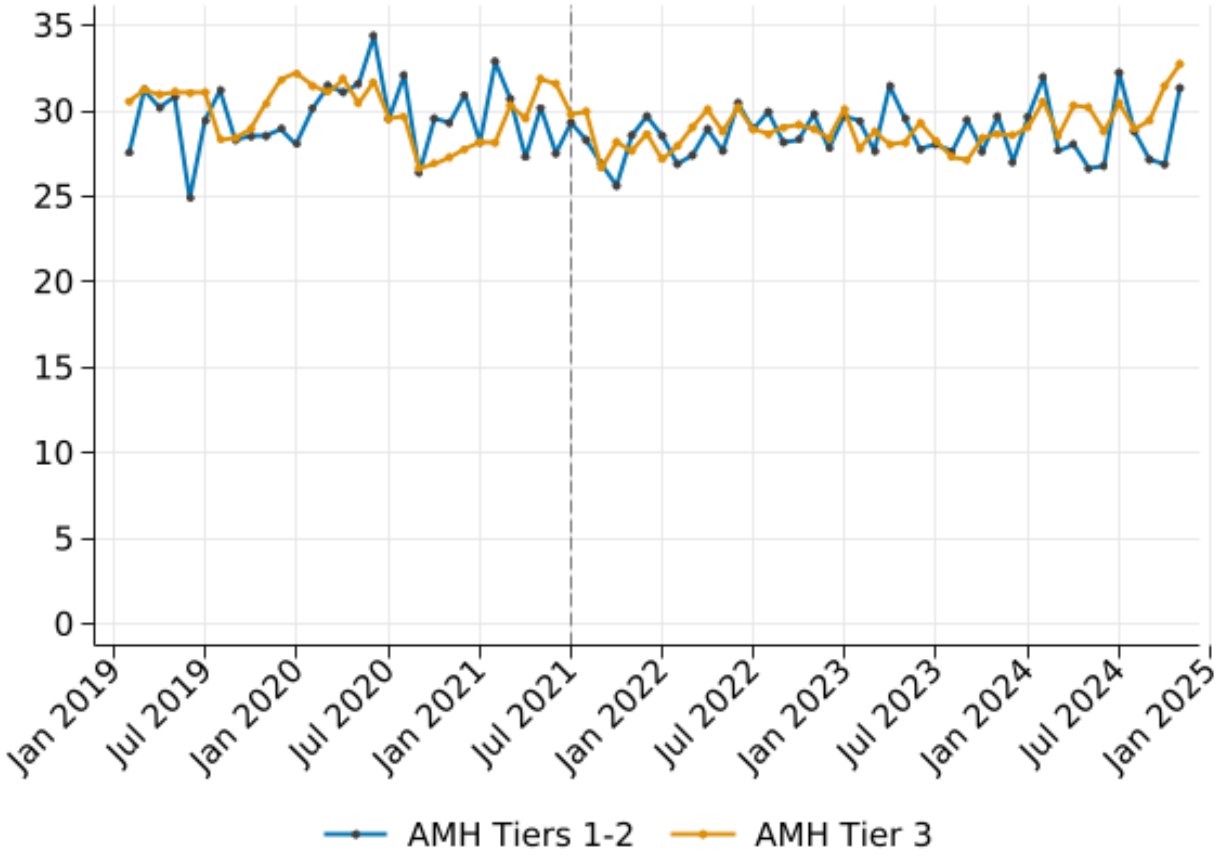
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 1-2) in the NC Medicaid population as determined in the metric specifications.*

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Immunizations for Adolescents (IMA)

Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13 (Figure)

Figure 9: Trends in Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 12-13) in the NC Medicaid population as determined in the metric specifications.

Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13 (Table)

Table 4: Difference-in-Differences Estimates of Immunizations for Adolescents (IMA): Percent of adolescents who received meningococcal, Tdap, and HPV immunizations by age 13

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	2.358 (-0.156,4.871)	2.938 (-0.485,6.362)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.236 (-1.397,1.868)	7.346*** (4.087,10.60)
DiD estimate(post*AMH Tier 3 practices)	0.0910 (-1.699,1.881)	-0.665 (-3.996,2.666)
N	324,138	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 12-13) in the NC Medicaid population as determined in the metric specifications.*

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Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC)

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation (Figure)

Figure 10: Trends in Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from a random 20% sample of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation (Table)

Table 5: Difference-in-Differences Estimates of Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): BMI Percentile Documentation

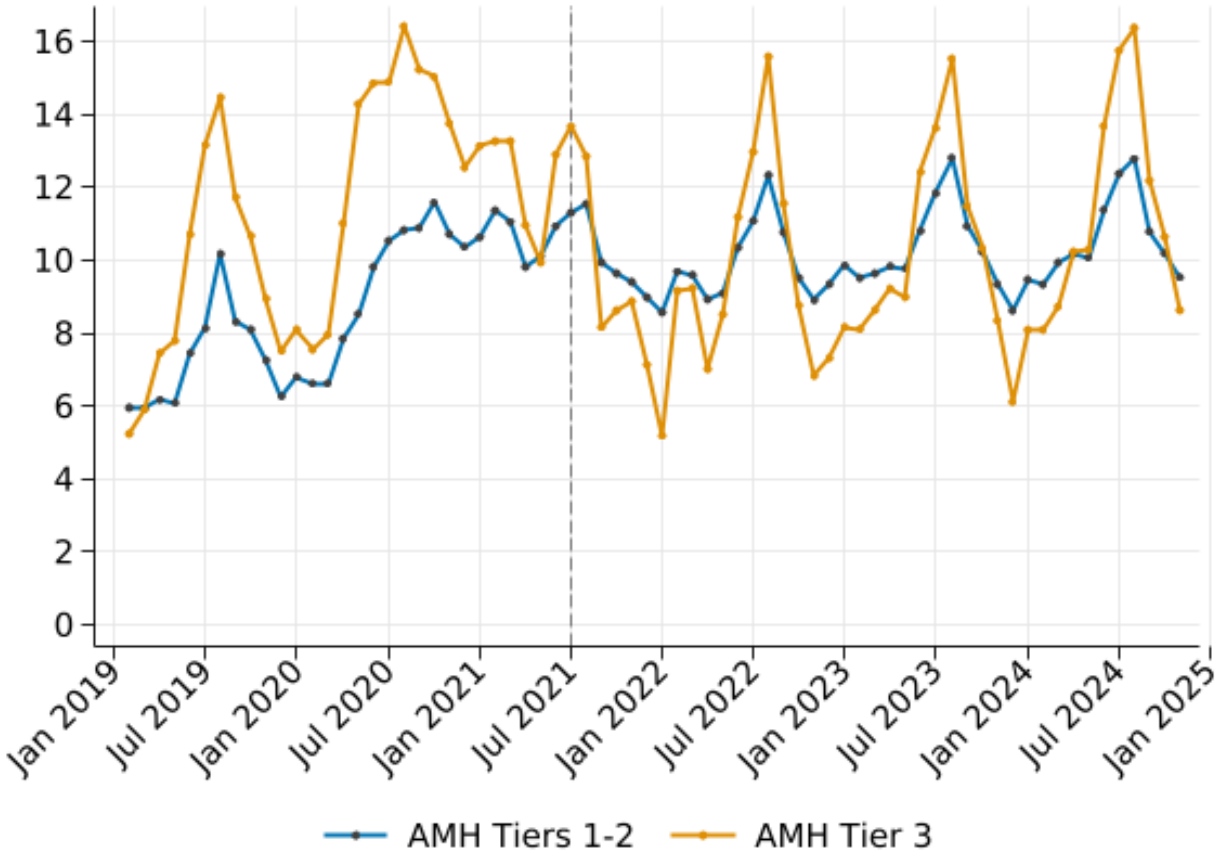
	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	4.272*** (2.222,6.321)	3.350** (0.814,5.885)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.521 (-1.069,2.111)	9.636*** (5.761,13.51)
DiD estimate(post*AMH Tier 3 practices)	-1.108 (-2.663,0.447)	0.0883 (-2.346,2.523)
N	10,096,867	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from a random 20% sample of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.*

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Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition (Figure)

Figure 11: Trends in Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from a random 20% sample of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.

Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition (Table)

Table 6: Difference-in-Differences Estimates of Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents (WCC): Counseling for Nutrition

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	5.498*** (4.092,6.905)	3.951*** (2.326,5.575)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	2.206*** (1.202,3.211)	7.033*** (4.676,9.390)
DiD estimate(post*AMH Tier 3 practices)	-2.346** (-3.899,-0.792)	-0.178 (-2.022,1.665)
N	10,096,867	

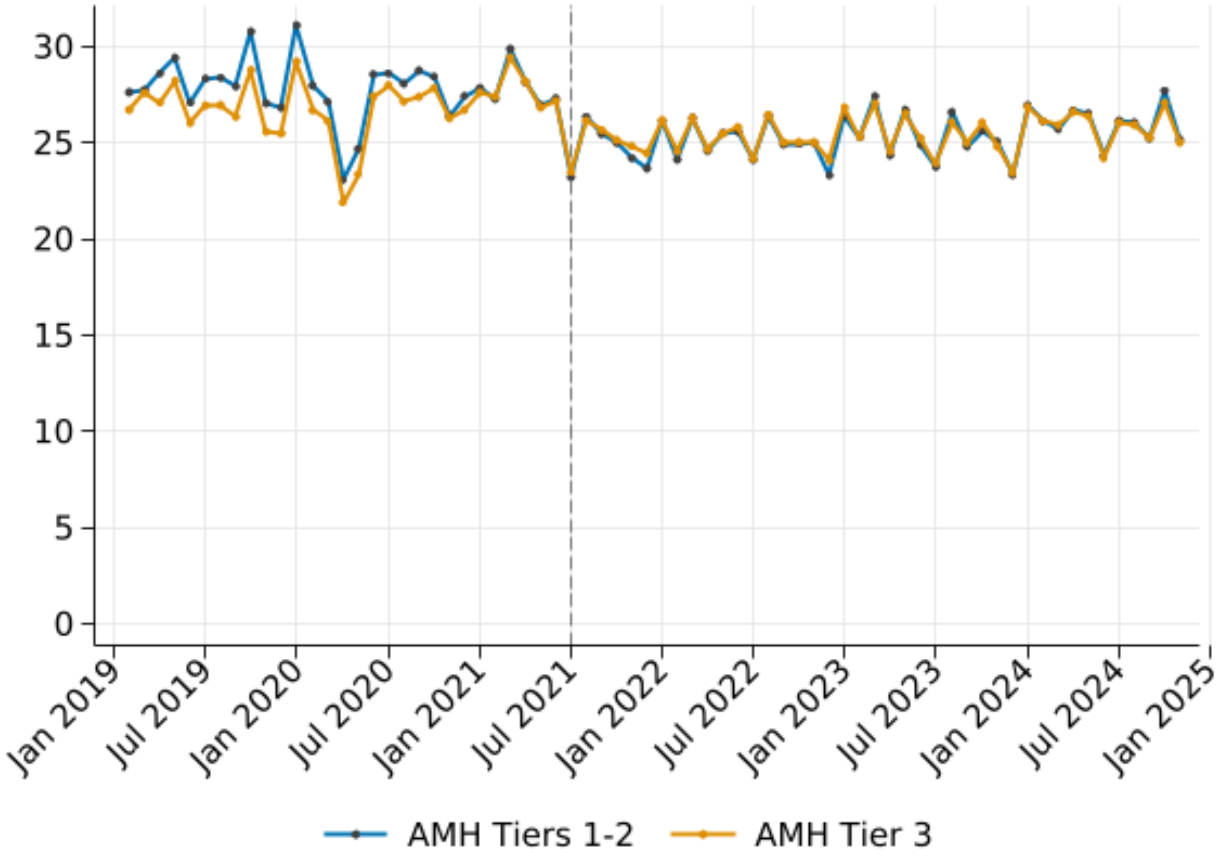
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from a random 20% sample of individuals (aged 3-17) in the NC Medicaid population as determined in the metric specifications.*

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Access to Preventive/Ambulatory Health Services (AAP)

Access to Preventive/Ambulatory Health Services (AAP) (Figure)

Figure 12: Trends in Access to Preventive/Ambulatory Health Services (AAP)



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 20+) in the NC Medicaid population as determined in the metric specifications.

Access to Preventive/Ambulatory Health Services (AAP) (Table)

Table 7: Difference-in-Differences Estimates of Access to Preventive/Ambulatory Health Services (AAP)

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-2.506*** (-3.081,-1.932)	-2.497*** (-3.122,-1.872)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	-0.837*** (-1.272,-0.403)	-0.963*** (-1.483,-0.443)
DiD estimate(post*AMH Tier 3 practices)	0.842*** (0.408,1.275)	0.954*** (0.435,1.473)
N	6,057,193	

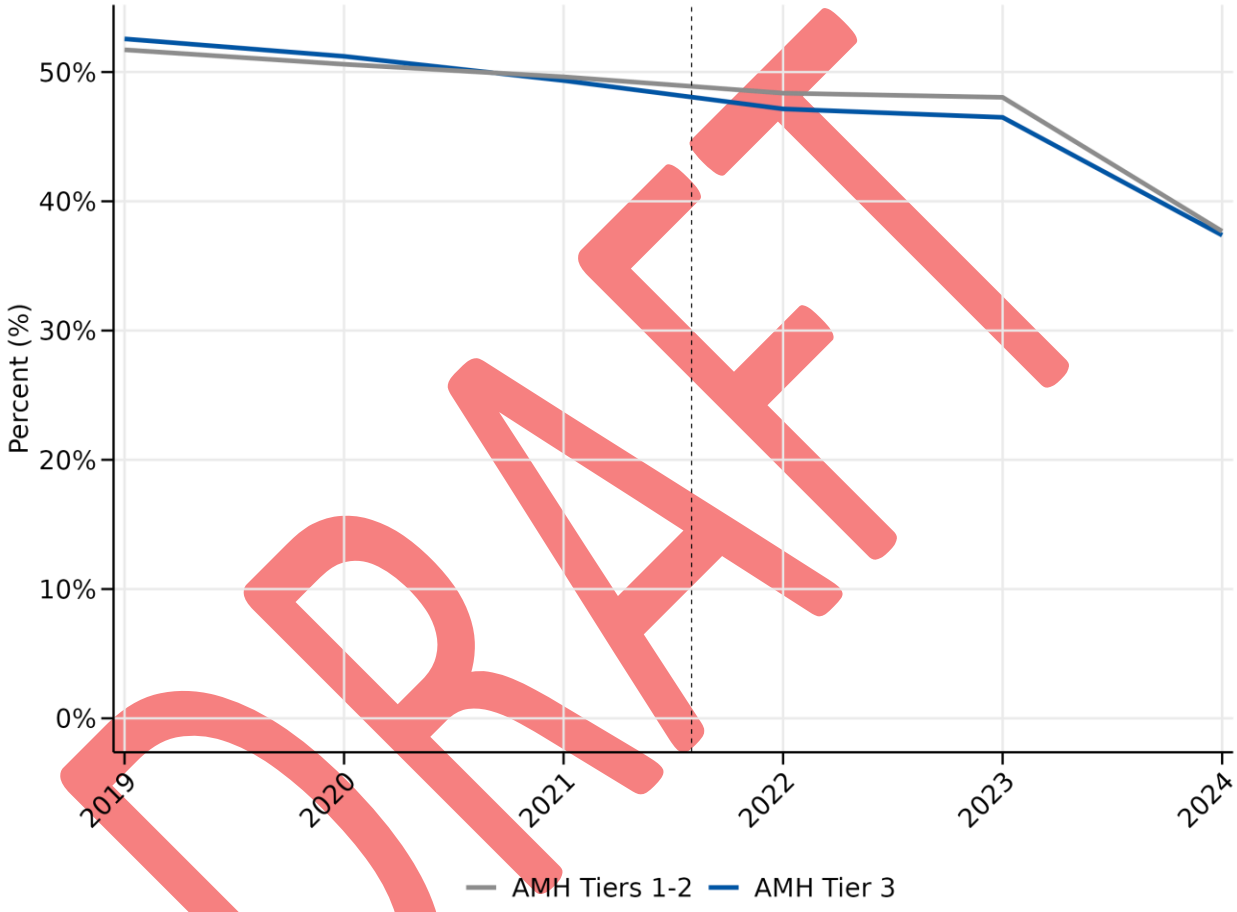
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 20+) in the NC Medicaid population as determined in the metric specifications.*

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Women's Preventive Care

Women's Preventive Care: Cervical Cancer Screening (CCS) among Women Aged 21 to 64 (Figure)

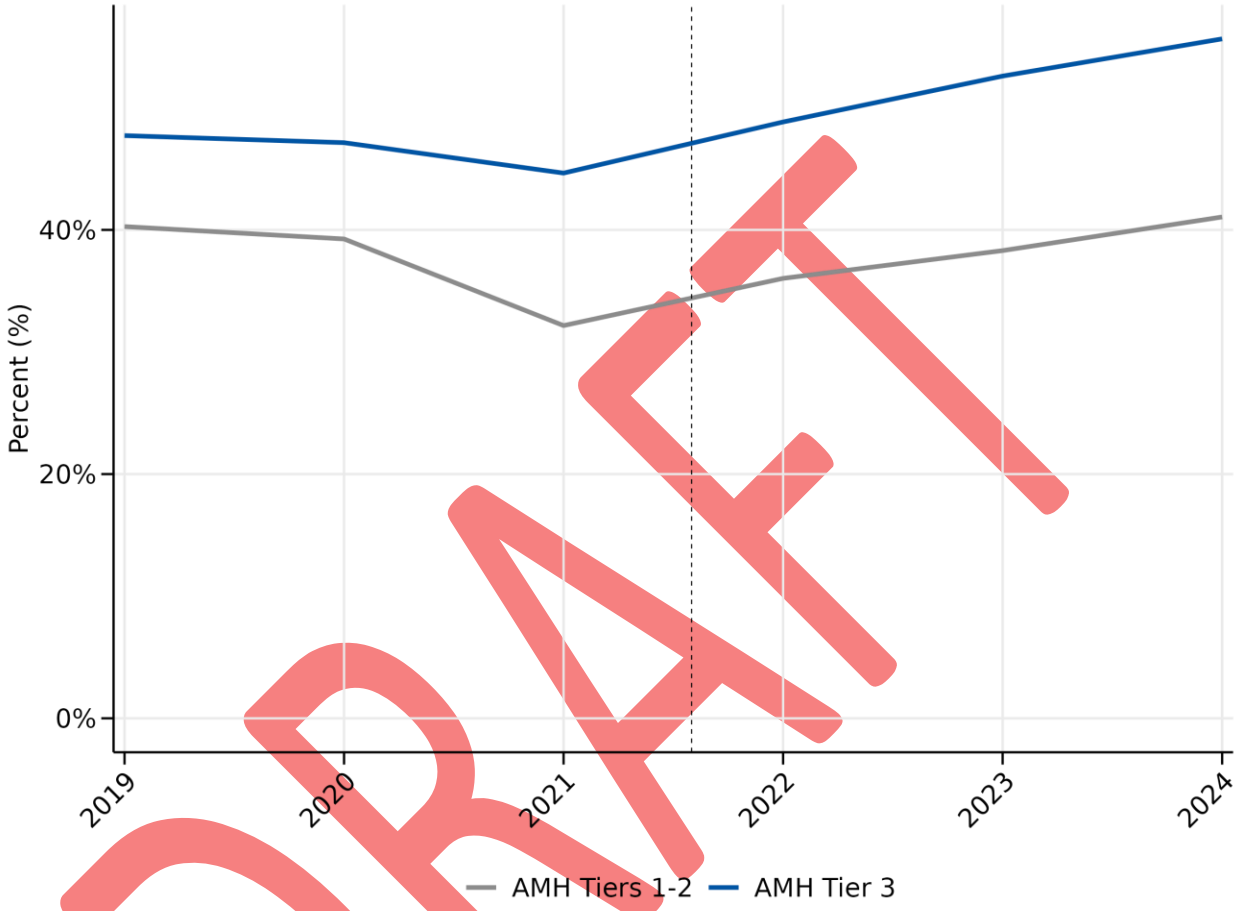
Figure 13: Trends in Women's Preventive Care: Cervical Cancer Screening (CCS) among Women Aged 21 to 64



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Women's Preventive Care: Chlamydia Screening (CHL) in Women ages 16-20 (Figure)

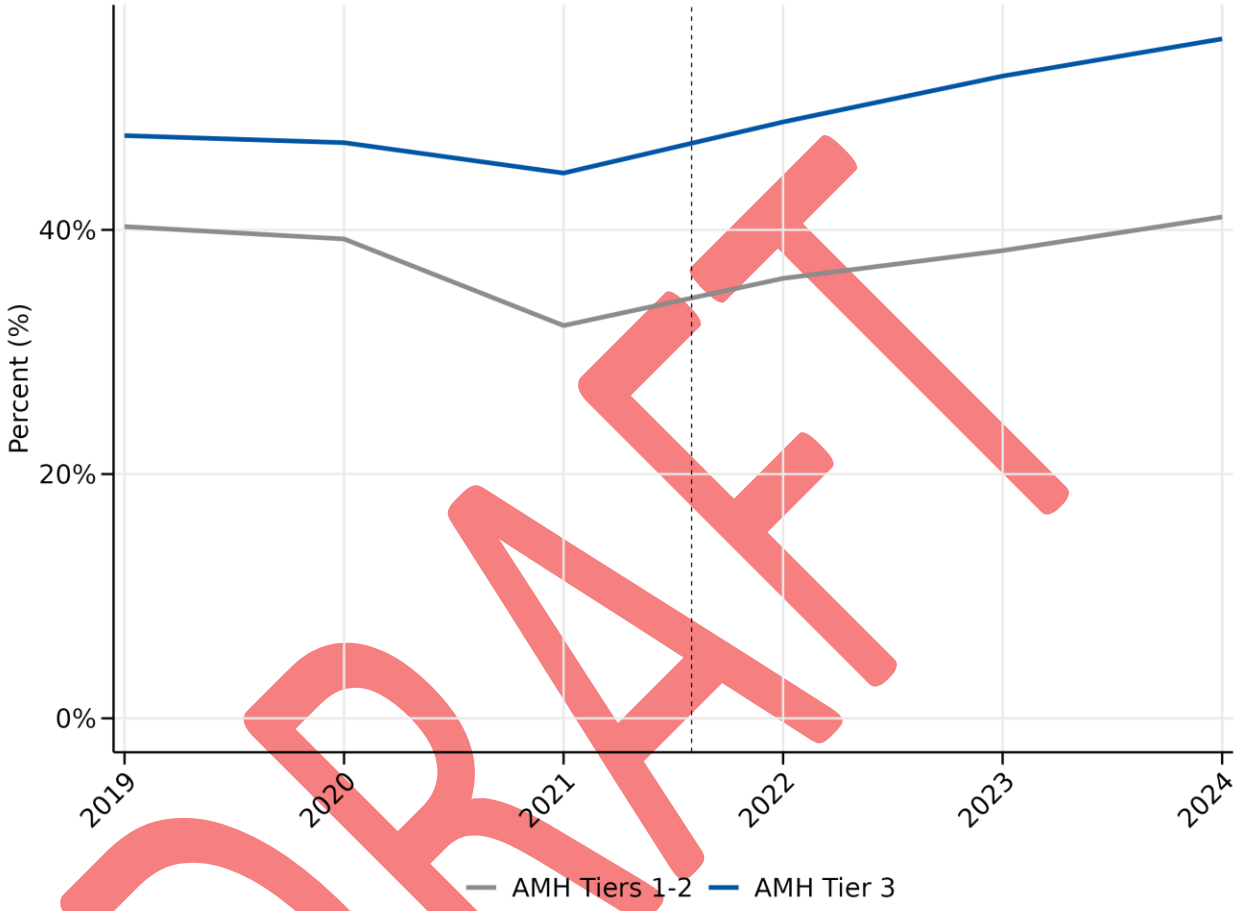
Figure 14: Trends in Women's Preventive Care: Chlamydia Screening (CHL) in Women ages 16-20



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Women's Preventive Care: Chlamydia Screening (CHL) in Women ages 21-24 (Figure)

Figure 15: Trends in Women's Preventive Care: Chlamydia Screening (CHL) in Women ages 21-24

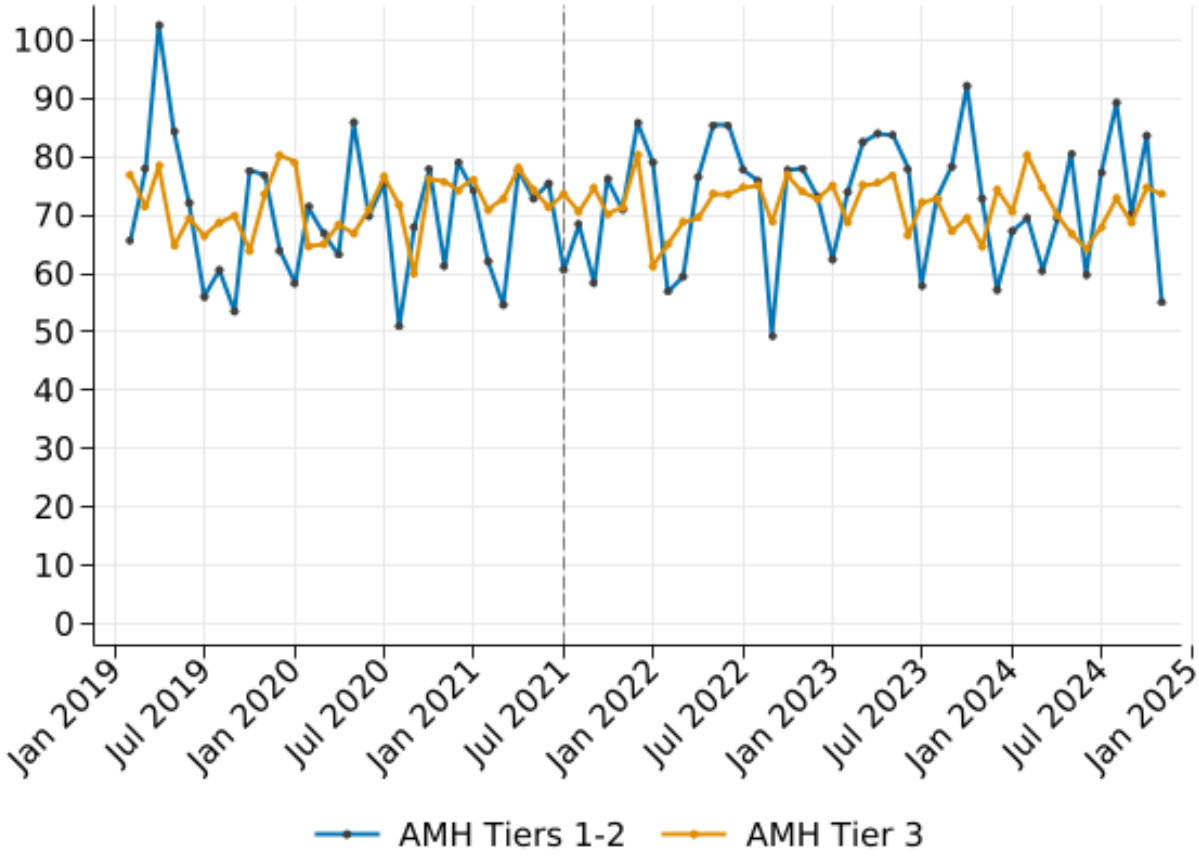


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Prenatal and Postpartum Care (PPC)

Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for members under 21 (Figure)

Figure 16: Trends in Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for members under 21



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of Female (aged 0-20) in the NC Medicaid population as determined in the metric specifications.
SP attribution was assigned based on SP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.

Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for members under 21 (Table)

Table 8: Difference-in-Differences Estimates of Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for members under 21

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-3.819 (-19.42,11.79)	-9.314 (-22.05,3.421)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.361 (-6.482,7.204)	-0.567 (-4.186,3.053)
DiD estimate(post*AMH Tier 3 practices)	-1.971 (-9.302,5.360)	-1.122 (-6.067,3.823)
N	5,939	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of Female (aged 0-20) in the NC Medicaid population as determined in the metric specifications. SP attribution was assigned based on SP eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.*

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Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older (Figure)

Figure 17: Trends in Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of Female (aged 21-64) in the NC Medicaid population as determined in the metric specifications.
AMH attribution was assigned based on AMH eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.

Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older (Table)

Table 9: Difference-in-Differences Estimates of Prenatal and Postpartum Care (PPC): Timeliness of Prenatal Care for Members ages 21 and older

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-1.446 (-3.992,1.099)	-1.173 (-3.584,1.238)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.251 (-1.070,1.571)	0.313 (-0.703,1.328)
DiD estimate(post*AMH Tier 3 practices)	-0.386 (-1.625,0.853)	-0.724 (-1.817,0.370)
N	155,749	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of Female (aged 21-64) in the NC Medicaid population as determined in the metric specifications. AMH attribution was assigned based on AMH eligibility or enrollment status in the month corresponding to the end of the first trimester or 42 days post-enrollment.*

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Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21 (Figure)

Figure 18: Trends in Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of Female (aged under 21) in the NC Medicaid population as determined in the metric specifications.
The Medicaid Expansion population has been excluded.

Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21 (Table)

Table 10: Difference-in-Differences Estimates of Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women under 21

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	4.019 (-19.10,27.14)	1.315 (-15.62,18.24)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	4.158 (-4.899,13.21)	1.282 (-4.199,6.764)
DiD estimate(post*AMH Tier 3 practices)	-4.303 (-15.43,6.822)	-3.217 (-10.33,3.899)
N	4,499	

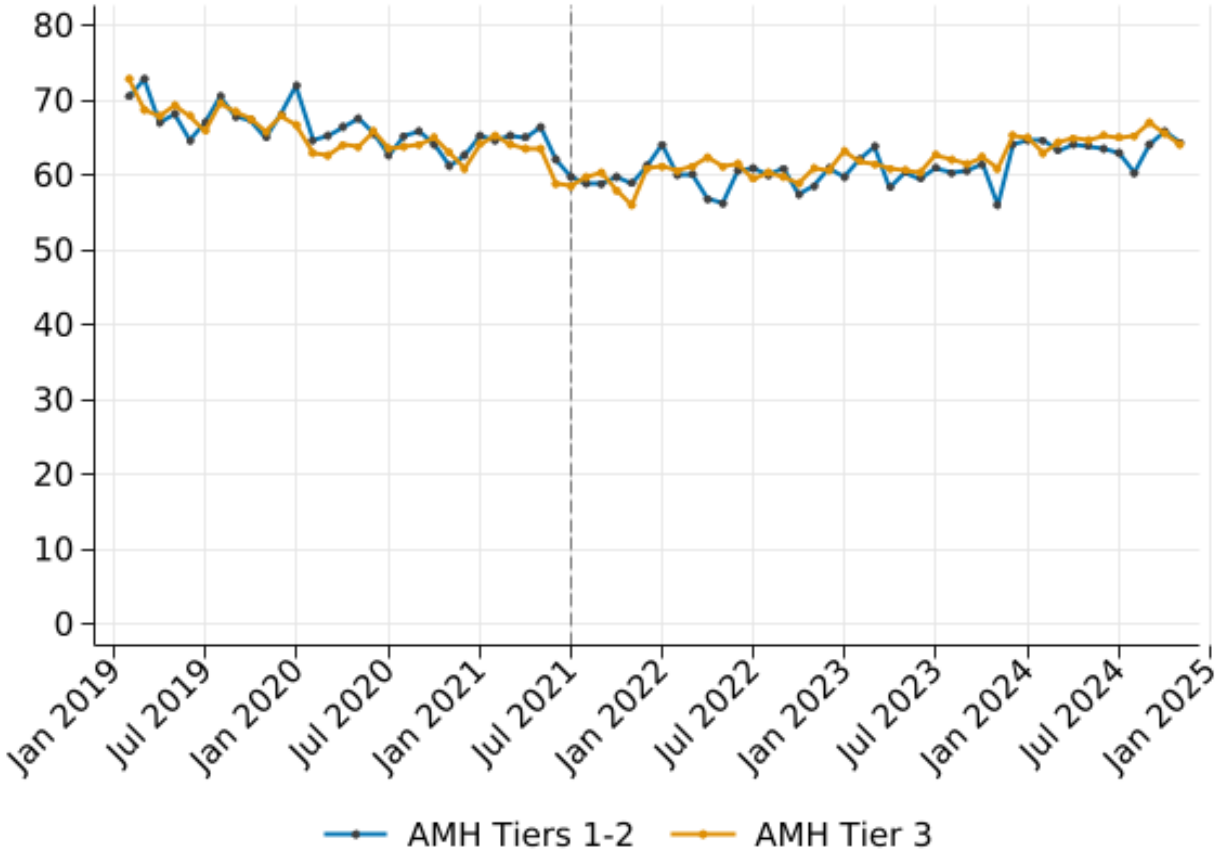
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of Female (aged under 21) in the NC Medicaid population as determined in the metric specifications.*

The Medicaid Expansion population has been excluded.

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Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+ (Figure)

Figure 19: Trends in Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of Female (aged 21+) in the NC Medicaid population as determined in the metric specifications.
The Medicaid Expansion population has been excluded.

Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+ (Table)

Table 11: Difference-in-Differences Estimates of Prenatal and Postpartum Care (PPC): Postpartum Visit Rates among Women 21+

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-9.346*** (-12.65,-6.047)	-10.04*** (-13.64,-6.437)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	-0.816 (-2.518,0.887)	-0.128 (-2.395,2.140)
DiD estimate(post*AMH Tier 3 practices)	1.662 (-0.151,3.476)	1.966 (-0.196,4.128)
N	177,638	

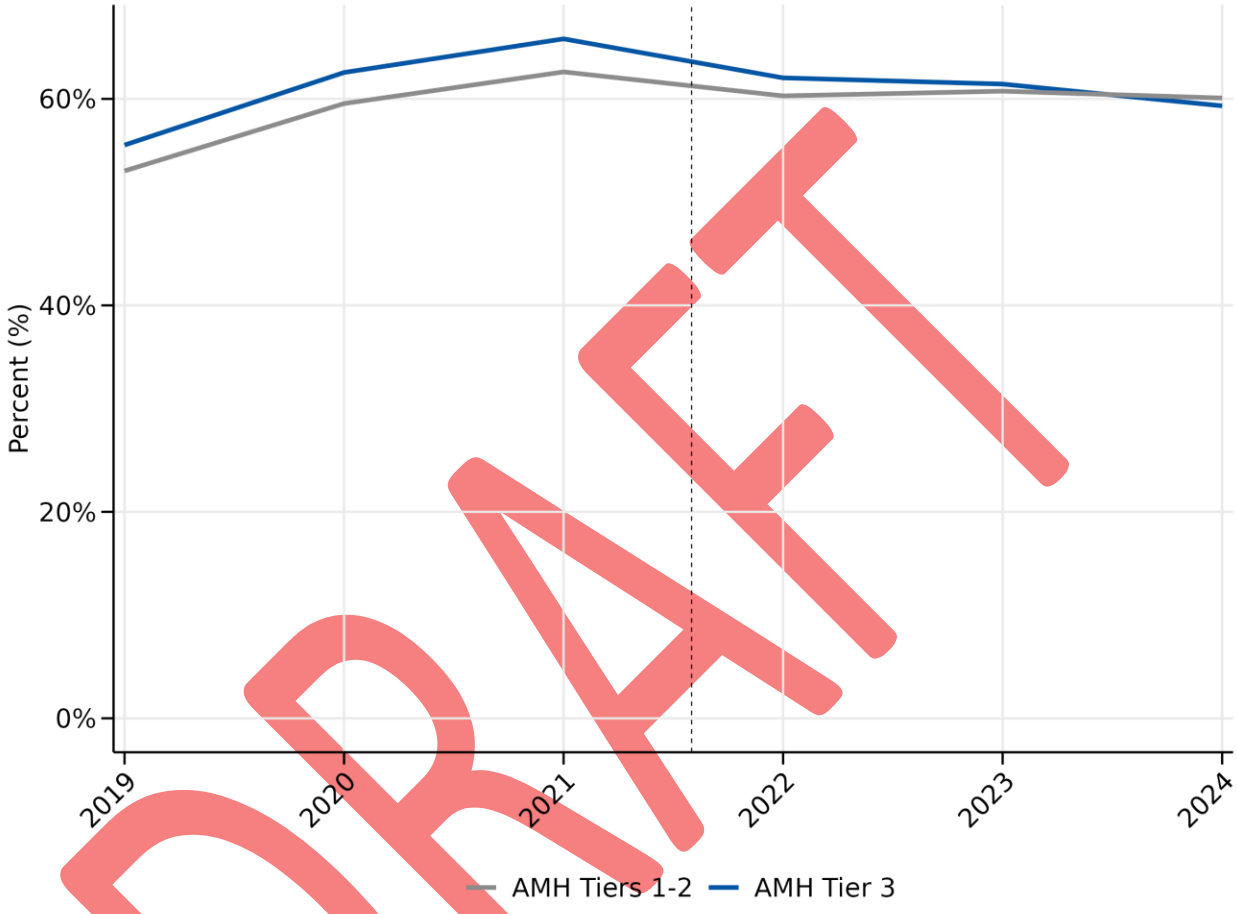
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of Female (aged 21+) in the NC Medicaid population as determined in the metric specifications. The Medicaid Expansion population has been excluded.*

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Asthma Medication Ratio (AMR)

Asthma Medication Ratio in Children (AMR) (Figure)

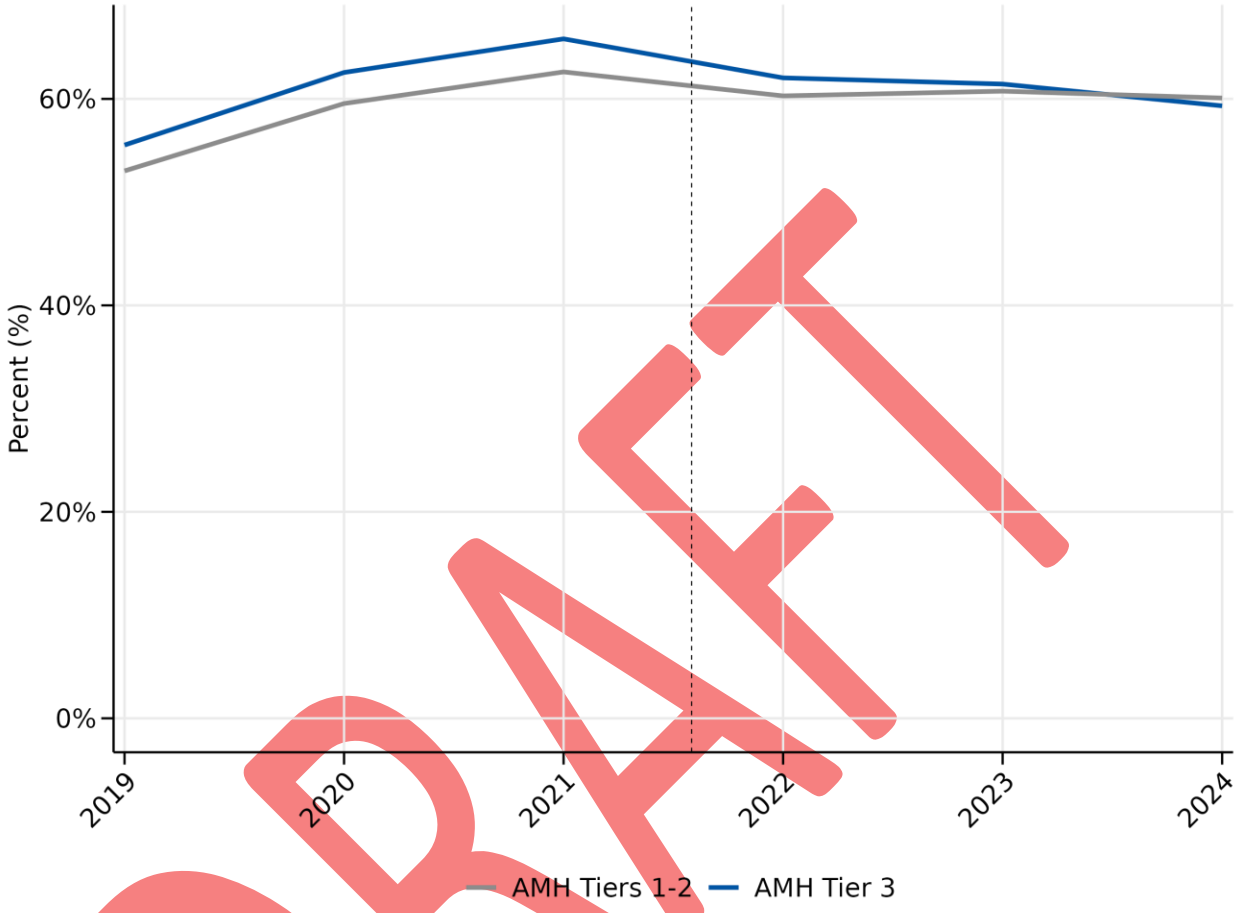
Figure 20: Trends in Asthma Medication Ratio in Children (AMR)



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Asthma Medication Ratio in Adults (AMR) (Figure)

Figure 21: Trends in Asthma Medication Ratio in Adults (AMR)

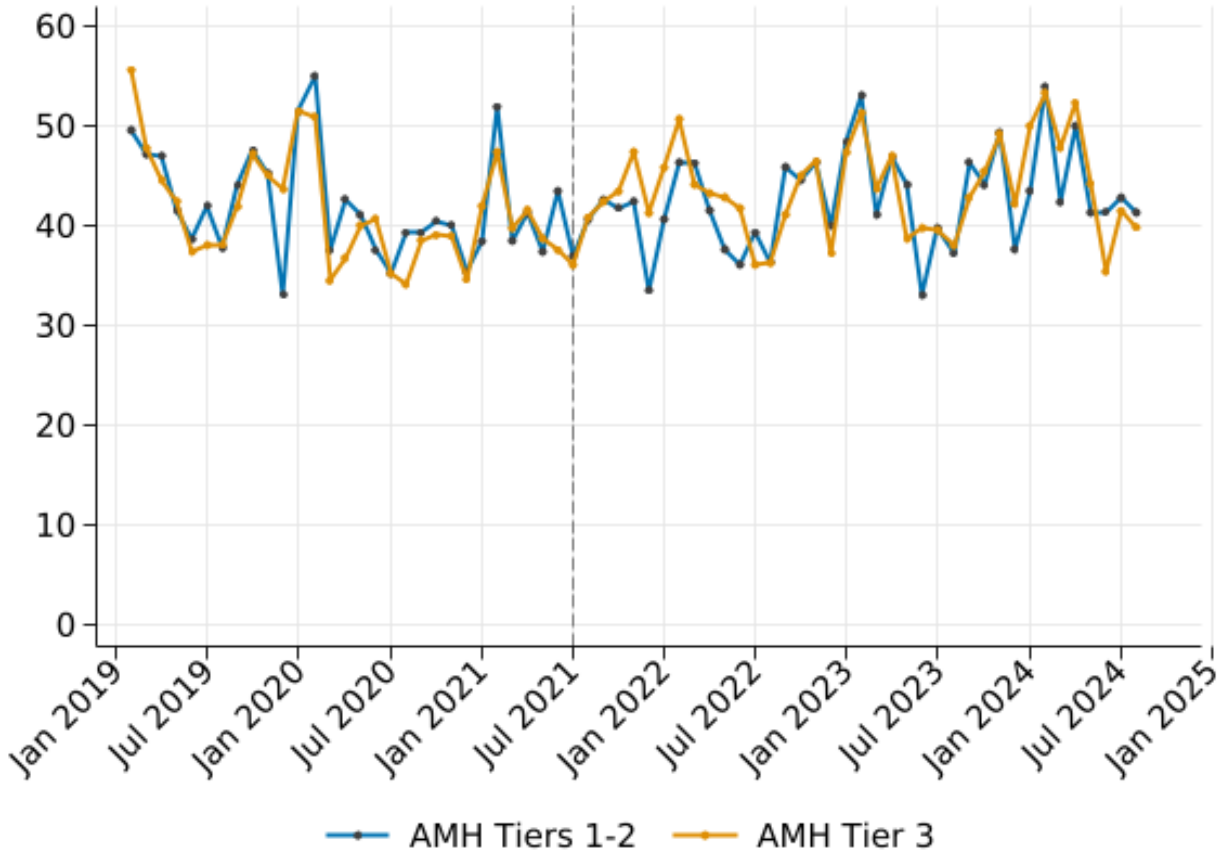


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Follow-up Care for Children Prescribed ADHD Medication (ADD)

Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation ‡ (Figure)

Figure 22: Trends in Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation ‡ (Table)

Table 12: Difference-in-Differences Estimates of Follow-up Care for Children Prescribed ADHD Medication (ADD): Initiation

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-15.80*** (-19.86,-11.74)	-16.02*** (-19.98,-12.06)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	-0.473 (-2.898,1.953)	2.488* (0.417,4.559)
DiD estimate(post*AMH Tier 3 practices)	1.339 (-1.020,3.697)	1.305 (-0.900,3.511)
N	96,459	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

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Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation ‡ (Figure)

Figure 23: Trends in Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation ‡ (Table)

Table 13: Difference-in-Differences Estimates of Follow-up Care for Children Prescribed ADHD Medication (ADD): Continuation

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-20.10*** (-24.34,-15.86)	-20.96*** (-25.11,-16.80)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	-1.038 (-3.380,1.304)	1.692 (-0.682,4.066)
DiD estimate(post*AMH Tier 3 practices)	2.108 (-0.508,4.725)	2.410 (-0.0187,4.838)
N	83,460	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 6-12) in the NC Medicaid population as determined in the metric specifications.*

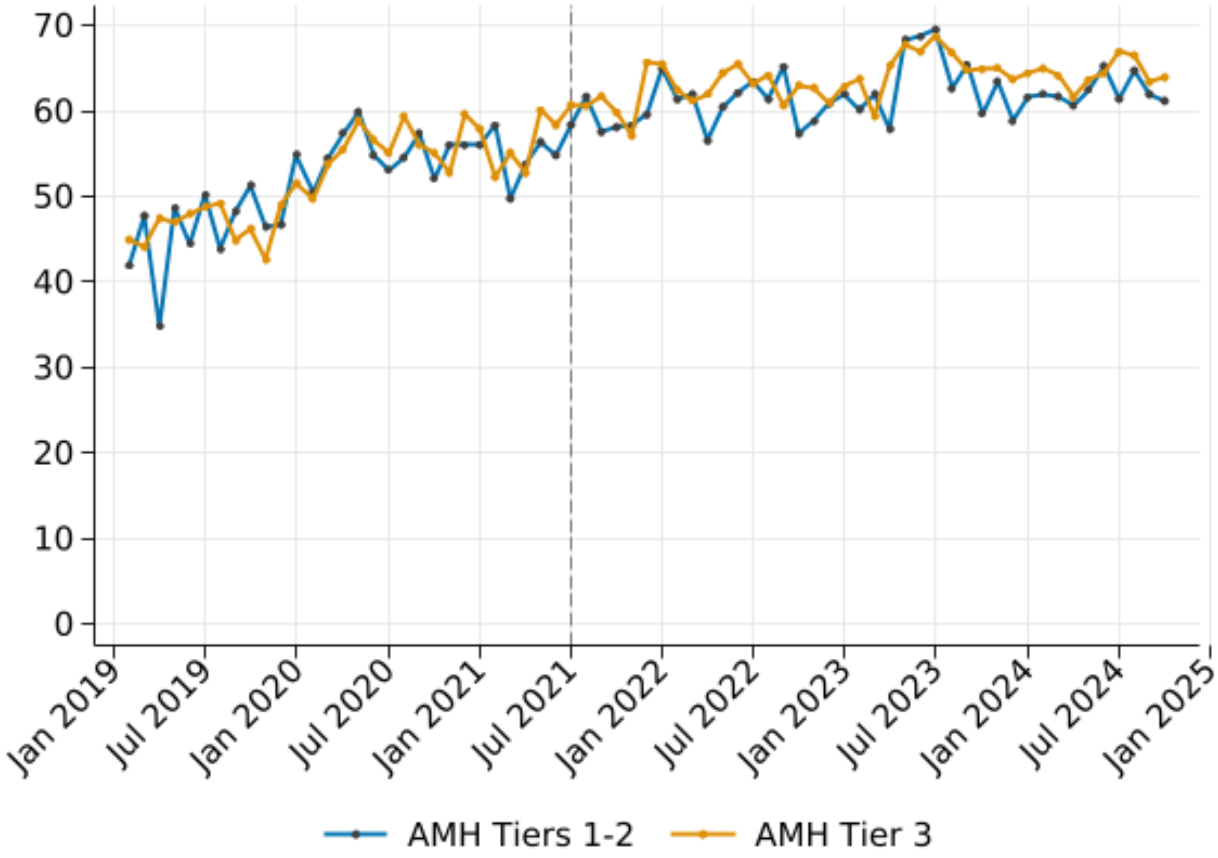
‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

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Antidepressant Medication Management (AMM)

Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days ‡ (Figure)

Figure 24: Trends in Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates should be interpreted with caution, as pre-period trends are not parallel, suggesting that AMH Tier 1–2 practices may not be suitable comparison groups for AMH Tier 3 practices for this metric. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days ‡ (Table)

Table 14: Difference-in-Differences Estimates of Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 84 Days

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	18.25*** (13.89,22.61)	19.68*** (15.42,23.95)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.948 (-0.802,2.697)	0.684 (-0.776,2.143)
DiD estimate(post*AMH Tier 3 practices)	0.812 (-0.960,2.585)	-0.694 (-2.394,1.007)
N	95,546	

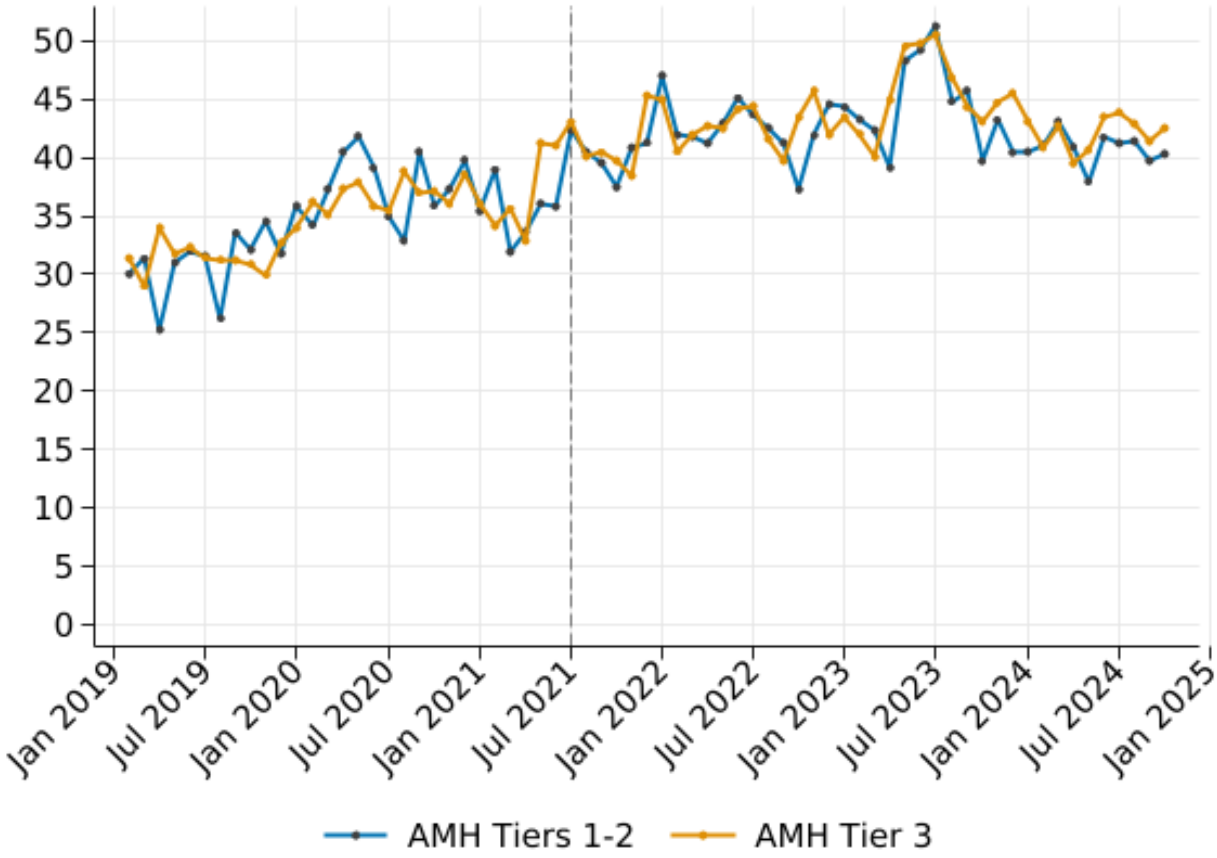
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

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Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days ‡ (Figure)

Figure 25: Trends in Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates should be interpreted with caution, as pre-period trends are not parallel, suggesting that AMH Tier 1–2 practices may not be suitable comparison groups for AMH Tier 3 practices for this metric. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days ‡ (Table)

Table 15: Difference-in-Differences Estimates of Antidepressant Medication Management (AMM): For Those who Remained on Antidepressant Medication for at least 180 Days

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	10.74*** (6.508,14.98)	12.23*** (8.151,16.32)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.616 (-1.014,2.245)	0.889 (-0.368,2.146)
DiD estimate(post*AMH Tier 3 practices)	0.114 (-1.636,1.865)	-1.368 (-2.913,0.176)
N	95,546	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

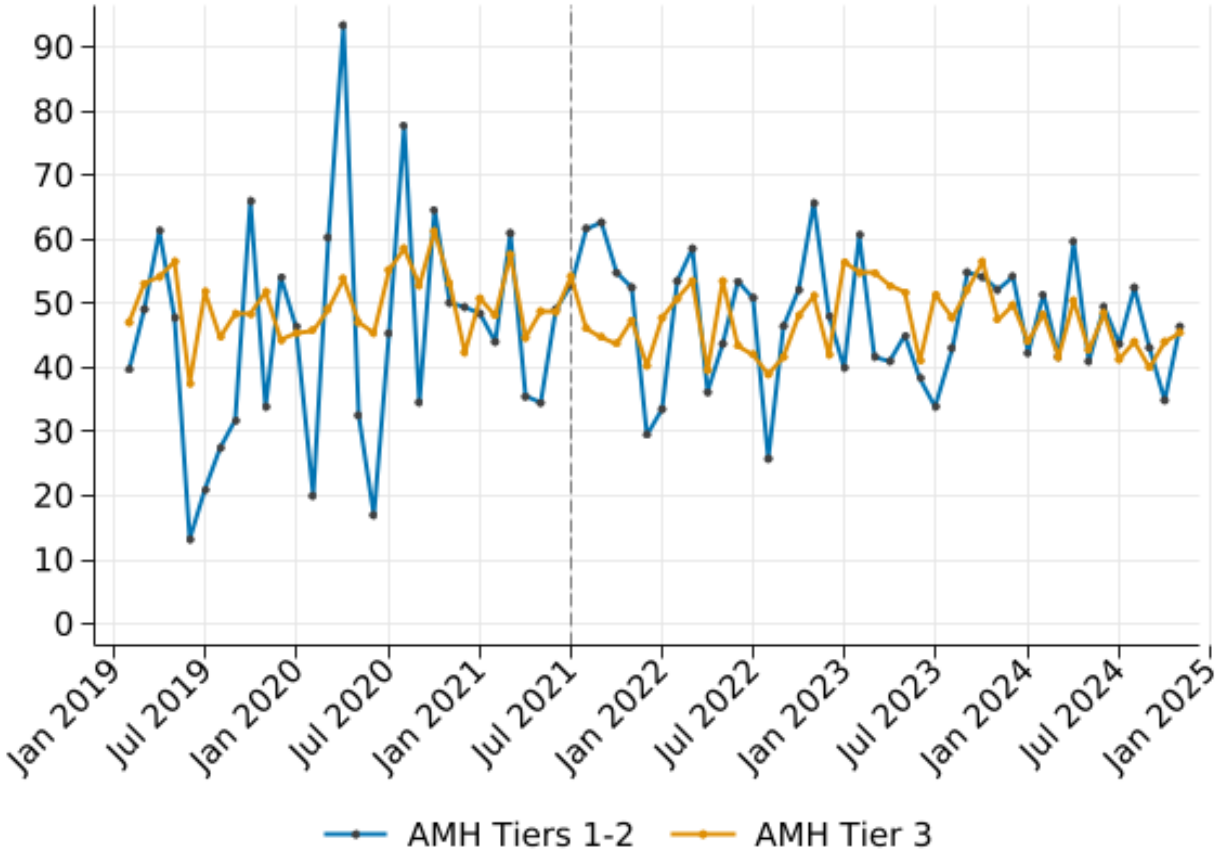
‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

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Follow-up After Hospitalization for Mental Illness (FUH)

Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge ‡ (Figure)

Figure 26: Trends in Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 6-17) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge ‡ (Table)

Table 16: Difference-in-Differences Estimates of Follow-up After Hospitalization for Mental Illness in Children (FUH): 7 days after discharge

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	3.865 (-9.336,17.07)	3.765 (-7.594,15.12)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	5.017 (-1.928,11.96)	2.798 (-1.879,7.474)
DiD estimate(post*AMH Tier 3 practices)	-4.979 (-12.11,2.152)	-3.542 (-8.840,1.757)
N	10,977	

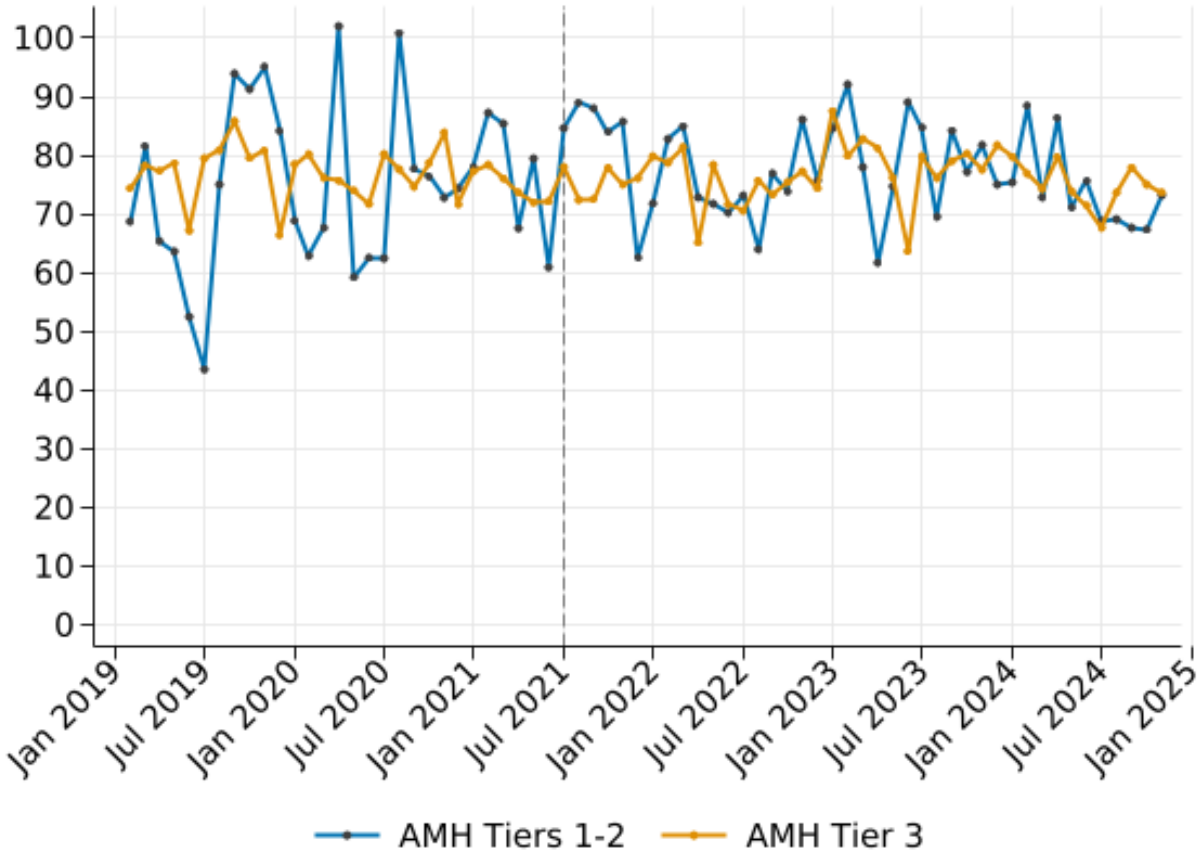
*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 6-17) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

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Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge ‡ (Figure)

Figure 27: Trends in Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 6-17) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge ‡ (Table)

Table 17: Difference-in-Differences Estimates of Follow-up After Hospitalization for Mental Illness in Children (FUH): 30 days after discharge

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	1.393 (-10.90,13.68)	4.387 (-6.244,15.02)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.534 (-5.558,6.626)	0.856 (-3.004,4.717)
DiD estimate(post*AMH Tier 3 practices)	-1.585 (-7.725,4.554)	-1.675 (-6.261,2.910)
N	10,977	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 6-17) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

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Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge ‡ (Figure)

Figure 28: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge ‡ (Table)

Table 18: Difference-in-Differences Estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 7 days after discharge

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-13.28 (-28.36,1.811)	-14.26* (-27.21,-1.319)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	-2.534 (-8.883,3.815)	-2.025 (-6.275,2.224)
DiD estimate(post*AMH Tier 3 practices)	1.758 (-4.341,7.857)	1.312 (-3.327,5.950)
N	14,290	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

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Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge ‡ (Figure)

Figure 29: Trends in Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.

‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge ‡ (Table)

Table 19: Difference-in-Differences Estimates of Follow-up After Hospitalization for Mental Illness in Adults (FUH): 30 days after discharge

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	-11.72 (-25.02,1.582)	-10.25 (-21.60,1.106)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	-10.03** (-16.60,-3.460)	-5.789* (-10.24,-1.336)
DiD estimate(post*AMH Tier 3 practices)	7.505* (1.253,13.76)	4.782 (-0.0424,9.607)
N	14,290	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 18+) in the NC Medicaid population as determined in the metric specifications.*

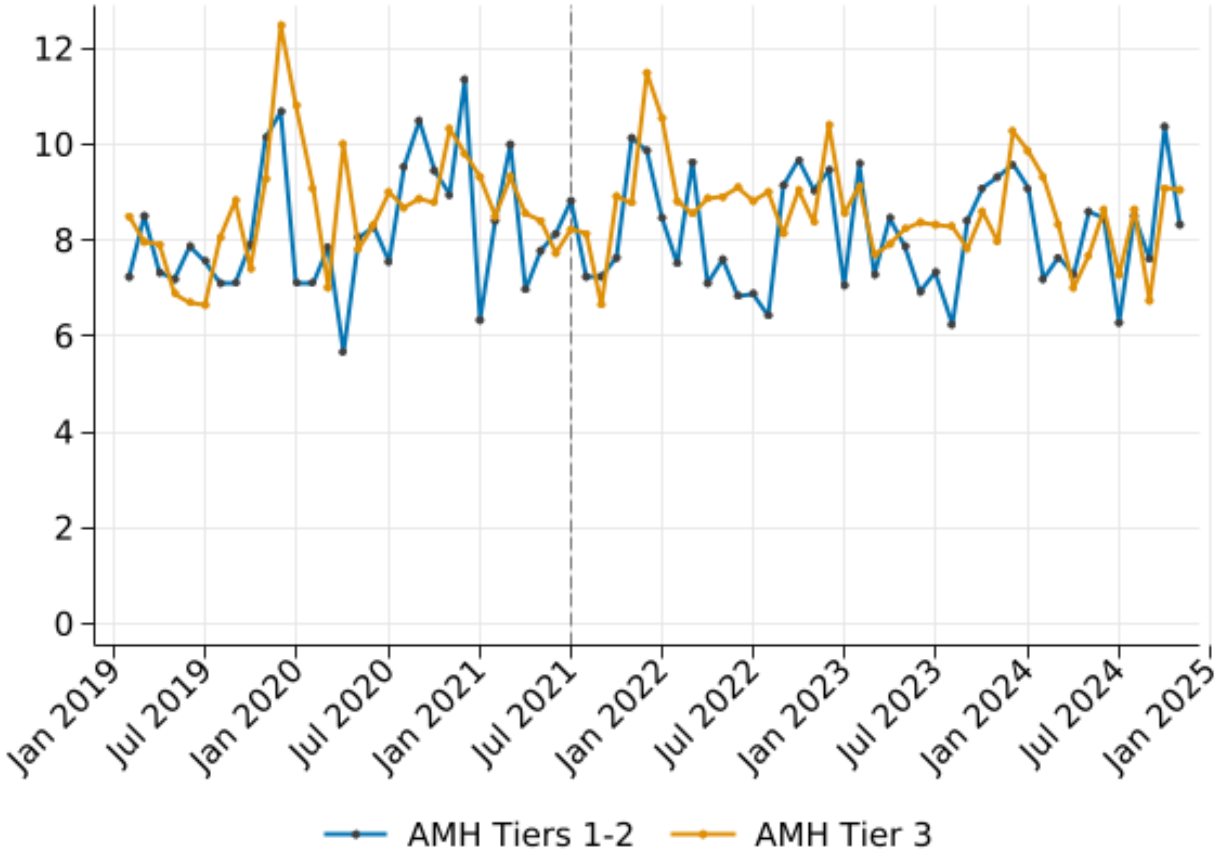
‡ The baseline sample consists of proxy SP-eligible members identified using the Sheps SP proxy method.

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Plan All-Cause Readmissions (PCR)

Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions (Figure)

Figure 30: Trends in Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. Estimates were generated from the population of individuals (aged 18-64) in the NC Medicaid population as determined in the metric specifications.

Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions (Table)

Table 20: Difference-in-Differences Estimates of Plan All-Cause Readmissions (PCR): Percent of Observed 30-Day All-Cause Readmissions

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	0.663 (-0.993,2.319)	0.946 (-0.677,2.569)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.416 (-0.291,1.123)	-0.0356 (-0.552,0.481)
DiD estimate(post*AMH Tier 3 practices)	0.00929 (-0.732,0.750)	-0.190 (-0.818,0.438)
N	177,422	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from the population of individuals (aged 18-64) in the NC Medicaid population as determined in the metric specifications.*

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Percent of Enrollees Receiving Care Management

Percent of Enrollees Receiving Care Management (Figure)

Figure 31: Trends in Percent of Enrollees Receiving Care Management



Notes: Trends are marginal effects from a multivariate difference-in-difference model described in Methods. NA Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.

Percent of Enrollees Receiving Care Management (Table)

Table 21: Difference-in-Differences Estimates of Percent of Enrollees Receiving Care Management

	NPI Fixed Effects	No Fixed Effects
Difference between post plan launch and pre launch	1.047** (0.417, 1.676)	1.470*** (1.101, 1.839)
Difference between AMH Tier 3 practices and AMH Tier 1-2 practices	0.158 (-0.476, 0.791)	0.392*** (0.252, 0.533)
DiD estimate(post*AMH Tier 3 practices)	1.487*** (0.937, 2.037)	1.390*** (0.760, 2.019)
N	19,282,504	

*Notes: 95% confidence intervals in parentheses. * = p<0.05. Average marginal effects are predictions from a multivariate difference-in-difference model as described in Methods. Estimates were generated from a random 20% sample of individuals (aged 0-99) in the NC Medicaid population as determined in the metric specifications.*

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