

RAPID CYCLE ASSESSMENT 1

# NC Healthy Opportunities Pilots

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*Commissioned for: North Carolina Department of Health and Human Services – Division of Health Benefits*

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## Executive Summary

Health is affected by many factors beyond the medical care provided within the walls of a hospital or clinic. As such, the North Carolina Healthy Opportunities Pilots are testing evidence-based, non-medical interventions for their direct impact on North Carolina’s Medicaid beneficiaries’ health outcomes and healthcare costs.

North Carolina’s Section 1115 Medicaid Demonstration Waiver entitled “North Carolina Medicaid Reform” was approved to cover the period November 1, 2019 through October 31, 2024. One aspect of that Demonstration Waiver is the State of North Carolina’s Enhanced Case Management and Other Services Pilot (ECM), which is more commonly referred to as the Healthy Opportunities Pilots (abbreviated as the ‘Pilots’ or ‘HOP’). Owing to the national context of the COVID-19 pandemic and local context such as the delay in transition to Medicaid managed care, the Pilots did not begin providing services until March 15, 2022. Thus the Pilots have been actively delivering services for only a relatively short time.

The purpose of this first Rapid Cycle Assessment is to provide information to guide continued service delivery and programmatic adjustments for the Pilots. This assessment includes data regarding preparations for service delivery and delivery of services from March 15, 2022 to November 30, 2022. All data used in this assessment were received by January 4, 2023. This report is specific to the Pilots and does not cover other elements of the 1115 Waiver. It is also not meant to be as comprehensive as subsequent interim or final evaluations.

The Pilots aim to test evidence-based, non-medical interventions for their direct impact on North Carolina’s Medicaid beneficiaries’ health outcomes and healthcare costs, with the purpose of incorporating findings into the Medicaid program. As part of NCDHHS’ commitment to promote health equity by building a well-coordinated system that “buys health”, as well as healthcare, the Pilots require Prepaid Health Plans (PHPs) to cover federally approved, evidence-based interventions that address social needs in four domains: housing instability, transportation insecurity, food insecurity, and interpersonal violence/toxic stress for qualifying Medicaid beneficiaries. PHPs and their care managers are responsible for determining who is eligible to receive the services and which services they will receive.

HOP services are delivered through innovative regional networks of community-based organizations and social services agencies (collectively called ‘human service organizations’ [HSOs]) to address needs across all domains. Each regional network is established, managed and overseen by

Network Leads (NLs) (previously referred to as Lead Pilot Entities or LPEs), organizations that serve as the essential connection between PHPs and HSOs, along with clinical care teams when appropriate. Network Leads are local organizations, embedded in the communities they serve. On May 27, 2021, following a competitive procurement process, NCDHHS announced the selection of three NLs to contract with the PHPs to develop, manage and oversee a network of HSOs providing pilot services to their eligible enrollees: Access East, Inc., Community Care of the Lower Cape Fear, and Impact Health/Dogwood Health Trust. Regions selected included rural communities, and communities where members experience health inequity.

Pilot services began with a phased launch—first offering food services on March 15, 2022, followed by housing and transportation services on May 1, 2022, and toxic stress and cross-domain services on June 15, 2022. Interpersonal violence (IPV)-related services are scheduled to begin in April 2023 and were not delivered during this assessment period.

This assessment primarily covers two principal topics related to the Pilots, corresponding to Evaluation Question 1 (“Effective Delivery of Pilot Services”) and Evaluation Question 3 (“Improved Social Risk Factors”) in the approved Evaluation Design. In brief, these topics address Pilot program operations, including development of the necessary infrastructure to deliver services in the Pilots and how receipt of those services may affect health-related social needs, such as food, housing, and transportation. In this reporting period, the assessment focused on Pilot operations, and did not make comparisons between those receiving Pilot services and other Medicaid beneficiaries.

Several methods were used for this Rapid Cycle Assessment. To better understand how NLs and HSOs were preparing to deliver Pilot services, we surveyed and conducted qualitative interviews with NL and HSO staff in the lead up to full implementation of the Pilots’ services. Further, we analyzed operational data regarding enrollments in the Pilots, assessment of health-related social needs, delivery of services, and amounts invoiced for services. In addition, we conducted individual-level interrupted time series regression analyses to investigate how the total number of health-related social needs and risk for specific health-related social needs changed over time in response to Pilots participation. Finally, we investigated whether specific services, such as delivered meals, had differential impact on risk for the needs they were meant to address.

The findings of the assessment are largely positive, but also suggest some clear areas of emphasis where current activities may need to be modified in order to better achieve the goals the state of North Carolina has set for the Pilots.



North Carolina's goal of establishing effective multi-sector collaboration between the state, PHPs, healthcare systems, and HSOs has been achieved. Although there are always areas of operations that can be improved, this was a major undertaking completed in a relatively compressed timeframe after unavoidable disruption due to the COVID-19 pandemic. In preparation to deliver services, staff at NLs and HSOs interviewed expressed concern about the scale of the task and the differences between the structure of the Pilots and their usual methods of operation, including interfacing with the Medicaid regulatory environment. NLs and HSOs began by collaborating with a core group of other organizations they had previously worked with, but substantially grew their collaborations so that a wide array of Pilot services could be offered.

From the perspective of NLs and HSOs, benefits of participating in HOP include building networks of collaboration, supporting growth of HSOs, and improving community health and wellness. Components of HOP that NLs and HSOs thought were key to success included support for capacity building, facilitating of communication between PHPs, NLs, and HSOs, and detailed planning for the complicated logistics of delivery Pilot services to a large number of participants.

Operational data reveals that despite challenges, Pilot services are being delivered successfully. As of November 30, 2022, 2,705 unique individuals have been enrolled, and 14,427 services have been delivered across many different intervention types by 84 HSOs. Initial assessments of social needs occur quickly (most commonly at the time of enrollment). Within the data used for this report, 63% of those who enrolled—1,713 out of 2,705 Pilot participants—had received at least one invoiced service, with more participants in the pipeline to receive services as time progresses. Further, there can be a lag between service delivery and invoicing for services. Services delivered typically began quickly—over 75% of services had a start of service date within 2 weeks of enrollment in the Pilots. The rate of service receipt varied across need types. 68% of individuals reporting a food need received an invoiced food service during this period, while 40% of those reporting a housing need received an invoiced housing service, and 16% of those reporting a transportation need received an invoiced transportation service. This difference may reflect both the phased rollout of services, with food services preceding all other services, and the complexity of delivering services to address the varying needs. For example, housing shortages are common in many communities served by the Pilots, and the availability of transportation resources varies across communities as well. Very few cross-domain services were invoiced during this period, and no toxic stress services were invoiced during this evaluation period. Further, no IPV-related

services were invoiced, as these services are not yet offered. Food services constituted the majority (90%) of services delivered.

Invoices for services were paid in a timely fashion. 56.2% of invoices were paid within 30 days, 90.3% within 60 days, and 97.9% within 90 days. This is important as a major goal of the Pilots was to ensure that HSOs, many of which historically depend on grant funding received prior to delivery of services, could operate successfully with a financing model that includes payments made after services were delivered.

Overall, the evidence regarding the effectiveness of Pilot services at addressing social needs was mixed. As anticipated, we observed an initial increase in recorded needs as needs are identified by detailed assessments around the time of enrolling in the Pilots, followed by a decrease in needs as Pilot services address them. However, the magnitude of the decrease in needs was small and may not be clinically meaningful. For example, we estimated that soon after enrollment in the Pilots, individuals reported an average of 1.73 needs, which declined to 1.68 needs at 90 days after enrollment. While statistically significant, whether a decrease of this magnitude is likely to improve health, healthcare utilization, or healthcare cost is unclear. Although prior studies have shown that improvements in social needs can be seen within 90 days, this is still a very brief time period for assessment, and greater changes may become evident over longer periods of observation. At present, there have not been enough individuals with longer Pilot participation to examine needs at 180 or 365 days. Such analyses will be reported in subsequent assessments.

When examining specific needs, we estimated that the probability of an individual reporting a food need at 90 days after Pilot enrollment (0.85) was almost identical to the probability around the time of enrollment (0.86). Similarly, the probability of reporting a housing need was 0.55 around the time of enrollment and still 0.55 at 90 days after Pilot enrollment, and the probability of reporting a transportation need was 0.31 around the time of enrollment and 0.29 at 90 days after Pilot enrollment. IPV-related and toxic stress needs were not reported very frequently during this evaluation period, so we cannot draw conclusions about changes in those need types (and again, IPV-related services were not yet available in this time period). Two key limitations in interpreting these findings, however, are the relatively short enrollment time for most Pilot participants, and the possibility of bias owing to differential reassessment such that those whose needs went unmet were reassessed more frequently than those whose needs were met and required less contact with Pilot staff.

We observed interesting findings regarding specific services. A key rationale for conducting and evaluating the Pilots is that there are often different services that might plausibly address a need, without sufficient comparative effectiveness evidence to choose one over another. For example, both a food subsidy (such as a fruit and vegetable prescription) and delivery of healthy meals might address food needs, but which is more effective is not clear. We did find suggestions of variations across intervention types. Healthy meal delivery was associated with lower probability of reporting a food need at 90 days of enrollment in the Pilots than other food services offered within the Pilots like fruit and vegetable prescriptions and food boxes, and these differences were large enough that they may be clinically meaningful. For example, the probability of reporting a food need at 90 days was 0.08 lower (95% Confidence Interval [CI]: 0.12 lower to 0.02 lower,  $p = .001$ ) with delivered meals compared with fruit and vegetable prescriptions. Similarly, with regard to housing services, tenancy support and sustaining services (which provide one-to-one case management and/or educational services to prepare an enrollee for stable, long-term housing) were associated with lower probability of reporting a housing need after 90 days of Pilot enrollment than other types of housing services.

These findings thus support the rationale of using the Pilots to develop evidence on the comparative effectiveness of social needs interventions, so that the State of North Carolina can make an evidence-informed decision as to what services to offer for all Medicaid beneficiaries in subsequent years. However, these findings should also be interpreted cautiously at this time, as receipt of services was not randomly assigned, and thus the association observed may be confounded. Subsequent stages of the evaluation will be better able to address this potential threat to the validity of the findings.

There are several key findings of this first Rapid Cycle Assessment. First, the major achievement is the establishment of the infrastructure necessary for the Pilots to function. This included necessary information technology platforms, the legal and regulatory agreements necessary for the state of North Carolina, prepaid health plans, network leads, human services organizations, and healthcare organizations to collaborate, integrating HSOs into the healthcare ecosystem, and the interpersonal work of making these relationships productive. The successful accomplishment of this undertaking has allowed for large-scale delivery of Pilot services across three regions of the state.

Next, the ability to address some questions of interest in this assessment was hindered by the number of individuals enrolled in the Pilots. The Pilots were designed to ramp up during this assessment period, and so the enrollment numbers may reflect that. Another explanatory factor could be that methods of social need assessment and enrollment require iteration. In any event, working to increase

enrollment in the Pilots is a major goal going forward. Next, delivery of services to those who enrolled in the Pilots has had both bright spots and limitations. Around two-thirds of those who enrolled in the Pilots have received invoiced services to date. This includes almost half of those reporting a housing need receiving housing services, which is a notoriously difficult need to address. It is likely that this percentage will rise as services that have already been delivered are invoiced, and those in the pipeline to receive services receive them. At the same time, working to ensure as high a percentage of individuals who enroll in the Pilots as possible receive services is another major goal. Strategies to boost this number could include making modifications to the selection of services available and/or the process for Pilot participants to receive services.

Next, reports of social needs followed an expected pattern. Needs were highest around the time of Pilot enrollment and decreased over time. However, the magnitude of the decrease observed has been small so far. This deserves attention, as decreasing needs is a key channel through which the Pilots can achieve the overall goal of improving health, healthcare utilization, and healthcare cost. Nevertheless, it is important to recognize that this may be due to the relatively short period of time most individuals have been in the Pilots. Finally, we observed potential variation in the effectiveness of different interventions, which is consistent with a key justification for the overall approach taken by the Pilots of generating comparative effectiveness data for evaluation.

The results of this assessment have led to the following 4 recommendations:

1. Continue to Accelerate Enrollment in the Healthy Opportunities Pilots. This assessment period coincided with a planned ramp-up of Pilot services, which meant lower enrollment earlier in the period, and growing enrollment later in the assessment period. In subsequent assessment periods, greater enrollment in the Pilots is likely to be beneficial both for Medicaid beneficiaries and for the purposes of evaluation. If Medicaid beneficiaries who could benefit from Pilot services are not enrolled, it could leave them in need. Greater enrollment would also help increase the power of evaluation activities, and permit evaluation of a broader set of questions. This is particularly important for detecting differences in response to services across groups, and for more in-depth analysis of groups that are of interest to the state of North Carolina, but are less common among Pilot participants, such as pregnant individuals. Without adequate numbers of individuals from categories of interest, there will be substantial uncertainty in any conclusions drawn from evaluation activities.

2. Ensure High Rates of Service Delivery. We found that around one third of individuals who enrolled in the Pilots did not have an invoice for Pilot services at time of the evaluation. This does not necessarily mean these individuals will not receive any Pilot services—this observation could reflect a lag in data from delivery of services to invoicing for them, or simply reflect the time needed for services to be arranged after enrollment in the Pilots. However, ensuring that as many individuals who enroll in the Pilots as possible do receive services is an important goal for the Pilots. Continuing to monitor service delivery will be important in subsequent periods.
3. Collect Repeated Needs Assessments. As of this report, the short duration of participation for many individuals in the Pilots means that sufficient time for repeated needs assessments to occur may not yet have elapsed. However, ensuring these assessments do occur in subsequent periods is an important goal. A key feature of the Pilots is the use of needs assessments to help determine whether Pilot services are having their intended effect. If the services are not reducing needs, it is less likely that they will improve health, healthcare utilization, or healthcare spending. Finding that needs persist despite receiving services means that alternative services could be offered. On the other hand, if needs are being met, this would suggest that services are working and should be continued, if the Pilot participant so desires. In addition, repeated assessments can serve to evaluate whether Pilot services are having their intended effect and suggest whether course corrections in service delivery are needed, which may increase the likelihood of achieving hoped-for effects in the summative phase of the evaluation. Thus, repeated assessment of needs periodically throughout Pilot participation is an important part of the program—both for participants and for NLs and HSOs who want to ensure the services being delivered are working as intended. As time goes on, it will be important to ensure processes for routine collection of health-related social needs information are implemented with fidelity.
4. We Do Not Recommend Changes to Services at This Time. In this initial Rapid Cycle Assessment, we noted interesting signals that some services may be more effective at reducing needs than others. However, these should be interpreted as preliminary findings at this time. The associations observed may be confounded, and the sample sizes are small. Thus, we believe the best course of action is to continue delivering services to more Pilot participants, in order to collect more data. When more data are in hand, informed decisions about which services to continue, modify, or discontinue can be made. Although we do not recommend changes to specific services offered by the Pilots at this time, we do recommend that the State of North

Carolina continue with the efforts it is making for operational improvements to the Pilots. Such planned improvements include those related to capacity building funding, streamlining the process of Pilot enrollment, and making the NCCARE360 data platform more user friendly. These improvements that the State of North Carolina plans to make are in accord with feedback provided by NLs and HSOs in surveys and qualitative interviews.

## General Background Information

Health is affected by many factors beyond the medical care provided within the walls of a hospital or clinic. While access to high-quality medical care is critical, social and environmental factors and the behaviors that emerge as a result are also important determinants of health.<sup>1,2</sup> A substantial body of research has established that having an unmet resource need—including experiencing housing instability<sup>3</sup>, food insecurity<sup>4</sup>, unmet transportation needs<sup>5</sup>, and interpersonal violence or toxic stress<sup>6,7</sup>—can significantly and negatively impact health and well-being, as well as increase healthcare utilization and costs.<sup>1,8-11</sup> Addressing those needs can potentially improve health and healthcare utilization, which in turn can lower healthcare costs. For example, research indicates that providing housing assistance to adults who have physical and/or behavioral co-morbidities and are experiencing homelessness decreases unnecessary use of hospital care and associated healthcare costs.<sup>12-14</sup> Similarly, reducing the presence of asthma triggers (such as moldy carpets and broken air conditioners) in a child’s home can reduce hospital visits and related costs<sup>15,16</sup>, and nutritional assistance interventions have been associated with lower healthcare costs for food insecure individuals.<sup>17,18</sup> Notably, however, much of the research conducted to date has evaluated discrete interventions for specific, high-need populations, leaving unanswered critical questions regarding whether— and how—to scale and sustainably fund the integration of non-medical services into the healthcare system on a population-wide basis.

As such, the North Carolina Healthy Opportunities Pilots are testing evidence-based non-medical interventions for their direct impact on North Carolina Medicaid beneficiaries’ health outcomes and healthcare costs.

North Carolina’s Section 1115 Medicaid Demonstration Waiver entitled “North Carolina Medicaid Reform” was approved to cover the period November 1, 2019 through October 31, 2024. The University of North Carolina at Chapel Hill Cecil G. Sheps Center for Health Services Research (the Sheps Center) was selected by NCDHHS (The North Carolina Department of Health and Human Services), Division of Health Benefits (External Evaluation Services Contract #30-2021-017-DHB) to evaluate one aspect of that Demonstration Waiver, the State of North Carolina’s Enhanced Case Management and Other Services Pilot (ECM), now more commonly referred to as the Healthy Opportunities Pilots (‘HOP’ or the ‘Pilots’). The ECM evaluation design approved by the Centers for Medicare & Medicaid Services (CMS) on August 15, 2019, is included as an Attachment. This report analyzes data about Pilot activities beginning prior to the commencement of service delivery on March 15, 2022, and continuing to include

all data received by January 4, 2023. This report is specific to the Pilots and does not cover other elements of the 1115 waiver.

Planned implementation of the Pilots was affected by both the COVID-19 pandemic nationally, and the delay of implementing Medicaid managed care in the state of North Carolina. This has meant that Pilot services have only been delivered for a relatively brief period of time to date.

### [HOP Program Overview: Buying Health with Regional Collaboration](#)

North Carolina designed the Pilots to test evidence-based, non-medical interventions for their direct impact on North Carolina Medicaid beneficiaries' health outcomes and healthcare costs, with the purpose of incorporating findings into the Medicaid program. NC Medicaid's vision is to "to improve health through an equitable, innovative, whole-person centered and well-coordinated system of care that addresses the medical and non-medical drivers of health." To help fulfill this vision, the Pilots require Prepaid Health Plans (PHPs) to cover evidence-based interventions that address four domains: housing instability, transportation insecurity, food insecurity, and interpersonal violence/toxic stress for a subset of Medicaid beneficiaries. PHPs and their care managers are responsible for determining who is eligible to receive the services and which services they will receive.

HOP services are delivered through innovative regional networks of community-based organizations and social services agencies (collectively called 'human service organizations' [HSOs]) to address needs across all domains. Each regional network is established, managed, and overseen by Network Leads (NLs) (previously referred to as Lead Pilot Entities or LPEs), organizations that serve as the essential connection between PHPs and HSOs, along with clinical care teams when appropriate. Network Leads are local organizations, embedded in the communities they serve. On May 27, 2021, following a competitive procurement process, NCDHHS announced the selection of three NLs to contract with the PHPs to develop, manage and oversee a network of HSOs providing pilot services to their eligible enrollees (see **Figure 1**).



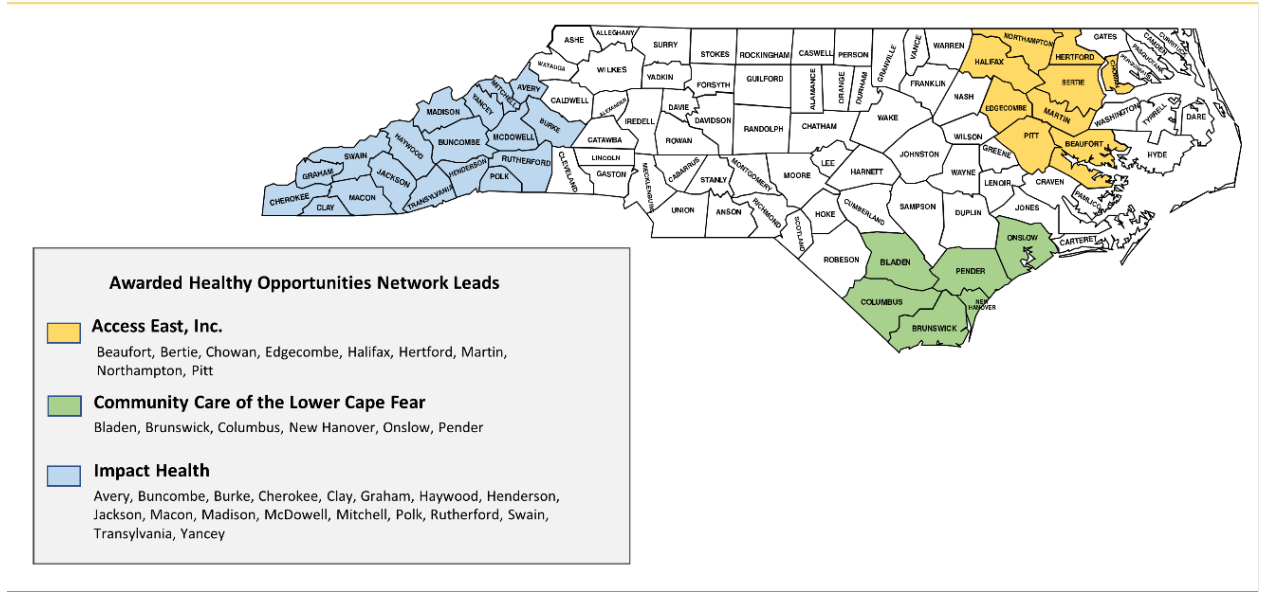


Figure 1: Pilot Regions (source NCDHHS)

Coordination among these entities, and infrastructure necessary to support it, are intended to help address beneficiaries’ non-medical needs in a way that conventional healthcare has not been able to do. Relationships between entities are depicted in **Figure 2**.

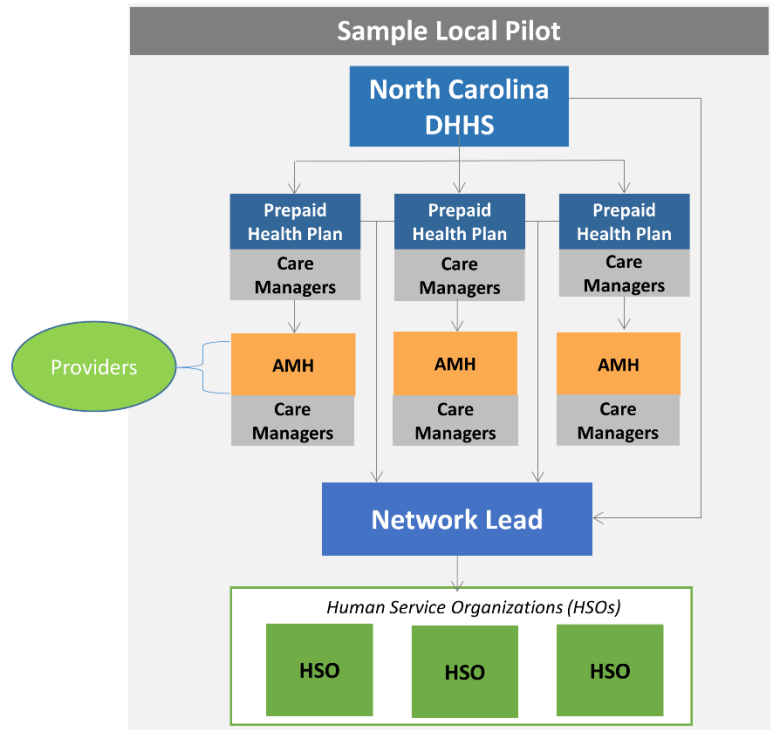


Figure 2: Schematic of Pilot Organization (Source: NCDHHS)

The primary responsibilities of the entities involved in delivering Pilot services across PHPs, Care Managers, NLs, and HSOs are depicted in **Figure 3**. Care Managers can be embedded within PHPs, or

within local Tier 3 Advanced Medical Homes (AMH) (which provide primary care) or their affiliated Clinically Integrated Networks (CIN).

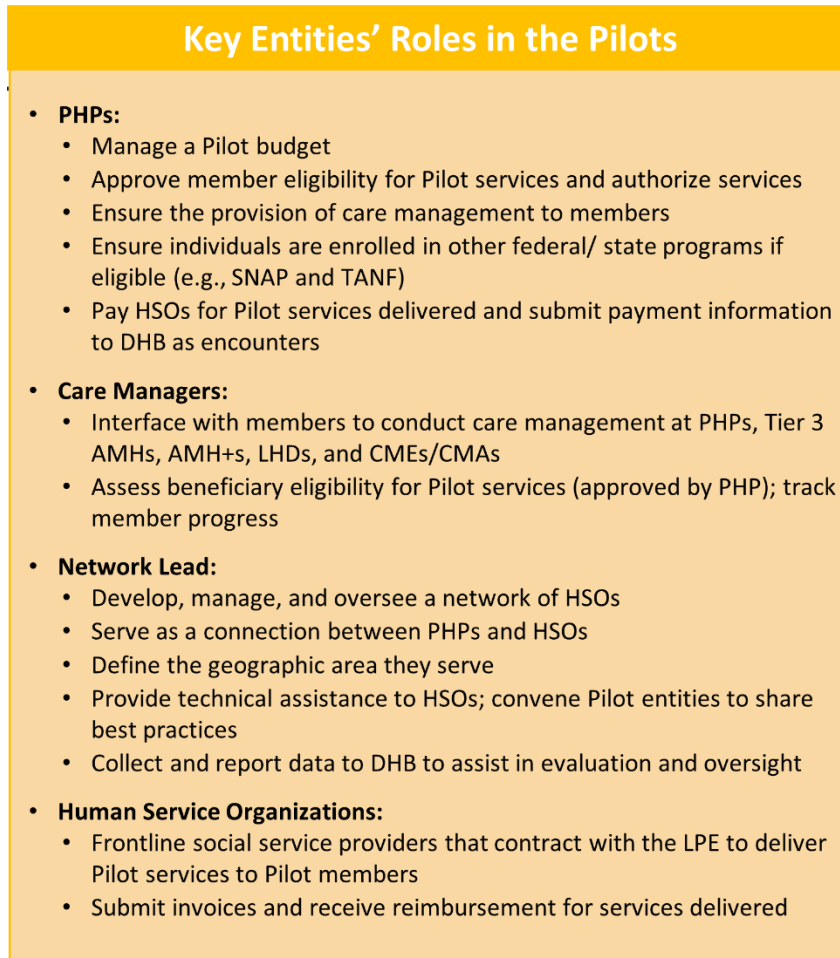


Figure 3: Roles of Entities in the Pilots (Source: NCDHHS)






## HOP Implementation Timeline & Services Domains

On March 15, 2022, delivery of food service launched in all three Pilot regions, followed by housing and transportation on May 1, 2022. Cross-domain and toxic stress services became available on June 15, 2022. Delivery of IPV-related services is planned to begin in April 2023. These services were not available during this assessment period. Examples of Pilot services are presented in **Figure 4**. The Healthy

Opportunities Pilots Fee Schedule, which provides a more complete description of the services, is provided as an attachment.

### What Services Can Members Receive Through the Pilots?

**North Carolina’s Pilot Service Fee Schedule defines and prices 29 services that HSOs can offer as part of the Pilot. Examples include:**

 <b>Food</b> <ul style="list-style-type: none"> <li>• Linkages to community-based food resources (e.g., SNAP/WIC application support)</li> <li>• Nutrition and cooking education</li> <li>• Fruit and vegetable prescriptions and healthy food boxes/meals</li> <li>• Medically tailored meal delivery</li> </ul>	 <b>Housing</b> <ul style="list-style-type: none"> <li>• Housing navigation, support and sustaining services</li> <li>• Housing quality and safety inspections and improvements</li> <li>• One-time payment for security deposit and first month’s rent</li> <li>• Short-term post hospitalization housing</li> </ul>	 <b>Transportation</b> <ul style="list-style-type: none"> <li>• Linkages to existing transportation resources</li> <li>• Payment for transportation to support access to pilot services, (e.g., bus passes, taxi vouchers, ride-sharing credits)</li> </ul>	 <b>Interpersonal Violence</b> <ul style="list-style-type: none"> <li>• Case management/advocacy for victims of violence</li> <li>• Evidence-based parenting support programs</li> <li>• Evidence-based home visiting services</li> </ul>	 <b>Cross-Domain</b> <ul style="list-style-type: none"> <li>• Holistic high intensity enhanced case management</li> <li>• Medical respite</li> <li>• Linkages to health-related legal supports</li> </ul>
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Pilot service definitions and fee schedule: [https://www.manatt.com/Manatt/media/Documents/Articles/NC-Pilot-Service-Fee-Schedule\\_Final-for-Webpage.pdf](https://www.manatt.com/Manatt/media/Documents/Articles/NC-Pilot-Service-Fee-Schedule_Final-for-Webpage.pdf) 1

Figure 4: Example Pilot Services (Source: NCDHHS)

### Populations Served: Health Needs & Social Risk Factors

The Pilots provide services for certain high-risk, high-need individuals who live in a Pilot region and meet criteria for physical/behavioral health and social risk factors. The physical/behavioral health criteria as approved in the Evaluation Design are presented in **Table 1**, and the health-related social needs that serve as social risk factors as approved in the 1115 Waiver revision are presented in **Table 2**. We note that although changes to the physical/behavioral health factors were approved as part of an 1115 Waiver revision, these were not implemented during the assessment period, and so **Table 1** reflects the relevant criteria for this assessment period.

Table 1: Physical/Behavioral Health Needs -Based Criteria

Eligibility Category	Age	Needs-Based Criteria (at least one, per eligibility category)
Adults	≥21	<ul style="list-style-type: none"> <li>2 or more chronic conditions. Chronic conditions that qualify an individual for pilot enrollment include: BMI over 25, blindness, chronic cardiovascular disease, chronic pulmonary disease, congenital anomalies, chronic disease of the alimentary system, substance use disorder, chronic endocrine and cognitive conditions, chronic musculoskeletal conditions, chronic neurological disease and chronic renal failure, in accordance with Social Security Act section 1945(h)(2).</li> <li>Repeated incidents of emergency department use (defined as more than four visits per year) or hospital admissions (≥1 in past year).</li> </ul>
Pregnant Individuals	Any	<ul style="list-style-type: none"> <li>Multifetal gestation</li> <li>Chronic condition likely to complicate pregnancy, including hypertension and mental illness</li> <li>Current or recent (month prior to learning of pregnancy) use of drugs or heavy alcohol</li> <li>Adolescent ≤ 15 years of age</li> <li>Advanced maternal age, ≥ 40 years of age</li> <li>Less than one year since last delivery</li> <li>History of poor birth outcome including: preterm birth, low birthweight, fetal death, neonatal death</li> </ul>
Children	0-3	<ul style="list-style-type: none"> <li>Neonatal intensive care unit graduate</li> <li>Neonatal Abstinence Syndrome</li> <li>Prematurity, defined by births that occur at or before 36 completed weeks gestation</li> <li>Low birth weight, defined as weighing less than 2500 grams or 5 pounds 8 ounces upon birth</li> <li>Positive maternal depression screen at an infant well-visit</li> </ul>
	0-21	<ul style="list-style-type: none"> <li>One or more significant uncontrolled chronic conditions or one or more controlled chronic conditions that have a high risk of becoming uncontrolled due to unmet social need, including: asthma, diabetes, underweight or overweight/obesity as defined by having a BMI of &lt;5th or &gt;85th %ile for age and gender, developmental delay, cognitive impairment, substance use disorder, behavioral/mental health diagnosis (including a diagnosis under DC: 0-5), attention- deficit/hyperactivity disorder, and learning disorders</li> <li>Experiencing three or more categories of adverse childhood experiences (e.g. Psychological, Physical, or Sexual Abuse, or Household dysfunction related to substance abuse, mental illness, parental violence, criminal behavioral in household)</li> </ul>

Table 1: Physical/Behavioral Health Needs -Based Criteria

Eligibility Category	Age	Needs-Based Criteria (at least one, per eligibility category)
		<ul style="list-style-type: none"> <li>Enrolled in North Carolina's foster care or kinship placement system</li> </ul>

Table 2: Social Risk Factors

Risk Factor	Definition
Homelessness or housing insecurity	Homelessness, as defined in 42 C.F.R. § 254b(h)(5)(A), or housing insecurity, as defined based on the principles in the questions used to establish housing insecurity in the Accountable Health Communities Health Related Screening Tool or the North Carolina Social Determinants of Health (SDOH) screening tool.
Food Insecurity	As defined by the US Department of Agriculture commissioned report on Food Insecurity in America: <ul style="list-style-type: none"> <li>Low Food Security: reports of reduced quality, variety, or desirability of diet. Little or no indication of reduced food intake.</li> <li>Very low food security: Reports of multiple indications of disrupted eating patterns and reduced food intake</li> <li>Or food insecure as defined based on the principles in the questions used to establish food insecurity in the North Carolina Social Determinants of Health (SDOH) screening tool.</li> </ul>
Transportation Insecurity	Defined based on the principles in the questions used to establish transportation insecurities in the Accountable Health Communities Health Related Screening Tool or the North Carolina SDOH screening tool.
At risk of, witnessing, or experiencing interpersonal violence	Defined based on the principles in the questions used to establish interpersonal violence in the Accountable Health Communities Health Related Screening Tool or the North Carolina SDOH screening tool.

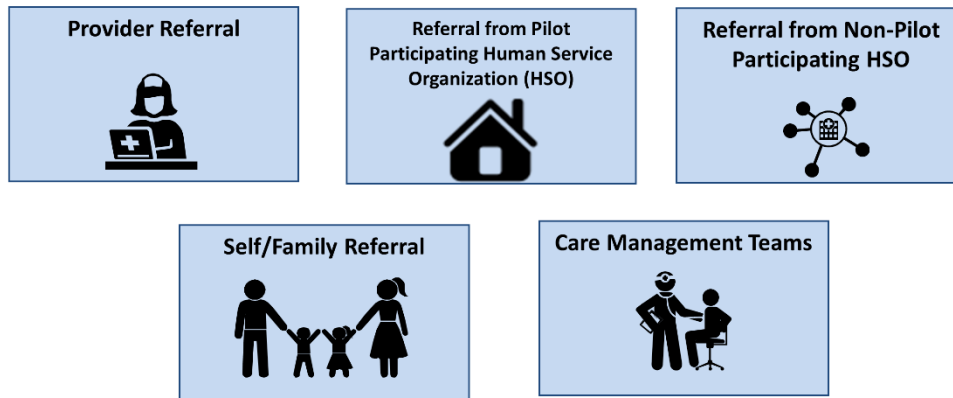
### Member Participation: Screening & Care Management

During this assessment period, outreach to Medicaid Managed Care members living in Pilot regions was led by PHPs and their care management teams, with support from NLs and HSOs. PHP HOP Care Managers use the standardized Pilot Eligibility and Service Assessment (PESA) tool in NCCARE360, NC's statewide resource and referral platform, to guide and document initial Pilot eligibility determination,

service mix review every three months, and continuing eligibility determination every six months. DHHS leadership consistently articulated a “no wrong door” approach (see **Figure 5**) to support members to get screened and connected to services using various referral pathways.

## No Wrong Door: Multiple Entry Points into the Pilots

The Pilots were designed to have a no wrong door policy. In addition to being proactively identified by a Health Plan, potentially Pilot eligible individuals may be identified via one of the other pathways below.



Health Plans must ensure there are multiple mechanisms for providers, HSOs members/families to submit referrals for Pilot eligibility to a member’s Plan. *When potential Pilot eligible members are identified, Plans must notify the member’s assigned care manager within 10 business days to initiate the Pilot eligibility assessment and service recommendation process.*

Figure 5: Entry into the Pilots (Source: NCDHHS)

## Goals of Rapid Cycle Assessment

This report describes the first Rapid Cycle Assessment (RCA), conducted as part of the overall evaluation of the Pilots. As described in the approved evaluation design:

*“The goal of the rapid cycle assessment<sup>19,20</sup> phase of the evaluation is to determine, as quickly as possible, if the Pilots are operating as intended and whether Pilot services are having their intended effects on targeted populations. By using an iterative process, North Carolina will be able to collect data to test the services, examine the results, and modify services or adopt a different service as appropriate.*

*The goal of the RCA is to provide results to North Carolina so that appropriate steps can be taken to modify Pilot services, as needed, in order to maximize their effectiveness and discontinue services that are less effective to ensure dollars are spent on services with a demonstrated impact. During this phase, the major comparisons will be within intervention recipients, before and after they receive intervention, using interrupted time series designs.”*

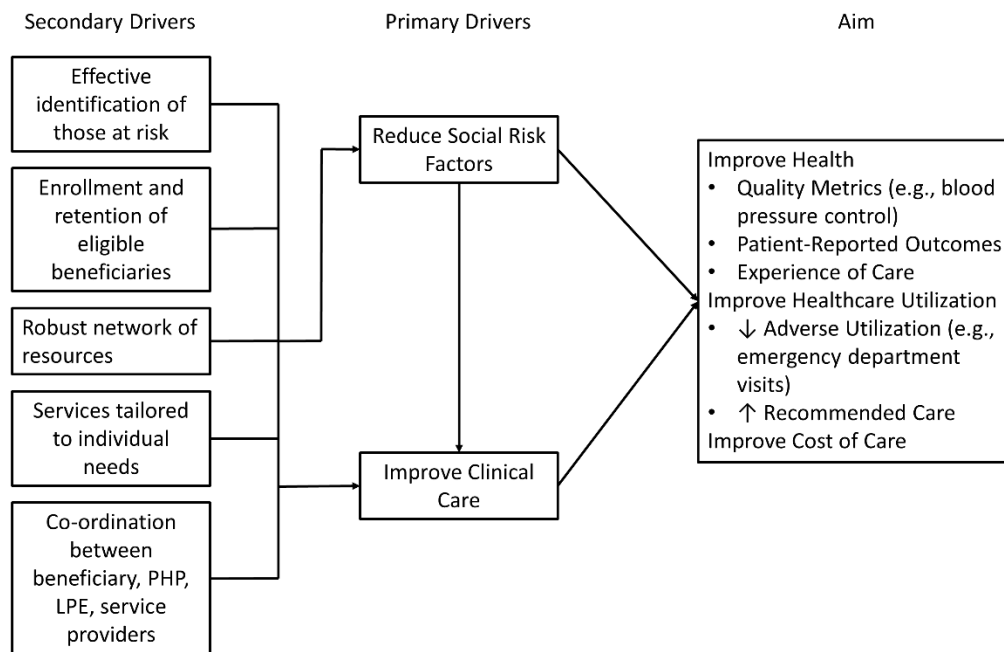


Figure 6: Driver Diagram

As described in the Evaluation Design, the RCAs have different areas of emphasis depending on their timing relative to the delivery of Pilot services. In this first report, the emphasis is on factors

related to initial delivery of Pilot services, enrolling Pilot participants, and resolution of social needs. This is in keeping with the theory of change depicted in the Driver Diagram (**Figure 6**), which sees identification of individuals with social risk factors, and enrollment and retention of those individuals in services to reduce those risks, as key parts of the process that is expected, ultimately, to lead to improved health, healthcare utilization, and cost of care.

For this reason, this RCA report focuses on analyses related to Evaluation Questions 1, 2, and 3 (described in more detail in the next section), which deal with topics of screening for social risks, enrolling participants, delivering Pilot services, and reducing social risks. Subsequent evaluation activities will shift emphasis to analyses of Evaluation Questions 4, 5, and 6, which deal with topics of clinical outcomes, healthcare utilization, and healthcare cost. Ultimately, the summative evaluation report will synthesize findings across all evaluation questions.



## Evaluation Questions and Hypotheses

The state of North Carolina's overall goal is to improve North Carolina's Medicaid beneficiaries' health, healthcare utilization, and healthcare spending by building a well-coordinated system that "buys health" as well as healthcare. Evaluating how well the Pilots achieve that goal involves evaluating specific questions related to program performance. As discussed above in reference to the Driver Diagram that depicts the underlying logic of the Pilots, one key component of successfully achieving the goals of the Pilots involves identifying beneficiaries with social needs that affect health, enrolling them in the Pilots, and delivering services to them that address those needs. Achieving those goals promotes the objectives of Titles XIX and XXI by helping to improve health for Medicaid beneficiaries. This RCA Report describes analyses that break these pieces into the following Evaluation Questions and Hypotheses:

- Evaluation Question 1 ("Effective Delivery of Pilot Services") analyses relate to activities undertaken by NLs and HSOs to establish the necessary infrastructure, workforce, and data systems needed to effectively contract with and build the capacity of a network of HSOs, and to deliver Pilot services once established. Overall, Evaluation Question 1 analyses help test the hypothesis that NLs will enable effective delivery of Pilot services
- Evaluation Question 2 ("Increased Rates of Social Risk Factor Screening and Connection to Appropriate Services") analyses relate to how the coordinated activities of PHPs, NLs, and HSOs facilitate screening for social risk factors/needs in Pilot regions, and connect a higher proportion of those with social risk factors/needs to services to address those needs in Pilot regions, compared with non-Pilot regions that do not have these coordinated activities. Overall, Evaluation Question 2 analyses help test the hypothesis that the Pilots will increase rates of Medicaid beneficiaries screened for social risk factors and connected to services that address these risk factors.
- Evaluation Question 3 ("Improved Social Risk Factors") analyses relate to improving the social risk factors that Pilot members experience, across all eligibility categories: adults, pregnant individuals, children ages 0 to 21, and the subset of children age 0 to 3. Evaluation Question 3 analyses help test the hypothesis that the Pilots will measurably improve the qualifying social risk factors in participants.

There are three other Evaluation Questions that are part of the overall evaluation of the Pilots, but were planned to be undertaken after this initial rapid cycle assessment. These Evaluation Questions relate to changes in clinical outcomes (Evaluation Question 4), changes in healthcare utilization (Evaluation Question 5), and changes in healthcare cost (Evaluation Question 6). Evaluation activities to address these questions will occur in subsequent periods.

## Methodology

### Evaluation Design

In this reporting period, Evaluation Question 1 (“Effective Delivery of Pilot Services”) activities used three evaluation designs: primary data collection using quantitative surveying of NL and HSO staff members, primary data collection using qualitative interviewing of NL and HSO staff members, and secondary analyses of Pilot operations data from the NCCARE360 platform and NC Medicaid administrative files.

For quantitative surveying, names and email addresses of NL and HSO staff were provided to the UNC Sheps Center for Health Services Research (The Sheps Center) evaluation team for the purpose of recruitment. A link to an anonymous REDCap survey was emailed to each participant. Participants provided informed consent prior to completing the survey. All surveys were completed between April and July 2022. Surveys included both close-ended questions and open-ended questions to understand readiness to implement pilot services and network connections.

For qualitative interviewing, names and email addresses of NL and HSO staff members were provided to the evaluation team for the purpose of recruitment. After providing informed consent, a Zoom video interview was scheduled. Open-ended, in-depth questions were posed during the interviews. All interviews were conducted around the time service delivery began, between April and July 2022, and ranged from 20-70 minutes.

Evaluation Question 1 (“Effective Delivery of Pilot Services”) is descriptive and explanatory in nature, and so it does not involve comparisons or inferential statistics.

In this reporting period, we planned to use a cross-sectional comparative design for Evaluation Question 2 (“Increased Rates of Social Risk Factor Screening and Connection to Appropriate Services”) analyses, comparing Medicaid beneficiaries in regions that did versus did not have operating HOP programs. We were not able to complete these analyses owing to lack of data. This is explained in more detail in the Methodological Limitations section below.

In this reporting period, Evaluation Question 3 (“Improved Social Risk Factors”) activities used two designs: A within-participant comparison evaluating the prevalence and number of health-related social needs as a function of time and Pilot participation, and a between-participant comparison,

evaluating the prevalence of health-related social needs as a function of time and receipt of specific Pilot services.

### Target and Comparison Populations

For Evaluation Question 1 (“Effective Delivery of Pilot Services”) analyses in this reporting period, which related to establishment of the infrastructure necessary to deliver Pilot services and services delivered, the target population for the quantitative surveying and qualitative interviews were NL and HSO staff members. The target population for the secondary data analyses of Pilot operations data was Pilot participants.

For Evaluation Question 2 analyses in this reporting period, which related to comparisons of screening for social risks and delivering services to those with social risks in the Pilot and non-Pilot regions, the target population was Medicaid beneficiaries in the Pilot regions, and the comparison population was intended to be Medicaid beneficiaries in non-Pilot regions.

For Evaluation Question 3 (“Improved Social Risk Factors”) analyses in this reporting period, which related to changes in social risks, the target population was Pilot participants. Comparisons were made both within-participant (i.e., comparing how health-related social needs changed over time) and between participants who received different Pilot services (e.g., examining whether Pilot participants who received one type of service related to a food need had outcomes that differed from Pilot participants who received a different type of service for a food need).

### Evaluation Period

The data used for this report were received on Jan 4, 2023. The last date of Pilot enrollment in the data received was November 30, 2022. Therefore, the evaluation period for this report, across Evaluation Questions 1, 2, and 3, covers March 15, 2022 through November 30, 2022.

### Evaluation Measures

Measures used for this evaluation period are presented in the below table, **Table 3**. The Sheps Center was the steward for all measures.

Table 3: Measures Used in Rapid Cycle Assessment Report

Measure Name	Measure Description
Positive Screens for Unmet Social Needs	The percentage of beneficiaries who reported unmet social needs within NCCARE360 data within measurement period, reported by non-mutually exclusive categories of: <ul style="list-style-type: none"> <li>• Food Insecurity</li> <li>• Housing Instability or Homelessness</li> <li>• Transportation Barrier</li> <li>• Experience Interpersonal Violence or Toxic Stress-related concern</li> </ul>
Positive Screens for Unmet Social Needs Connected to Services	The percentage of beneficiaries who reported unmet social needs within NCCARE360 data within measurement period, who received at least 1 invoiced service to address their needs
Number of Participants Served	The total number of participants who received at least 1 invoiced Pilot service in the reporting period
Payment Completion	Percentage of completed payments made to HSOs
Payment Lag Time	Time from receipt of service to payment completion
Pilot Participants	Number of Medicaid members who enrolled in the Pilots
Dollars paid	Dollar amount paid
Mean Payment Lag	Mean calendar days from HSO creating invoice to NL to PHP effectuating payment to HSO
Total amount invoiced	Total dollar amount invoiced
HSO Referrals	Number of referrals sent to human service organizations (HSO)
Services Invoiced	Number of services invoiced for during the assessment period
Mean business days from Pilot eligibility assessment to service delivery	Mean number of days between Pilot eligibility assessment and delivery of first invoiced Pilot service for those who enrolled in the Pilots

## Data Sources

In this reporting period, Evaluation Question 1 (“Effective Delivery of Pilot Services”) activities used three data sources: primary data collection using quantitative surveying of NL and HSO staff members, conducted by the Sheps Center, primary data collection using qualitative interviewing of NL and HSO staff members, conducted by the Sheps Center, and secondary analyses of Pilot operations data from the NCCARE360 platform and NC Medicaid administrative files. Data cleaning and validation for quantitative surveys and qualitative interviews was conducted by the Sheps Center. Data cleaning and validation for NCCARE360 and NC Medicaid data was conducted by Unite Us, NCDHHS, and the Sheps Center. Unite Us is a software company that helped develop the NCCARE360 information technology platform in collaboration with United Way/211, Expound, and the Foundation for Health Leadership and Innovation, used for Pilot enrollment, tracking, referrals, and invoicing.

In this reporting period, Evaluation Question 3 (“Improved Social Risk Factors”) activities used data from the NCCARE360 platform and NC Medicaid administrative files. Data cleaning and validation for NCCARE360 and NC Medicaid data was conducted by Unite Us, NCDHHS, and the Sheps Center.

## Analytic Methods

In this reporting period, the analytic methods for Evaluation Question 1 (“Effective Delivery of Pilot Services”) activities varied by data type. For analyses of quantitative surveys, we conducted descriptive statistics and plotting of findings.

For analyses of qualitative interviews, all interviews were audio-recorded with participant permission and transcribed verbatim. Identifiable information was removed from the transcripts prior to analysis. Audio files and transcriptions were stored on the secure password protected server available only to evaluation team members. Transcripts were reviewed with the audio files for accuracy and completeness. Once completed, all transcripts were imported in ATLAS.ti 9., a qualitative software program, to facilitate analysis. A directed form of content analysis was used to analyze data. Prior to analysis, a codebook was created collaboratively with the project team based on (1) the CFIR (Consolidated Framework for Implementation Research) conceptual framework<sup>21</sup>, (2) the evaluation questions, and (3) specific topics related to the interview guide. During the coding process, inductively derived codes were developed as needed to fully capture all relevant information. The transcripts were

coded by two independent coders who met to compare and reconcile any coding discrepancies. Once coding was complete, data were put into a matrix and themes were identified.

For analyses of NCCARE360 and NC Medicaid data, we conducted descriptive statistics of program administration data.

In this reporting period, the analytic methods for Evaluation Question 3 (“Improved Social Risk Factors”) consisted of descriptive statistics and individual-level interrupted time series regression analyses. Interrupted time series regression analyses generally took two forms, depending on whether they were evaluating reductions in social risks associated with Pilot participation overall (i.e., evaluating the impact of Pilot participation on social risks), or with receipt of specific Pilot services (i.e., evaluating the comparative effectiveness of different interventions on social risks). For individual-level interrupted time series regressions evaluating social risks associated with Pilot participation overall, regression models generally took the form:

$$Y_{ij} = \beta_0 + \beta_1 \mathit{Participation}_{ij} + \beta_2 \mathit{Time}_{ij} + \beta_3 \mathit{Participation}_{ij} * \mathit{Time}_{ij} + \varepsilon$$

Where  $i$  indexes a unique individual observed on a particular day  $j$ .  $Y$  represents the outcome, participation is an indicator of whether a participant was participating in the Pilots on the date of observation, time indicates the number of days relative to the participant’s initial enrollment in the pilots, with an error term. The coefficient on participation provides an estimate of the change in level of the outcome associated with Pilot participation, while the coefficient on the participation\*time product term provides an estimate of the trend of change in the outcome associated with Pilot participation. Standard errors were clustered at the level of the individual, which is the level of treatment for these analyses.<sup>22</sup> After fitting models, we used predictive margins to target an average treatment effect on the treated (ATT) estimand, comparing needs around the start of HOP enrollment to needs at 90 days.

For individual-level interrupted time series regressions evaluating social risks associated with receipt of specific Pilot services, regression models generally took the form:

$$Y_{ij} = \beta_0 + \beta_1 \mathit{Intervention}_{ij} + \beta_2 \mathit{Time}_{ij} + \beta_3 \mathit{Intervention}_{ij} * \mathit{Time}_{ij} + \varepsilon$$

Where  $i$  indexes a unique individual observed on a particular day  $j$ .  $Y$  represents the outcome, time indicates the number of days relative to the participant’s initial enrollment in the Pilot, intervention indicates the specific pilot service the participant was receiving, with an error term. The coefficient on intervention provides an estimate of the change in level of the outcome associated with receipt of a

specific service, compared with those receiving other services, while the coefficient on the intervention\*time product term provides an estimate of the difference in trend of change in the outcome associated with receiving a specific, compared with those receiving other services. The services of interest and their comparisons vary for different social risks. For example, for food risks, we compared the relative impact of receiving a food voucher versus a food box. This structure of an interrupted time series analysis, comparing different types of interventions, is mathematically identical to a difference-in-differences analysis. We again clustered standard errors at the level of the individual. Further, we again used predictive margins after fitting the models to target an ATT estimand, comparing needs across intervention types at 90 days of HOP participation. Improvements in social needs after 90 days has been found in prior randomized trials.<sup>23</sup> We consider this to be the minimum time point at which an improvement may be expected.

We used linear regression to estimate interrupted times series model for outcomes of total needs and specific needs. We chose to use linear regression models even for dichotomous specific need outcomes to aid interpretability of model coefficients, especially as the coefficients on product terms in non-linear models do not have a clear interpretation.<sup>24,25</sup> The trade-off for this, however, is the possibility of 'out-of-bounds' estimates (i.e., estimates  $< 0$  or  $> 1$  for outcomes that cannot fall out of this range), especially when uncertainty is high. We did not view this as problematic as these cases occur when estimates are highly uncertain anyway, and so we do not believe this affects interpretation of the results.



## Methodological Limitations

We divide this section into limitations related to the methods used overall, and limitations related to the specific data available (or not available) for this assessment period.

Regarding methodological limitations overall, for Evaluation Question 1 (“Effective Delivery of Pilot Services”) activities, methodological limitations of the quantitative surveys include non-response, which may mean that the respondents were not a representative sample of all NL and HSO staff members. However, we believe response was sufficient to provide a meaningful snapshot of NL and HSO organizations as they prepared to deliver services.

For Evaluation Question 2 (“Increased Rates of Social Risk Factor Screening and Connection to Appropriate Services”) activities, the main methodological limitations relate to the possibility that screening data were not recorded, which could bias comparisons.

For Evaluation Question 3 (“Improved Social Risk Factors”) activities, the main methodological limitation is that some analyses use within-participant comparisons, without an external comparison group. This means that regression to the mean is an important threat to validity for these analyses. As justified in the Evaluation Design, this was a known limitation, one that was viewed as acceptable during this formative phase of the evaluation in order to facilitate delivery of Pilot services and provide feedback to NL and HSO organizations in order to make course corrections. The results of these analyses are not definitive, but instead meant to inform Pilot operations. The later summative evaluation phase will use comparisons that will not be subject to this limitation. Overall, at this point in the evaluation, we believe that the analyses are sufficiently informative to be useful guides as to program operations, while recognizing that they are not definitive determinations of the effectiveness of the Pilots. A second limitation is that if there is differential loss to follow-up (i.e., whether an individual completes a repeated assessment is correlated with whether their needs are or are not improving), that can bias results. The solution to this is to encourage that follow-up data collection is as complete as possible for all participants.

A third limitation for Evaluation Question 3 (“Improved Social Risk Factors”) activities is that when comparing the relative impact of different services (e.g., food boxes versus food vouchers), assignment to the specific service was non-random. Therefore, there may be aspects of the individual’s

circumstances that confound receipt of the services. Regression adjustment can help mitigate this if the factors that produce the confounding were measured, but unmeasured confounding cannot be excluded. Later periods in the evaluation use different study designs to help overcome this issue, so present results should be interpreted as preliminary.

There were three sets of analyses we were unable to complete during this RCA period owing to lack of data availability. We will complete these analyses and report their results in subsequent evaluation periods as the necessary data become available. Lack of necessary data most importantly affected Evaluation Question 2 (“Increased Rates of Social Risk Factor Screening and Connection to Appropriate Services”) analyses. Lack of data affected Evaluation Question 1 (“Effective Delivery of Pilot Services”) analyses in a more limited way. The analyses we were unable to complete were:

- Evaluation Question 2 (“Increased Rates of Social Risk Factor Screening and Connection to Appropriate Services”) analyses that entailed comparing Medicaid beneficiaries in the Pilot regions and the non-Pilot regions on screening for social risks and connection to services to address those risks. We were unable to complete these analyses because we have only received data on social risk screening results for participants in the Pilots, and we have not received data on screening for non-Pilot participants. We anticipate receiving the necessary data in subsequent periods, and we believe we will be able to complete these analyses as planned before the end of the evaluation. Since this RCA report focuses on the performance of the Pilots in order to make adjustments, we do not believe that lack of these data presents a meaningful limitation to the reported results.
- Evaluation Question 1 (“Effective Delivery of Pilot Services”) analyses related to number of beneficiaries screened. As with analyses related to Evaluation Question 2 (“Increased Rates of Social Risk Factor Screening and Connection to Appropriate Services”), because we only received data on screening results for Pilot participants, we were not able to assess the number of individuals who had health-related social needs assessments and screened negative, within Pilot regions. Thus, we could not determine the rate of positive screening or the number of individuals who received health-related social needs screening.
- Evaluation Question 1 (“Effective Delivery of Pilot Services”) analyses related to participant reason for ending Pilot enrollment. In the evaluation design, we planned to analyze the number of participants who completed Pilot participation, withdrew from participation, or were lost to

follow-up. We do not receive individual-level data that provide reasons that participants end Pilot participation. We do receive information at the referral-level regarding why a specific referral was closed, but this is different from why an individual may end participation in the Pilots overall. We will work to identify the necessary data sources for these analyses and include them in subsequent evaluation reports.

## Results

### Evaluation Question 1

#### Quantitative Surveying

The quantitative survey administered to NL and HSO staff collected data on demographics, assessed organizational readiness to begin delivering Pilot services using the ORIC (Organizational Readiness for Implementing Change) survey<sup>26</sup>, and assessed network connections between organizations. Overall, there were 19 complete responses out of 37 invited to participate (response rate: 51%). All three Pilot regions were represented. The mean age of the respondents was 38.3 years (SD: 8.2), 74% identified as women, 47% identified as non-Hispanic/Latino White, and 42% identified as non-Hispanic/Latino Black. 12 respondents worked for HSOs, and respondents from both NLs and HSOs worked in leadership, management, administration, and sectoral support.

Responses to the organizational readiness survey both overall and stratified by Pilot region, are presented in **Table 4**. The organizational readiness survey has 7 total items, which are scored on a Likert scale with 1 = strongly disagree and 5 = strongly agree. Higher scores indicate greater readiness to change. Responses are summarized as an overall score (all 7 items), a commitment to change sub-score (2 items), and a change efficacy sub-score (5 items). Overall, scores reflected a moderate level of readiness to implement Pilot programs, as assessed by NLs and HSOs.

**Table 4: Organizational Readiness for Implementing Change Survey Results**

	Overall		Access East		Cape Fear		Impact Health	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Total Score (Range: 7-35)	25.68	2.81	26.86	1.86	25.75	2.06	24.63	3.58
Commitment to change sub-score (Range: 2-10)	7.84	0.50	8.00	0.00	8.00	0.00	7.63	0.74
Change efficacy sub-score (Range: 5-25)	17.84	2.59	18.86	1.86	17.75	2.06	17.00	3.25

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Greater scores indicate increasing readiness, commitment, and/or efficacy for change

Analyses of network connectivity suggest that NLs and HSOs in this sample report strong connections to both NL and HSO organizational partners. NL and HSO respondents report past collaborations with those they are collaborating with in the Pilots, strong personal connections, and a high frequency of communication. There are, however, important variations by network and geography, with certain areas having more organizational connectivity than others. For example, organizations in the Access East network reported a higher number of organizational partners than those in Impact Health or Cape Fear. Similarly, certain counties are better connected organizationally than others; Pitt County, for example, had stronger reported organizational connections than Pasquotank County, both in the Access East network.

#### *Survey Items Capturing Organizational Connectivity*

The survey asked respondents to report on the relationships between their organization and other organizations they were working with as part of the Pilots. The survey asked respondents to name organizations that their organization works with. For each named organizational partner, respondents were asked about the nature of the relationship between their organization and the partner over the last 3-6 months. This came in the form of two questions, capturing connection and collaboration.

For connection, respondents were asked to rate their level of connection to an organizational partner on a scale of 0-3:

0=No Connection: I don't know this organization

1=Light Connection: I had heard of this organization but did not have a personal or professional relationship with them.

2=Good Connection: I have a personal or professional relationship with this organization, but only occasionally communicate with them.

3=Strong connection. I have a personal or professional relationship with this organization, and I regularly communicate with them.

For collaboration, respondents were asked to rate their level of collaboration with an organizational partner on a scale of 0-2:

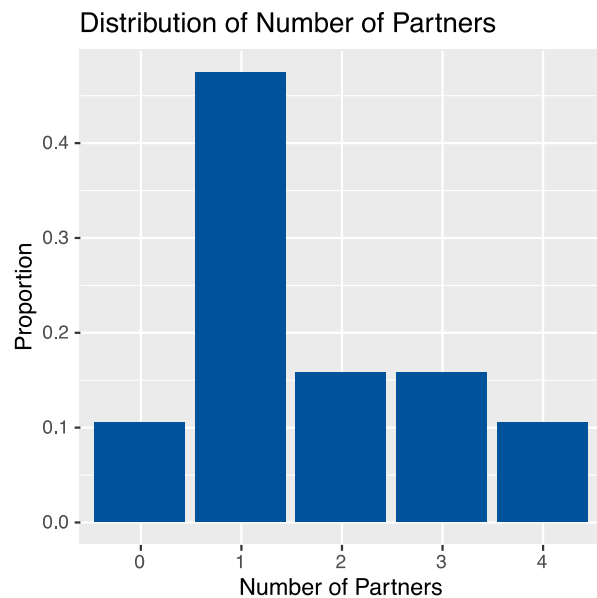
0=Not at all. I have not collaborated with this organization.

1=Yes, with their organization in the past. I have collaborated with this organization in the past, but not currently.

2=Yes, currently. I am currently collaborating with this organization (on initiatives and projects other than the Healthy Opportunities Pilot work)

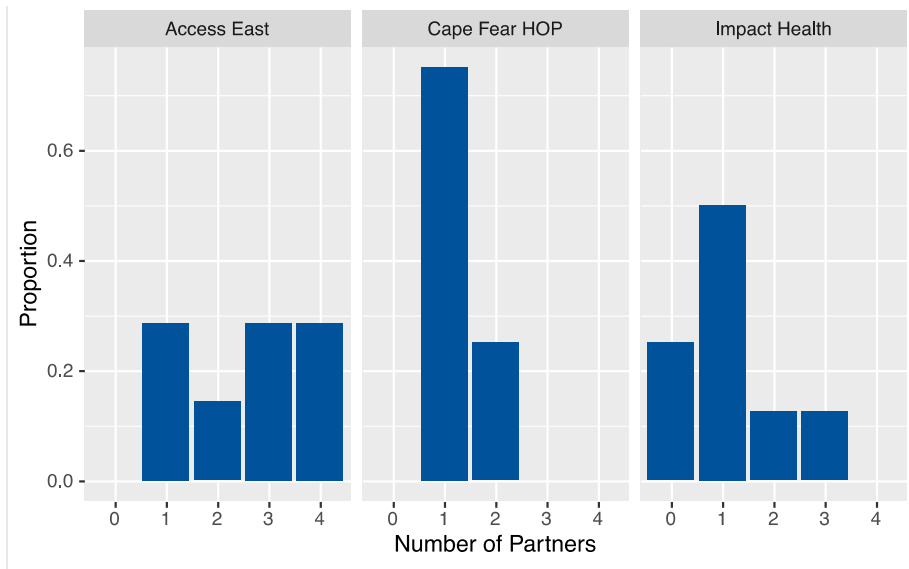
*Distribution of Number of Partners*

Figure 7 presents the distribution of number of partners named (without differentiating between organizational type or health network). Many organizations name only a single partner as part of the survey. The survey allowed respondents to name up to 10 organizations, although no organization went above 4 named partners. It is worth noting that the number of named partners is likely an undercount, as several respondents suggested



in their open-ended comments that they had upwards of 20 or 30 partners, despite only naming 1 organization in the survey. This mismatch is likely due to respondent fatigue and/or recall bias.

**Figure 8** presents the number of organizational partners stratified by Network Lead.



**Figure 8: Number of Organizational Partners Named by Network Lead**

We assess the nature of the reported relationships in **Figure 9**, which presents the mean for connection and collaboration for the whole sample. Organizations reported strong connections to their organizational partners. Over half of the organizations reported the maximum value of 3 (strong connection) for every organizational partner that they name. The overall mean level of connection is 2.56 while the median is 3. The results for collaboration are similar. The overall mean is 1.79 (out of 2 max), while the median value is 2, corresponding to a current collaboration that exists outside of the Pilots.

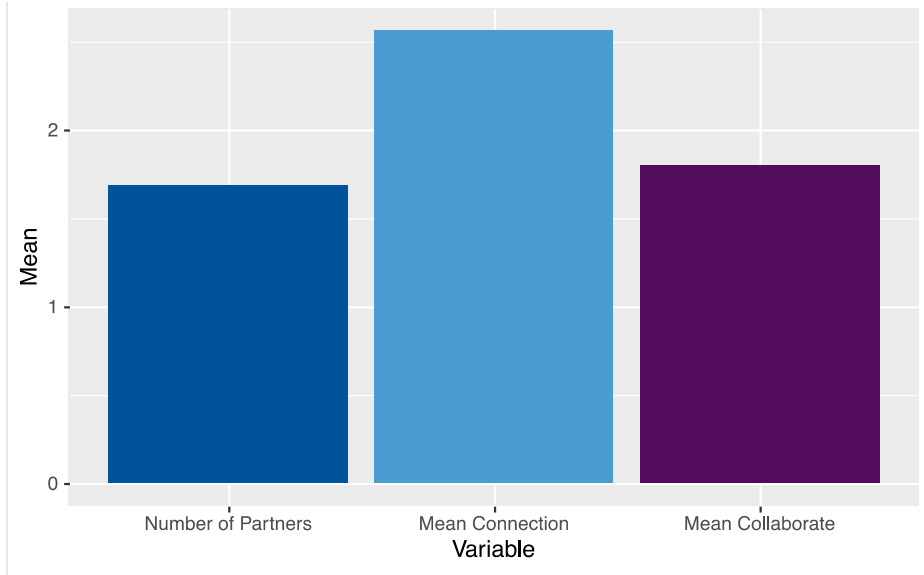


Figure 9: Overall Means for Number of Partners, Connection and Collaboration

Results are similar when stratified by Network Lead (**Figure 10**).

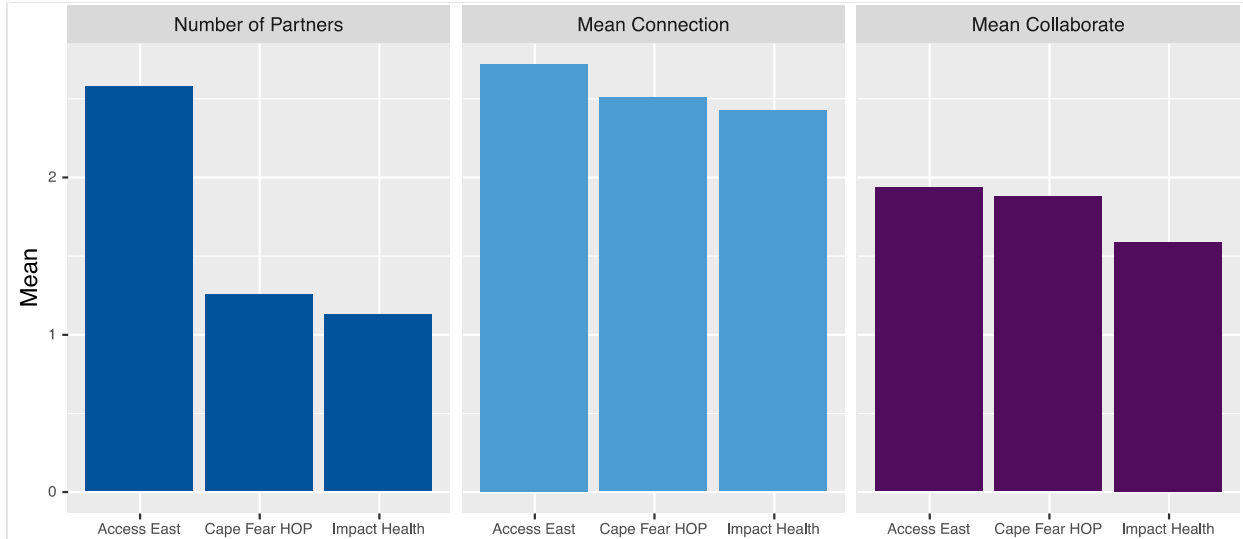


Figure 10: Overall Means for Key Variables by Network Lead

The maps below show the state of North Carolina divided along county lines. The colored regions are counties that are represented in the survey data, with at least one organization located in that county. The colors run from light to dark, with darker colors representing higher values for the variable of interest. We include three maps, one for mean number of partners, one for mean connection and one for mean collaboration. These maps depict the density of connections between NL and HSO organizations at the county-level. We color the county by the mean value over all organizations in that county. The gray colored counties are counties that are not represented in the sample.

**Figure 11** presents the results for number of partners. There are three broad regions in the map that are colored, corresponding directly to the three health networks in the study. Impact Health includes western North Carolina counties (Buncombe and Jackson); Cape Fear includes southern North Carolina counties (Brunswick, Columbus, New Hanover); and Access East corresponds to the eastern North Carolina counties (Beaufort, Pasquotank, Pitt).

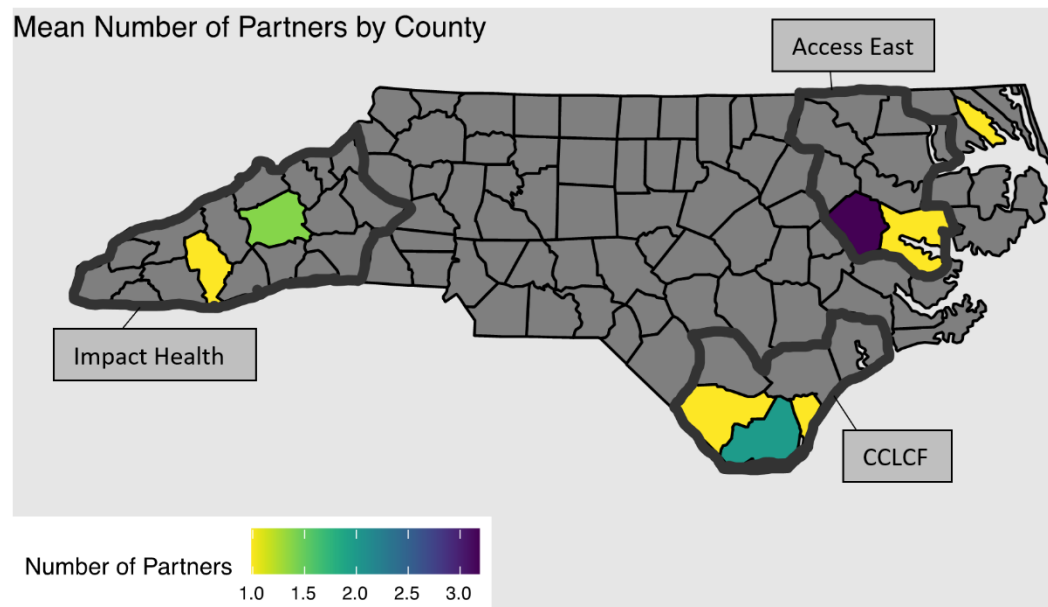


Figure 11: Geographic Variation in Number of Partners



The results are generally similar when looking at mean connection in **Figure 12**

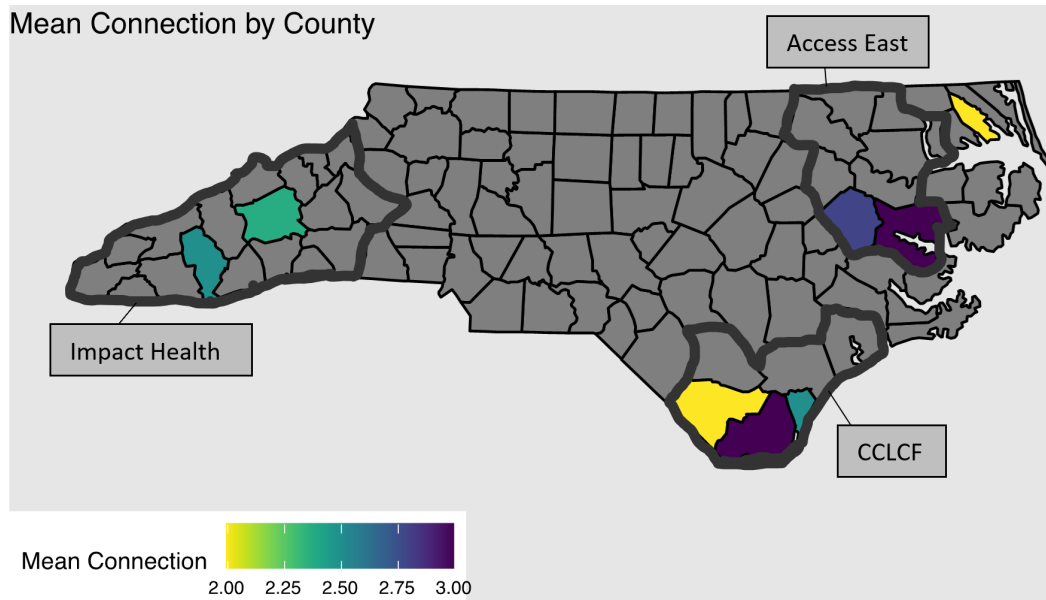


Figure 12: Geographic Variation in Mean Connection

In **Figure 13**, we present the final map, focusing on mean collaboration. Here, there are generally few differences across counties, with nearly all counties having high levels of collaboration; with mean values ranging from 1.4 at the low end to 2.0 at the high end (the max value).

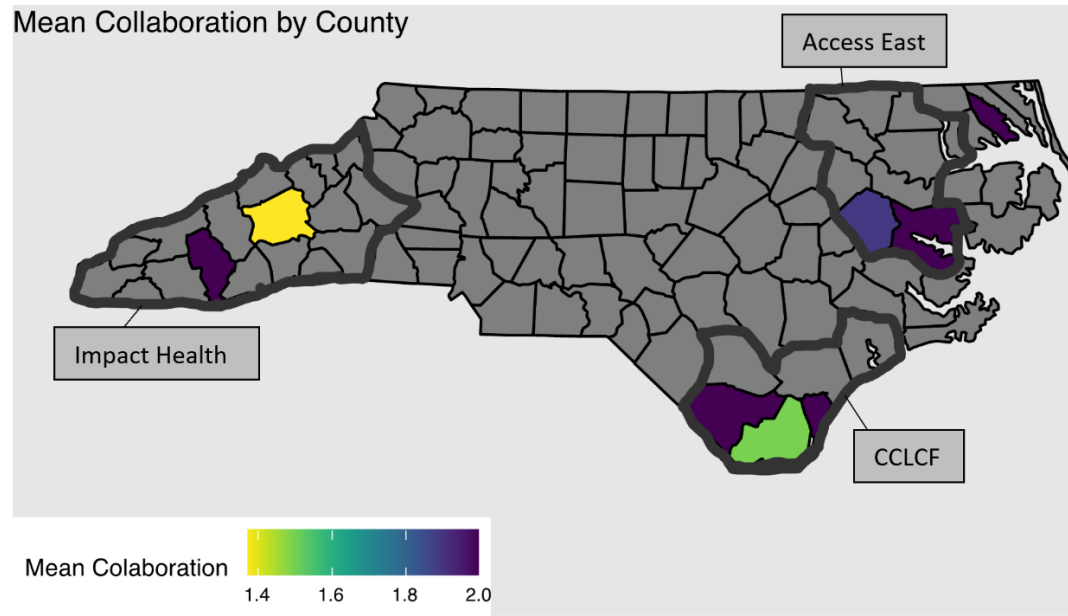


Figure 13: Geographic Variation in Mean Collaboration

The final analyses in this section examine the relationships between two of the main variables, mean connection and mean collaboration. Overall, there is a general positive relationship between mean connection and mean collaboration (.34 over the whole sample). Organizations that are currently working together (collaboration) tend to have stronger rating of the relationship (connection).

Qualitative Interviewing

There were 36 interviews with 37 individuals (one interview had two individuals participating in the call), across three Regions (**Figure 14**). Among those who participated, 83% were women, 16% were men. Half (51%) identified as White, 38% Black, and 3% Hispanic or Latino.

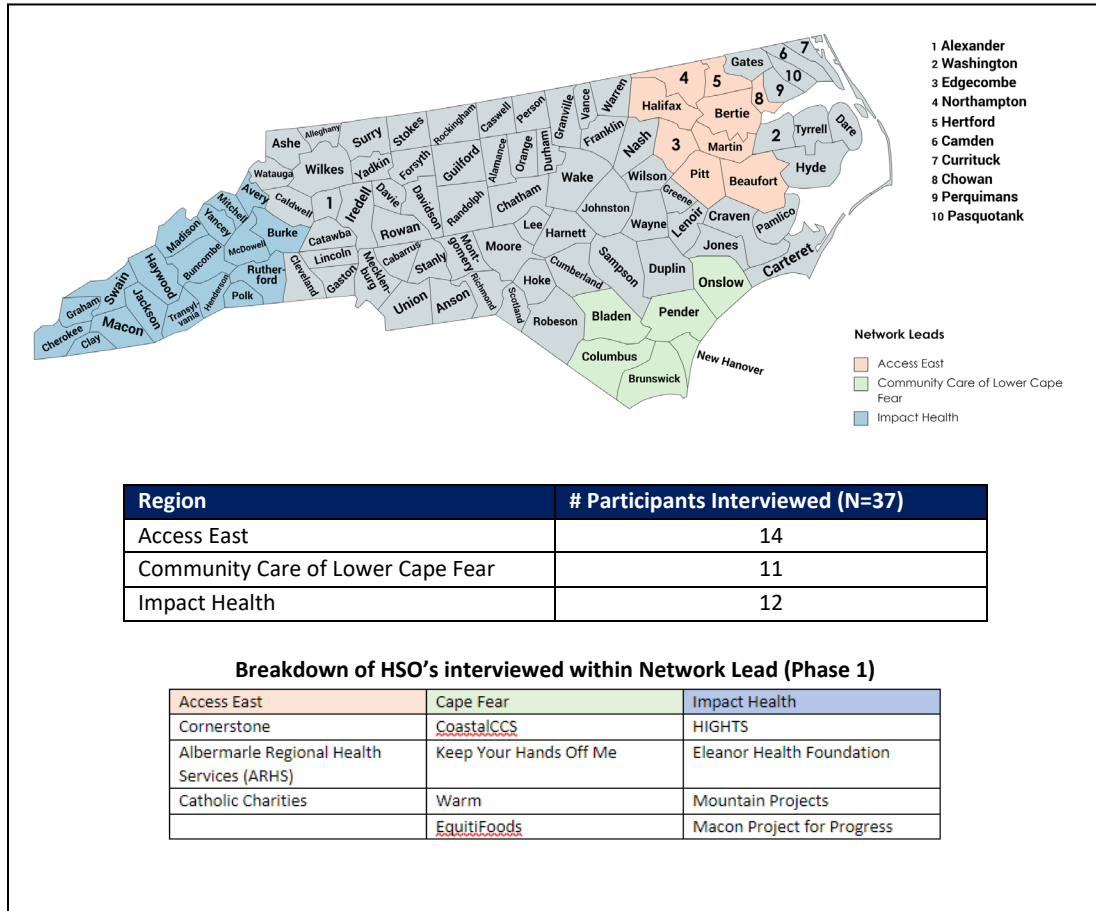


Figure 14: Participants Interviewed By Region

*Qualitative Findings***FINDINGS: STAFFING ADEQUACY**

The adequacy of staffing structures varied across regions with a strong focus on keeping proportionality to future capacity needs. Network Leads and HSOs noted having to keep a proportionality between staff and future program growth.

*“Startups have rough bumps, so the cool thing is that we just decided not to look at it and panic [at] any of the rough pages, but just band together and lean through it and then come out on the other side. And it's been wonderful to see that happen.”*

HSOs reported a range of 1-4 full time staff members running the entirety of the pilot services for their organization while Access East and Community Care of the Lower Cape Fear (CCLCF) shared they had at least 17 staff members dedicated to HOP. Impact Health reported they had eight staff members. Two Network Lead regions (CCLCF and Access East) were already existing organizations within their communities, and there was a common theme of individual’s roles in these organizations transitioning over to HOP entirely or being able to fill these designated roles with individuals already working within the network. In contrast, the third Network Lead region, Impact Health, was an entirely new organization created for HOP with legal assistance from Dogwood Health Trust. In addition to being a new organization that started later than the other two Network Lead organizations, Impact Health also experienced a dramatic change in leadership personnel, losing three members of leadership unexpectedly and abruptly in the first few months of HOP.

Participants felt they were initially understaffed but getting to a point of adequacy. Across various agencies, additional staffing roles needed to be filled included case workers, registered dietitians, delivery drivers, and administrative assistants. Those who were able to increase their capacity mentioned expanding their teams with additional staff. Examples of expanded positions included:

- Case Managers, Care Services Coordinators, Care Council Leads
- Data Scientists
- Engagement Coordinators, Community Engagement Manager
- Finance Team
- Project Managers, Compliance Managers
- Executive Directors
- Environmental Health Technician

**FINDINGS: HOP SERVICES AND RESOURCES**

Food, housing, and transportation were the main HOP services and resources offered by organizations. During the time of the interviews, IPV-related services were not yet offered. Interviewees reported that there were some services they wished to offer but would not be covered by Pilot funding. They also expressed concerns about capacity and making IPV-related services work within the framework of the Pilots, which requires coordination across organizations that could make maintaining confidentiality difficult.

*“I think, right now, the gaps and things that we have seen, we're working diligently to fix those or to fill in those gaps. So, plans are pretty much in place for that.”*

Key gaps Interviewees noted included:

- Funding gaps impacting capacity and reach
- Medicaid coverage gaps impacting who may be covered by HOP
- Gaps in transportation services related both to the number of providers and the longer distances to travel to receive services in rural areas
- Rurality often meant large regions to cover with less density of HSOs. HSOs service limits (for example, serving individuals residing within 10 miles of an HSO) that may work in urban areas may be overly restrictive in rural areas.

From the perspective of NLS, growing a large network of HSOs was appealing as it meant they could offer a greater array of the services. In terms of missing services, or those that should be added, interviewees offered the following suggestions:

- Education workforce
- Therapy
- Mental health
- Paying for medications

#### **FINDINGS: HOP PROVISION OF SERVICES**

Interviewees were generally positive about how HOP provision of services fit into other services that the HSO offered, but expressed concerns about issues of reimbursement, capacity funds, and sustainability.

*“What I am concerned about that is right now, obviously, we're able to hire those staff on the initial start-up funds, so the capacity building funds. I'm very concerned that the payment and reimbursement structure will not really lend itself to stall the sustainability for the program. And a couple of things that we have seen so far is when we started out, we were under the impression that the capacity-building funds we could use those to kind of help us get going, right? And it was not clear that we couldn't use them for some of those initial costs for the actual payments.”*

When asked about how provision of services through HOP fit into other services offered and populations served by organizations, interviewees were generally positive. They mentioned multiple ways this fit with other services offered. For example:

- Provides additional funding for services and staff
- Integrates into existing programs
- Partners with other agencies doing same work
- Receive additional assistance from other staff (i.e., legal, compliance, communication)
- Makes the work a priority, gives a sense of urgency
- Makes reimbursement streams become policy
- Fits into same budget as community health workers

Interviewees noted that Pilot funding and revenue streams were impacted by several factors including restrictions on use, changing funding sources, referrals, the availability of grant funds and private donations. In some situations, it was also impacted by other individuals' willingness to accept HOP funds. Financial stability concerns centered around issues of reimbursement, the end of capacity funds, and sustainability.

#### **FINDINGS: HOP GOALS**

Interviewees set short- and long-term goals for their organizations with an emphasis on internal operations and infrastructure as well as expanding services, reach, and achieving sustainability.

*“The long-term goal goes back to sustainability that while this is set up to be a pilot, my goal is to make sure that when the pilot's over, that if it's decided that this thing is working, and we want it to go, that it keeps running, right? It doesn't flame out after the two- to five-year pilot and that it's built for success, long term, because it, really, can become a model for other people to build off.”*

Interviewees identified both short- and long-term goals for HOP. Many of the short-term goals were focused on internal operations and infrastructure. Additionally, interviewees also mentioned establishing short-term external goals that centered around increasing awareness and expansion.

- Recruit additional HSOs
- Support and set up networks to be successful
- Connect HSOs to community resources
- Meet all reporting requirements and pilot timelines
- Stress the importance and necessity of HSOs getting on board correctly
- Learn the process and become acclimated with the pilot programs and services
- Get data and be able to share and use it
- Increase awareness of HOP among organizations and potential enrollees
- Get clients and referrals
- Build a diverse network
- Expand geographically

Long-term goals for HOP placed emphasis on setting networks to be in a stronger position to succeed. Interviewees talked about setting goals to address social determinants of health, expanding services and sustainability. Long term goals included:

- Extend pilot duration
- Meet compliance, create a compliance program structure
- Purchase needed equipment
- Set networks to be in a stronger position post-pilot
- Increase awareness and bring additional support and resources for region
- Continue addressing social determinants of health (SDOH)
- Expand services and reach
- Sustainability

#### **FINDINGS: HOP BENEFITS AND SUCCESSFUL PLANS**

The benefits of HOP include building networks, supporting HSO/CBOs' growth, and supporting community health and wellness. Key components necessary in a successful plan to provide services need to incorporate capacity building, improved communication, and the creation of more intensive logistic plans.

*"The main benefits, I would have to say-- as far as with our HSOs and how they serve the community, I would say just the work itself, how our HSOs being connected with us are better able to serve the community... So just seeing the resources and the benefits from them being in our program and how it helps their program, to me, it's just awesome."*

The main benefits interviewees associated with HOP included building networks, supporting HSO/CBOs' growth as well as supporting community health and wellness. To provide services, interviewees indicated access to tools, training, and communication as beneficial in their preparations. They also noted communication and regular meetings, funding support, capacity building, HSOs feeling supported by NLs, and trust to be important.

To help organizations feel ready to successfully participate in HOP, interviewees shared that having the ability for trial and error to see what works for individual organizations was beneficial. Additionally, having individuals within the organizations that are experts and have experience working with the communities the Pilots will serve is essential to delivering Pilot services successfully. Other key components interviewees viewed as necessary in a plan to provide services included:

- Capacity building
- Improved communication
- More intensive logistics plans
- Improved referral process and NCCARE360 platform
- More staff and volunteers
- More advertising of HOP to the community by the State
- Education for both HSO and PHP staff, as well as education to help the community understand the HOP program

There were mixed feelings and experiences around quality of communication across and between the Pilot Networks and the State; however, organizations generally agreed that the ability to grow with and alongside HOP has been a huge benefit. Being able to create and expand their networks has allowed individual organizations to find and fill their own diverse gaps in service.

#### **FINDINGS: HOP CHALLENGES**

In their preparations for HOP, interviewees experienced challenges and difficulties related to the physical, work, and information technology infrastructures. They also reported challenges working with different partners and systems, Medicaid and reimbursement requirements, and timelines.

*"The biggest challenge so far has probably been NCCARE360 and helping our HSOs learn how to navigate that system. It's definitely been a challenge. There's been a lot of referrals that have been closed for-- accidentally, or they may have sent an invoice about something, or they may not know where to click to send the invoices."*

In terms of preparations to provide services, interviewees expressed concerns about the set up and startup of services. Many worried about getting a system in place and having it ready to be used. They also expressed concerns about how long it would take to start the pilot services. Specific challenges related to the pilot preparations included physical, work, and information technology infrastructures as well as partnerships and funding. For example:

- Geographical barrier of not being in same location or region for services
- Onboarding process for staff and payers
- Unclear organization of tasks and responsibilities and staff roles
- Burdensome amount of reporting and documentation required
- Technology glitches, lack of consistent templates
- Issues with partners, external networks, and organizations; HSOs stop being adaptable
- Limited access to knowledge, information, guidance, or trainings
- Limited communication, delayed response from DHHS
- Limited promotion and awareness of HOP
- Accelerated time frame to launch, needing time to grow
- Limited availability of external funds, limitations on use of capacity funds

In terms of providing services, interviewees were most concerned about the referral process to NCCARE360, the billing and reimbursement for smaller agencies, getting access to data to see what needs to be done, and financial sustainability. The main challenges noted by interviewees to providing pilot services included:

- Difficulty working with NCTracks
- Data confidentiality, how to be discrete with information
- Complicated referral and reimbursement systems
- Confusion as to what documentation is required/expected for services:
- NCCARE360 needing to be more user friendly
- Difficulty working with PHP systems
- Working with different HSOs and their limitations
- Medicaid requirements and reimbursement issues
- Hard to plan for how much demand for services there will be
- Getting referrals to come in
- Limited HOP timeline may make it difficult to demonstrate a benefit of services offered
- Concerns about sustainable funding after the Pilot period

#### **FINDINGS: MEDICAID AND REGULATIONS**

Interviewees had mixed experiences with the Medicaid regulatory environments. Some felt the regulatory impact helped organizations with support and new skills. Others feel the regulatory environment created and added barriers for organizations, particularly with sustainability for smaller organizations.

*“The main thing that just came to my mind is the level of restrictions that this kind of funding tends to bring. So just kind of thinking about the sustainability of it and HSOs actually wanting to participate for a*



*long time. Given the source of the funding, we'll see if things can get a little cleaner and more streamlined."*

Prior to the Pilots, most HSOs had not previously received Medicaid funding, and so Medicaid funding represents a new funding source with different regulations/requirements than what they are used to. Interviewees had mixed experiences in preparation for HOP. Many noted that learning new skills and receiving support from the regulatory environment were two main positive impacts they experienced. In contrast, interviewees identified challenges associated with both Medicaid and other regulations, such as DOJ regulations for IPV services.

#### **FINDINGS: PARTNERSHIPS**

Having collaborative partnerships and key players at the table is a critical support strategy and partnership decision making and success is based on the ability to have flourishing communication, growing networks, and collaborative efforts that are mutually beneficial.

*"I think anytime you work and what you're trying to do across the group, it makes it easier. And the more people you can bring in, the more ideas you get, the more resources you have, the different abilities and talents that you have. So the collaboration, in my opinion, has been fantastic on this thing. ... The more you can level the work across different people, you get different ideas, different ways of doing things, you get ideas and collaboration. That's huge, in my opinion."*

Interviewees shared that partnerships enabled them to find ways to work together to achieve Pilot goals. When choosing partners, they talked about the importance of compatibility and bringing on long term partners. The partnerships included individuals from health care systems, universities, community organizations, and state departments with each providing key assets to the pilot collaboration. These assets included:

- Training support
- Connection to larger network
- Longstanding community trust
- Experience-based feedback and support
- Marketing/Advertisement assistance and general recruitment
- Data analysis or data support
- Meeting with DHHS

In addition, interviewees discussed what to look for and consider in new partnerships. They wanted to broaden their partnerships to include representatives from food, transportation, behavioral health agencies, business development, and government/policy makers.

#### **FINDINGS: COMMUNICATION**

Interviewees incorporated different types of communication strategies to promote programs and services, both internally within organizations and externally with their partnerships. But they also see opportunities to enhance their current efforts.

*“We need to have more conversations with the partners in order to make sure we're all on the same page. That communication right now is struggling, and so, I mean, I think they're doing a decent job. But I'm really big on partnerships and communication. I know that that's going to be crucial for some of our local efforts, identifying who some of these partners are and this, that, and the other.”*

Interviewees recognized that multiple strategies were necessary to promote HOP services. Many shared that their internal communication strategies focused on NLS and the HSOs. They described using methods including direct, verbal communication, as well as meetings, and electronic formats. Interviewees also mentioned their external communication strategies and promotional efforts, specifically indicating the use of multiple strategies to reach their target audiences. This included:

- Community outreach and engagement
- Having a presence at community sponsored events
- Media campaigns and collaboratives
- Printed materials and paraphernalia
- Websites

To further enhance HOP, interviewees talked about additional strategies that could be included in their communication efforts. Some strategies discussed included:

- Participate in community outreach, conversations, and connections
- Plan meetings to get all players at a meeting
- Include more branding and logos on items
- Increase awareness and education at local agencies
- Increase social media
- Create cards and flyers with QR codes
- Create websites
- Design HSO portal

In a few instances, interviewees indicated that they had not yet communicated or promoted their programs and services. It was also brought up that at the point they were at in preparing to deliver pilot services, it would be advantageous to prioritize the details of program operations over marketing the services.

#### **FINDINGS: INTERNAL EVALUATION PLANS**

As part of their internal evaluation plans, interviewees have multiple formal and informal strategies to track components within their organizations as well as external components that examine populations served, services provided, and levels of satisfaction.

*“I know that part of what we're going to be doing is having to do some interviews. So, I haven't quite figured out how that's going to work. We need to figure these pieces out. So do we need to interview families that get the services? And if so, how does that work? Because, again, making sure of privacy and things like that. So, it's one thing for us to interview the agencies that are providing the services. I mean, it's a little different when you're trying to interview individuals.”*

Internal evaluation plans included tracking components within HOP like reports, trainings billing, data with multiple strategies and methods:

- Reports by Salesforce, NCCARE360, Quality Improvement coordinators, compliance managers
- Trainings by UNCW canvas system
- Billing, reimbursement requests, and invoices by using Quickbooks, templates, financial metrics, Google, electronic medical records, and payments dashboard
- Data by data managers, data scientists, software programs
- Gap analysis by UNCW subcontractor, data scientists
- Equity coverage by data scientists

Additionally, interviewees talked about tracking different external components of the pilot to keep track of progress. This included:

- Referrals by surveys, monthly reports. DHHS, NCCARE360 tableau
- HSO Network adequacy by staff evaluations, client surveys, network adequacy reports, data scientists, NCCARE360
- Participant served and how; tracking meal interest and service needs by using surveys, Excel, practicum student
- Services provided (food boxes, care plans) by using Microsoft Excel, TA person, and NCCARE360
- Services satisfaction by family interviews
- Overall success using Salesforce and Asana

*Interviewee Recommendations and Lessons Learned in Preparing to Deliver Pilot Services*

From the interviews, participants shared their suggestions and recommendations for what is essential to enable effective delivery of pilot services in their region. This also included advice offered for other organizations that seek to do this type of work. Their recommendations are summarized in **Table 5**. Components are described in more detail below, with a selection of illustrative quotes.

**Table 5: Interviewee Recommendations For Effective Delivery Of Pilot Services**

<b>Components</b>	<b>Theme</b>
A. Financing	Funding Sources
B. Access to Knowledge and Information	Advertisement and Media Assistance
C. Information Technology Infrastructure	Technology Platforms Tracking System Reporting Templates Data and Analytics Rejection Notifications
D. Work Infrastructure	Minimal HSO Burden HSO System Support & Sustainability Advance Requests for Reports
E. Communication	Simplified Communication and Referral Process

**A. Financing.** Funding from external entities (grants, reimbursement) is available to implement and/or deliver the intervention.

- **Funding sources, grants or capacity-building funds are necessary to provide new services**  
*“But if you're trying to provide services where the service providers don't exist, then you're going to have to put a fair-- you're going to have to give them a fair amount in grants or capacity-building funds to get them to a point where they can even provide those services.”*

**B. Access to Knowledge and Information.** Guidance and/or training is accessible to implement and deliver innovative services.

- **Advertisement and education are necessary to provide new services**  
*“This pilot will be a good pilot to advertise in the schools because the social workers or guidance counselors that are in the schools, they might can identify children that them and their family are eligible for this program. Yeah, they may be getting food assistance from another program, but they're in need of housing assistance, or their house needs to be remodeled or something. So that's why I say do it because you want to reach as many and help many people as you can. Because if you don't, their outcome is never going to change. It's just going to be a vicious cycle.”*
- **Assistance with media strategies and user-friendly templates to increase service awareness**  
*“I mean, it would be amazing if we were equipped with a template. ... So, we don't know when we're supposed to put the State's logo on things and when we're not. So, all of our things are*

*mainly Impact Health branding. So, it's, is that okay or do we need branding from the State? But then something that easily explains would help is easily explains the channels that they need to go through to find out if they're eligible. And then for the west, what we're struggling with is how helpful is it for the actual clients to know the agencies that are involved. Because [it's] not like they're calling up the agency because the agency can't start the referrals. So it's one of those [things] where I guess even if there was just bigger media that people are like, okay, I call the network leads to find out more that's happening. I just feel like because it's got delayed so much and it hasn't been huge amount of referrals so far because there aren't that many care managers that can refer that it hasn't hit the media yet. And so any kind of media would kind of help but then a template that's okay for us to share when our HSOs want to communicate about it. So, if they want to give a presentation, if there's a flyer, if they want to put it in their newsletter."*

**C. Information Technology Infrastructure.** Technological systems for tele-communication, electronic documentation, and data storage, management, reporting, and analysis supports implementation and/or delivery of the innovation.

- **Create technology platforms that will work with the program**

*"Thinking about the technology in the platform and really trying to make sure that you have technology that will work for your program and not the other way around, where you're trying to constantly bend your program for the technology. The technology should be bending for your program."*

- **Provide continuous access and assistance with tracking information**

*"There's a way that instead of us keeping track of all that, is there some type of program where we can just plug in numbers in NCCARE360 to keep track? We can just plug in a number to a person and it automatically tracks. Small things like that would be great because even though it's small, it can be aggravating sometime."*

- **Make things more user-friendly and provide templates and forms to help with organization and reporting**

*"I wish they had a little more of a template for the forms and stuff you have to complete, things that have to be developed. There was just a little bit of template or something to go back from making these plans for organizing these plans, but I've talked with them and they work me through the process, which is good, but I think it would be good because of if everybody was kind of using the same template, it would just make things a little more easier and then have better guidelines for it."*

*"So as a person doing the reporting, [laughter] I'm trying to pull the reporting together? I like templates and getting that-- or the ability to say, "Hey--" so we're using Salesforce as the collector of all of our information and everything. It makes me very happy working in Salesforce. So I've been helping with creating and everything else and we're actually to the point where we're running our first reports to be able to turn in. And so my hope is that the State is going to be okay with me saying, "Hey, this massive report that we have I recreated it in Salesforce. It's got all the same columns. Can I just send you that? Please don't make me copy and paste it into a new [one]."*

*“Gosh. So in NCCARE360. There is a lot of things that are coming, like phase two, and it's going to be easier and I wish we could fast forward to that to see what it looks like because I feel like we're like, okay, right now you have to copy and paste this big long authorization number. If you copy and paste that incorrectly, then your invoice will get rejected. So it's just like things that we think software should be able to automate. It would be awesome if that does come to fruition. And so I think that's-- how much is NCCARE360 going to change so that is more user-friendly and doesn't have all this room for human error.”*

- **Provide network specific data and analytics**

*“I don't know if we've really set a baseline on how do we assess [how the program is doing]? How do we assess what it's doing? I'm sure DHHS probably has some kind of ideas about it as well. But from a network lead perspective, I'd love to go get my hands on that data to understand what is it doing. But we don't have all the information that's going to be needed for that. How do we take the patients that we've serviced and then compare the medical spend from pre-op to post-op? How much do we change it? How much do we modify it? ... What I'm thinking would be helpful between the network lead and DHHS, let's go look at the insurance companies, obviously as well. Let's go look at the spend. Where was it? Where is it now? Where do we impact the most? We might find that-- I think there's 49 services overall. We may find that 25 really impact stuff, 24 don't. But without doing the actual data mining and doing that analytics, how do you really know?”*

- **Incorporate a generic rejection push notifications**

*“It would be cool if there was a rejection. I mean, even if it just came via email, “Hey,” and it was a generic push that this was rejected and this is why, that explanation, that would be more helpful than anything because then we can rectify it faster. But as it stands right now, we're just kind of a sit-and-wait, and we don't really know which way to go with it. I mean, we're on NCCARE360 or Unite Us. It goes by both. So I don't really know which one to call it anymore.”*

**D. Work Infrastructure.** Organization of tasks and responsibilities within and between individuals and teams, supports implementation and/or delivery of the intervention.

- **Minimize burden to HSO**

*“I think so from the network lead perspective, something that we have set up right now, which are the weekly calls and [NAME] responsiveness. That is so helpful with understanding the network lead role and then being able to understand related to HSOs. From the HSO side, I think it's figuring out how it fits into their workflow and making it so that it doesn't seem like this huge burden for them to then get reimbursed. That figuring out that delicate balance of how much time does it take the worker? How much time does it take the client? What's actually necessary to ensure a good service is delivered? So just figuring out how to not make it burdensome to the HSO and get a good experience for everyone involved.”*

- **Provide HSOs with system support and think through sustainability**

*“I mean, I'll just go back to referrals since, I mean, I think we have the full confidence of our HSOs, 50 currently, to be able to do this work and to do it well and to improve health and lower healthcare costs. But I think, again, without kind of the system's support and thinking through sustainability and what comes after this, I do see that as our kind of continued role.”*

- **Request reports due earlier on**

*“So going back to my fun part of wanting reports and things like that, I think the need to have those earlier on. We've been building Salesforce, so the ability-- thankfully, I had some of the reports, and I could just hand them to Salesforce and say, "This is the information we need to be able to pull from here." And it went great and integrated again. I think it's easier to do that at the beginning rather than later on. Thankfully, we're still at that beginning piece. But if suddenly somebody decides to do a whole new type of report, we've now got almost, like I said, a month worth of-- well, actually, from January 1 on in Salesforce. To make that report work, I'd have to go back and fix all of that. So those types of things can cause things to get backlogged and you end up doing crazy data stuff. You spend a whole lot of time doing that instead of really doing what the work needs to be. I'm a huge proponent of how much of this can we get ahead of so that it's already there that all we have to do is just run things. And I think the same for the HSOs. I know a lot of them have had-- yeah, I remember the conversation of, "What is a big food box, and what's a small food box? What exactly does this mean, and is it different depending on how does it work?" And I think where we need to have that conversation would be if it's-- it was almost like we needed to have a list of, "These are things you guys need to just figure out on your own and let us know what you're doing, and these are the things that absolutely have to be told to you by the State." And because if we had known or we knew that, "Yes, these things, you guys have to figure out and create how you want it to work in your community," the nice thing is we've got this great group of HSOs that are more than willing to sit down at the table and have those conversations because they are the experts in the field.”*

**E. Communication.** Formal and information sharing practices support implementation and/or delivery of the intervention.

- **Get the information out and make it simpler to get referrals**

*“The key component would be communication. Honestly, cutting back, not making the process for getting referrals to be so lengthy. And I know you have to go through the prepaid health, the insurance, and get all their authorization. I understand that. I think that's the biggest thing. Being able to first make sure you get the information out there to all, everybody, let them know about the opportunities that we have here. And it will have to be just like decrease it or make it a little more simpler to get referrals.”*

*Interviewee Advice for Other Organizations*

Given the need for new HSOs to join the Pilots, current organizations had advice for new organizations. This advice is summarized in **Table 6**. Components are described in more detail below, with a selection of illustrative quotes.

Table 6: Interviewee Advice for Other Organizations

Components	Theme
A. Mindset and Attitude	Be open with communication across all collaborators Be willing to ask questions, learn, and share knowledge Be willing to jump in when there are no exact answers Be patient and expect changes Be creative Be adaptable Support the organizations you are working with Be prepared for the amount of time required to do this work
B. Planning and Preparation	Apply for additional funding Start with a readiness assessment and focus on the process Build a team with community knowledge and experience Build a team with a variety of content expertise Study successful organizations Follow guidelines and best practices Provide training opportunities for your team Documentation Have good financial policies in place Remember your why

**A. Mindset and Attitude**

- **Be open with communication across all collaborators**

*“It has to be open. It has to be communication. Communication with the community, communication with the clients, communication within the agency, in order-- without network lead, what's working, what's not working. Communication is going to be the key to seeing that this be effective or seeing how effective this can be.”*

*“Our communication. I mean, the communication for the set up of the program and that sustainability funding, and then the communication with potential clients and how they can get in the system.”*

*“Pulling it out but also engaging them. So we're not creating that guidance, just sitting in a corner by ourselves. We're doing that based on the convenings we've had with them and lots and lots of feedback. So that's where that conversation piece comes in. So lots of organization and really, kind of, managing all of the information that's coming into you. And then lots of*



*conversation and making sure you're walking that tightrope between receiving information and sharing it but also not bombarding them. Because they still have to do their regular job."*

*"Everybody working together. That coordination and communication. It really needs to be there. There also has to be a trust between the agencies and the network leads. They have to trust that we're going to be approving their invoices and that we're not going to do something with things - that we're going to work with them."*

- **Be willing to ask questions, learn, and share knowledge**

*"I do think it is key to learn from your peers, right? So if you're thinking about doing something like this, really sitting down with folks, like the three network leads who've done this before and really talking about what worked well, what didn't, how do we dive into something like this. And it's going to cover the gambit, right? You're going to be talking about things like what should your staffing model look like for what you're trying to achieve? Who are the partners in your network? How big of a geography area do you want to try to tackle, initially? Are you looking at a rural area like ours, 18 counties where you need 100 HSOs for? Or maybe you want to tackle something that's like three or four counties, and there's 30 human service organizations that can cover the different services that you're looking at. So I think really trying to think through what's needed for your particular geography and what are the services that you're trying to tackle. Four domains doesn't sound like a lot, but then there's a lot of services within the four domains. And so really kind of understanding if you were going to be tackling something like this, what does your population look like? What are the needs of that particular population? Who are the service providers currently providing those things? And then where are the gaps?"*

*"Don't be afraid to ask people who have done this before in some extent. This pilot is new in the nation, so it's not exactly going to have a blueprint for it. But don't be afraid to ask around, and seeing what's best practice for certain things that's going to be new to you. If you want to get best practice, you can't be afraid to just communicate with your colleagues, with whoever and say, "Hey, what is the best way to do this in the community? How do you feel we can reach certain people in the community." Just open dialect within the community, I think would be it."*

*"Use your voice. I mean, don't just accept the fact that you're being told. Ask questions. There's no need to be rude about it, but ask questions and point out when things just aren't making sense. So they are too often, we just kind of go with the status quo. We're not asking why, and I think we need to ask why more frequently and kind of give the alternate perspective for why we need to go in a different direction and why we need to look at this. Because, again, we want this to succeed. We want this to move forward."*

*"So we end up having conversations with the other network leads on a regular basis. I'm like, "Hey, how did this--" I'm so excited. Impact Health now has a compliance person because in the beginning, it was only me out of all the agencies. And so unfortunately, we're all so crazy. It's hard to find that time to have a sit-down and have a conversation. But the fact somebody else out there-- --is doing a lot of the same things because-- and I think one of the things that when we first met, they were like, "We don't want to take anything from you guys." And we're like, "No, here, take it. Run with it. Use this." Because I think for a lot of it was like, "Well, is this going to be proprietary?" And I think from what I've been hearing, it's not. That's not what we want to*

*do. What we want to do is share that information so that everybody has the best. And you know what? We may not have had the best. It may be one of the other agencies or one that would please him. We need to know, and we'll change accordingly. I'm okay with that."*

- **Be willing to jump in when there are no exact answers**

*"It's just being ready to jump in and try. And not always have the exact answer. Just get ready to dive in. [laughter] ... I mean, I think, transparency, being ready to support. It's never been done before, so we're going to hit roadblocks, but some sort of resiliency to get through that."*

- **Be patient and expect changes**

*"Patience. Definitely patience and grace. Give yourself grace because it's a pilot. It's going to change. It's unknown territory. And sometimes the unknown is scary especially when you don't have all the information up front. So give yourself grace for that. It's easy to beat yourself up so give yourself grace. And then enjoy it and be creative. Because it is a pilot, so you're creating it as you're going. So that's the other piece."*

*"Just to be patient that it is a lot of work that goes into it but if you be patient and you get it all done and you just stay goal-focused then you will reach your goal and your organization will be able to offer everything that you envision for it to offer."*

*"I would say just always expect that there's going to be some sort of change. Everything as of right now is not all set in stone because again, it is a pilot."*

- **Be creative**

*"Enjoy it and be creative. Because it is a pilot, so you're creating it as you're going. So that's the other piece."*

*"Creative as possible. That's all I can say."*

- **Be adaptable**

*"You have to be super adaptable. And I used to always joke like, wow, today feels like my first day. Just because we would uncover something that nobody knew about and that would change everything we had known. So thankfully, knock on wood, that hasn't happened since food launched. But my first month it was like, what? Every day there was just something that we would uncover. So I think it's the ability to adapt, the ability to figure out this complex information and then be able to relay it to various adult learners that will grasp it. And then also it takes a lot of time to build those trusting relationships and to keep those trusting relationships. So it is not for the faint of heart."*

- **Support the organizations you are working with**

*"I would want one thing. The sponsoring entities need to make sure they've done a lot of thinking about some things. I feel like, yes, this was a plan in the making for 15 years or so, but then when you finally launched, there seemed to be a lot of stuff that was undone. So how can you support particularly the HSOs, the CBOs? Because again, if indeed you haven't thought about all of that-- like I say to people all the time, if we're too hard on HSOs and HSOs decide they don't*

*want to be here and they leave, without the HSOs, there's just not a pilot. So we have to really want this balance of what it looks like to do the pilot, make sure we're compliant with what the State wants to need but also supporting HSOs so they can provide the information that we need. Otherwise, if they start saying pressing the stop button, then you've got a whole slew of issues about trying to get the reimbursement if they were awarded faster building funding, what does that look like if they haven't fully participated in the pilot, I'm going to ask them to reimburse that back to the State. So it just opens up a whole bunch of cans of worms."*

- **Be prepared for the amount of time required to do this work**

*"It's a lot of work. So going into it, I knew what to expect. But all of the paperwork and all the process and doing the initial applications on all of the Medicaid sites and getting through that process and the turnaround time and it's a lot. 20 hours isn't going to cover it. 30 hours is not going to cover it. It is a lot of work and a lot of learning. Just some terms and things and how it's going to go and then how you're going to lay out your boxes, how are they going to look, how are you going to offer these services, how's that going to look? And, yeah, it's a lot more work to initially set up than I think any of us thought. Because I sat in a lot of meetings where people where their minds were blown and they were frustrated and they were tired and they were dealing with the same things that we were."*

## **B. Planning and Preparation**

- **Apply for additional funding**

*"Apply for Capacity Building funds. You're going to need staff. Hopefully, like I said, they're going to expand this to all Medicaid."*

- **Start with a readiness assessment and focus on the process**

*"I really think, and I know I keep going back to the readiness assessment because that's where I live. ... So the middle of the readiness assessment is really pulling apart the process step by step. So we do our best to make sure that HSO has really thought through every aspect of the service they're providing, so. And realize that if a process doesn't happen the way they thought it would, to come back to us and we can help them, especially if something feels sticky or not quite right. So I think that process, them talking through it with us and, because sometimes you see a light bulb go off when they're walking through something you're like, "Is that going to work? ... So doing that and actually getting them to walk through what it's going to look like before it actually happens, I think is a huge thing to help them to make sure the services are going to be provided the way we think they will."*

*"Create a structure and set up that complements the services within the community. If I'm talking about an HSO, I would probably say one of the keys to, I think, our current HSO's success is that they were already providing the service. They didn't sign up for anything really new to them, so they were already offering it in some capacity. So that's been a huge benefit to them so far because if we're talking about providing meals, they already understood food violence, they already understood the nutrition aspect and maybe bringing in a nutritionist if we're talking about medically tailored meals. So they already had that background knowledge and things weren't kind of sprung on them by surprise with the requirements. If it's a network lead, I would say the structure and the staff setup would be key to trying to start this work. Like I*

*said earlier, I think that's been a benefit to Access East, the way we're set up, because we're able to divide out the work and it's not all on one or two people to complete the work. So I think that would be key as another network lead was trying to do this type of work."*

*"So much of it has to do with planning. Intentionality, planning, matching organizations that have the internal capacity, or the potential in the near future to develop that capacity, to provide specific services to people that people need. It's a data-driven matching, but it's also not deaf. It can't be deaf to what's actually going on in the community and what people actually do and need."*

- **Build a team with community knowledge and experience**

*"When you hire your team that's front-facing with the HSO, make sure they have community experience. All of my team members do, and it's been wonderful because I haven't had to tell them how to communicate with them. It's been great."*

*"Really making sure that HSOs know how to go into NCCARE360 and see the other services that members are receiving. So then they can be like, "Oh, you're also getting something from the HSO down the road. Let me call and coordinate with them and make sure that we're doing this really well for you."*

- **Build a team with a variety of content expertise**

*"I think we just have more content experts. ... So I don't think that they don't have the expertise. I just think that we have it a little more spaced out. So if someone has an immediate question, we're accessible and really able to dig in. So I do quality improvement, and so I'm digging into readiness, and so I'm managing that. We're going to get everyone ready. We're going to make sure nobody falls through the cracks. We're going to make sure everyone feels ready."*

- **Study successful organizations**

*"Well, I would say that one thing that they could do is look at other groups that are similar-- like for instance, if it's a food pantry, look at someone who does food pantry and hot meals because that way they can see how that group was able to expand to do hot meals. If they do transportation, see if they only have a van, and look for a bigger organization that has a van and buses. That way they can see how they grew to be able to encompass a bigger capacity. So basically, just studying bigger and more successful groups."*

- **Follow guidelines and best practices**

*"I would say just to make sure that they follow all the State guidelines and try to follow as many best practices as possible. It's okay to recreate some things, but I would try to say to kind of stick with the best practices that have already been established that says this works rather than trying to recreate the wheel."*

*"Utilize your HSOs that have been in the business of-- we have one HSO that's larger, that's been in business for a while and really has a lot of best practices already and understands things and-- use them. Not use them, but help your other HSOs to talk with them to see what their best practices are. So I think best practices from HSOs should be shared. And we're doing that in our quarterly meetings, too."*

*"But don't be afraid to ask around, and seeing what's best practice for certain things that's going to be new to you. If you want to get best practice, you can't be afraid to just communicate with your colleagues, with whoever and say, "Hey, what is the best way to do this in the community? How do you feel we can reach certain people in the community." Just open dialect within the community, I think would be it."*

*"Well, one thing that I think that Impact Health has done a beautiful job at is working with the other network leads. So I would say that knowledge sharing, like being at that level is very important because there's no need to create [a barrier]. There are resources that are shareable that aren't confidential that you can really learn and understand what the best practices are."*

- **Provide training opportunities for your team**

*"The only thing I feel like is essential is that we are trained well enough to deal with the community we are serving which I feel like we are getting the training we need so that's the biggest .. We are currently in community health workers training and that's two days a week. It's been going on since the beginning of April and it won't be over until July. After that, we'll take our parenting curriculum training. We are looking to nurturing parenting. That's a three-day training and I have my bachelor's in family development. One of our case managers she has a master's. So that training also goes into being a case manager."*

*"Like I said, the biggest piece was the care manager training, and there, I can see some progress in that area."*

*"I think one of the things that we could do to feel ready for the pilot is also maybe some more trainings. And we're actually going to be providing this for our care managers, not our internal CCLCF care managers. But all the care managers in our counties, they're going to be creating the referrals because this is a new space for them. It's a pilot so it's a new space for everybody. But used to and I know this because we provide the service used to if I had a food issue, I would connect to that HSO that I know and they would manage the food issue. They had an intake process and they were like, "All right, let's figure it out. Let's get you what you need." Now that care manager has to evaluate of these 29 services, what does that fit your needs? And even though they have the piece that it's really more of an authorization tool, it's not an assessment. So helping them feel secure and understanding what services will need to be referred. So we're doing that. Actually, our combination of myself and our program managers and our care council leads, we're going to be bringing our local guidance because the State has their guidance which was intentionally vague. Yes, we drilled down a little bit. And so we're going to take that drill down and introduce to the care managers and say, "Hey, this is what a box in our six counties is going to be based off of. These are the HSOs that we have in the counties you serve that are doing this service and this is kind of just like an introduction just to give them a little more background."*

- **Documentation**

*"Just document everything."*

- **Have good financial policies in place**

*“Have some really good financial policies in place and try to be as low barrier as possible. With Medicaid, I understand, people are going to have to have their ID and such, but if they're going to do it beyond just HOP, they're going to do social insurance of health work. Understand that people who are homeless, people who are recently incarcerated, people who are not citizens, people with cognitive disabilities are not going to have all of the items that you would need, for example, to start a new job. So we actually use the standard. There's a standard at the Department of labor-- and this is how I convinced my board to not have to show ID. There's a standard with the Department of labor that if you are a non-citizen with-- I think it's with a disability or under a certain age, a very young age. Like I don't know, 21 or something.”*

- **Remember your why**

*“Always remember why you started. Always remember that it was once you. Always know that it can be you again or a family member or somebody you truly love. Never lose that spark as to why you're doing this. You're saving lives. If we're saving lives let's save lives. That's what we're doing. I say it to people a lot of time, “Your job is to save lives let's [do it?].”*

*“And focus on the clients. That is what I would do.”*

*“Any future HSOs, I would also let them know, hey, this isn't just giving out food boxes or just transporting people or just paying a bill or anything like that. This is actually servicing human beings, people who are in dire need of things. Because sometimes, we can get wrapped up in our work and we forget about humanity [inaudible]. And I think it can be overwhelming, especially the food part. And sometimes, you just like, you know what? I don't care what they're giving up. Don't think like that, you know what I mean? Because at the end of day, how about if it was you [inaudible] those boxes? How about if it was you receiving the transportation or needing your car repaired or your lights to be turned on or whatever. Like my mom and my grandmother will always say, treat others like you who want to be treated. ... Yeah, the golden rule, so. And being in this tight position, again, it can be extremely overwhelming, when you having multiple of people coming, doing the same thing. And things can be repetitive, especially with the food part when you staying all those camps. ... But at the end of the day, just got to keep going. Put a smile on your face, keep going and know that you're helping others. ... It's not just a job, you know what I mean? Then I think that's what a lot of people right. It's not just a job. I consider the work that we do, we're angels on earth, helping others.”*

## Results of Secondary Analyses of NCCARE360 and NC Medicaid Data

For this evaluation period, as described in the methodological limitations section, we did not have data on individuals who screened negative for all needs and who were not enrolled in the Pilots, so we were unable to report findings regarding the number and characteristics of individuals screened. These analyses will be conducted and reported in subsequent reporting periods. In compliance with CMS guidelines<sup>a</sup> cells have been suppressed when counts were fewer than 10 or calculated values were determined using fewer than 10 values. Data used in this assessment covered the period March 15, 2022 to November 30, 2022. All data used for this assessment were received by January 4, 2023. Some statistics relating to Pilot activities may be affected by data lag—particularly for activities that occurred in October or November 2022.

### *Enrollment Measures*

A total of 2,705 participants enrolled in the Pilots during any point in the Pilot between March 15, 2022 and November 30, 2022. Of these, 2,374 were currently enrolled at the end of the reporting period.

Enrollment by region is presented as **Table 7**. Region was calculated using information provided from NCCARE360. When available, region was assessed using the county indicated in NCCARE360 data at enrollment. If county was not provided, region was derived from zip code (n = 435). Of the participants below with missing region (n = 102), 92 were due to no zip code being provided, and the remaining 10 zip codes could not be matched to an NC zip code.

**Table 7: Enrollment by Region**

Region	Number	Percentage
Access East	819	30.28%
CCLCF	1,041	38.48%
Impact Health	743	27.47%
Missing	102	3.77%
<b>Total</b>	<b>2,705</b>	<b>100.00%</b>

Enrollment by Prepaid Health Plan (PHP) is presented as **Table 8**. Enrollment into a PHP was determined using the PHP indicated in the NCCARE 360 people file at their earliest date of enrollment.

<sup>a</sup> <https://www.hhs.gov/guidance/document/cms-cell-suppression-policy>

Table 8: Enrollment by PHP

PHP	Number	Percentage
AmeriHealth Caritas North Carolina	500	18.48%
Blue Cross and Blue Shield of North Carolina	617	22.81%
Carolina Complete Health*	119	4.40%
UnitedHealthcare of North Carolina	557	20.59%
WellCare of North Carolina	912	33.72%
<b>Total</b>	<b>2,705</b>	<b>100.00%</b>

\*Carolina Complete Health is a regional health plan, and only covers Medicaid beneficiaries in one Pilot region

Enrollment by eligibility category is presented as **Table 9**. We found assessments that indicated disparate eligibility categories when completing multiple screening forms, even on the same day of completion. Due to this, eligibility category was determined by age at time of enrollment for age-based categories. As there was no other data source, assessments were used to identify if an individual was within the pregnant individuals category. If a Pilot participant indicated they were pregnant on their screening form at any point in their enrollment, they were also placed in the pregnant individuals eligibility category. Individuals that did not fall into the pregnant individuals category and had no date of birth provided had eligibility category missing.

Table 9: Enrollment by Eligibility Category

Eligibility Category *	Number	Percentage
0-3	189	6.99%
0-20	937	34.64%
21+	1,694	62.62%
Pregnant individual	39	1.44%
Missing	73	2.70%

\*Participant can be in more than one category

**Tables 10-14**, below, present more detailed information on enrollment, and **Figures 15** and **16** show enrollment both by month and cumulatively. Statistics for months later in 2022 may be affected by data lag.

Table 10: Enrollment by Eligibility Category and Region

Eligibility Category *	Access East	CCLCF	Impact Health	Missing
	N (column %)	N (column %)	N (column %)	N (column %)
Children 0-3	< 30 (< 3.75)	89 (7.72)	68 (8.27)	**(**)
Children 0-20	235 (27.61)	401 (34.78)	294 (35.77)	**(**)



Adults 21+	584 (68.63)	640 (55.51)	448 (54.50)	22 (20.75)
Pregnant individuals	**(**)	23 (1.99)	12 (1.46)	**(**)
Missing	0 (0.0)	0 (0.0)	0 (0.0)	73 (68.87)

\*Participant can be in more than one category

\*\* Suppressed due to small cell count

**Table 11: Enrollment by Eligibility Category and PHP**

Eligibility Category *	AmeriHealth Caritas North Carolina	Blue Cross and Blue Shield of North Carolina	Carolina Complete Health	United Healthcare of North Carolina	WellCare of North Carolina
	N (column %)	N (column %)	N (column %)	N (column %)	N (column %)
Children 0-3	34 (6.31)	41 (6.18)	11 (8.27)	50 (8.09)	53 (5.41)
Children 0-20	167 (30.98)	241 (36.35)	35 (26.32)	160 (25.89)	334 (34.12)
Adults 21+	326 (60.48)	354 (53.39)	80 (60.15)	376 (60.84)	558 (57.00)
Pregnant individuals	**(**)	**(**)	**(**)	**(**)	**(**)
Missing	**(**)	**(**)	**(**)	**(**)	**(**)

\*Participant can be in more than one category

\*\* Suppressed due to small cell count

**Table 12: Enrollment by Month & Region**

Enrollment Month (2022)	Access East	CCLCF	Impact Health	Total
March *	18	32	36	86
April	32	38	34	104
May	67	67	77	211
June	117	96	71	284
July	93	144	75	312
August	130	185	115	430
September	107	198	108	413
October	140	150	126	416
November	115	131	101	347
<b>Total</b>	<b>819</b>	<b>1,041</b>	<b>743</b>	<b>2,603 **</b>

\*49 participants were enrolled before start enrollment date was a mandatory field, these participants were adjusted for enrollment in March

\*\* 102 participants had region missing

\*\*\*statistics for months later in 2022 may be affected by data lag

Table 13: Enrollment of New Participants by Month &amp; Eligibility Category

Enrollment Month (2022) ***	Children 0 - 3	Children 0 - 20	Adults 21 +	Pregnant Individuals	Missing
March *	**	24	64	0	**
April	**	33	71	**	**
May	**	78	134	**	**
June	19	111	174	**	**
July	16	108	210	**	**
August	34	131	303	**	**
September	33	167	249	**	**
October	37	154	268	**	**
November	29	131	221	11	**

\*49 participants were enrolled before start enrollment date was a mandatory field, these participants were adjusted for enrollment in March

\*\* Suppressed due to small cell count

\*\*\*participants can be enrolled in more than one category

\*\*\*\*statistics for months later in 2022 may be affected by data lag

Table 14: Enrollment of New Participants by Month &amp; PHP

Enrollment Month (2022)	AmeriHealth Caritas North Carolina	Blue Cross and Blue Shield of North Carolina	Carolina Complete Health	United Healthcare of North Carolina	WellCare of North Carolina	Total
March *	23	**	**	23	22	91
April	21	**	**	16	50	104
May	29	42	**	**	101	212
June	45	76	**	**	121	287
July	46	87	13	35	142	323
August	74	101	28	85	147	435
September	97	84	20	116	101	418
October	95	94	21	97	119	426
November	70	104	21	105	109	409
<b>Total</b>	<b>500</b>	<b>617</b>	<b>119</b>	<b>557</b>	<b>912</b>	<b>2705</b>

\*49 participants were enrolled before start enrollment date was a mandatory field, these participants were adjusted for enrollment in March

\*\* Suppressed due to small cell count

\*\*\*statistics for months later in 2022 may be affected by data lag

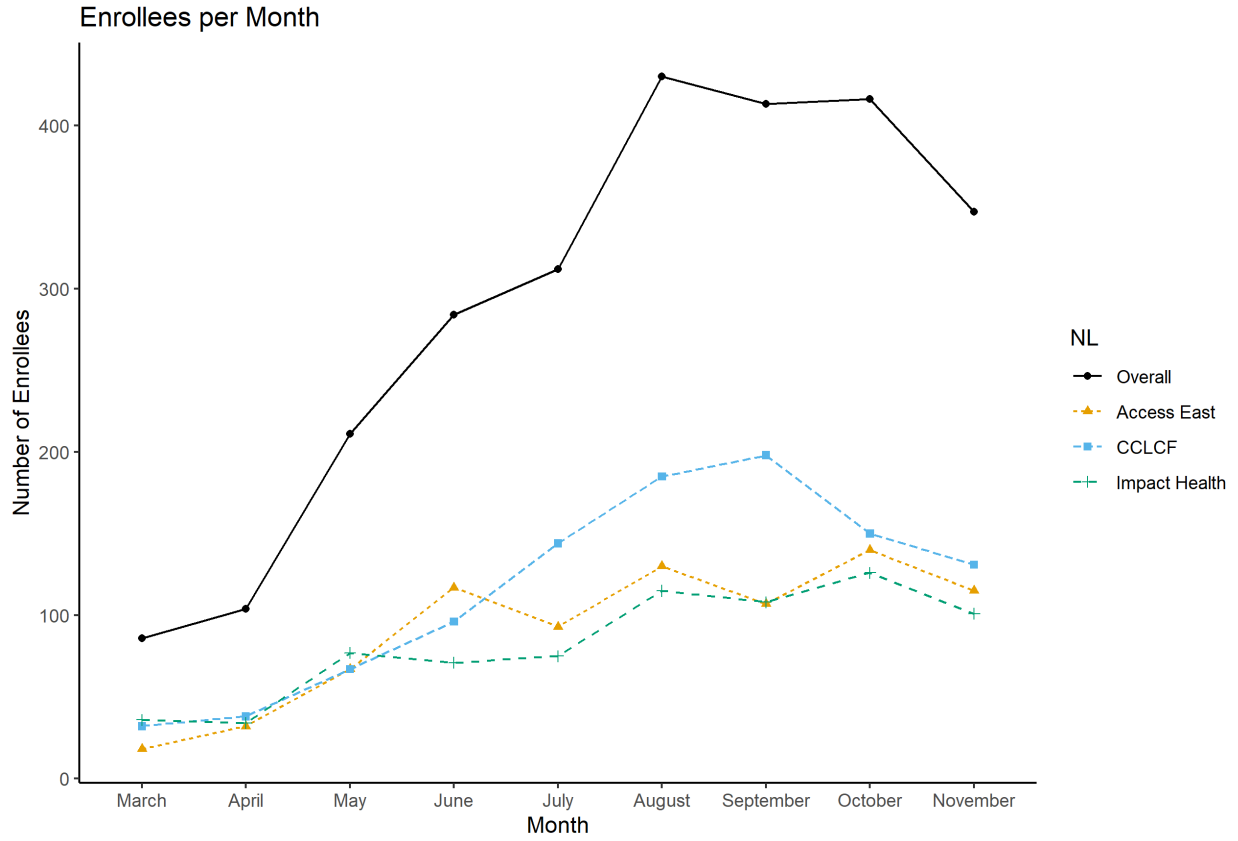


Figure 15: New Enrollees per Month

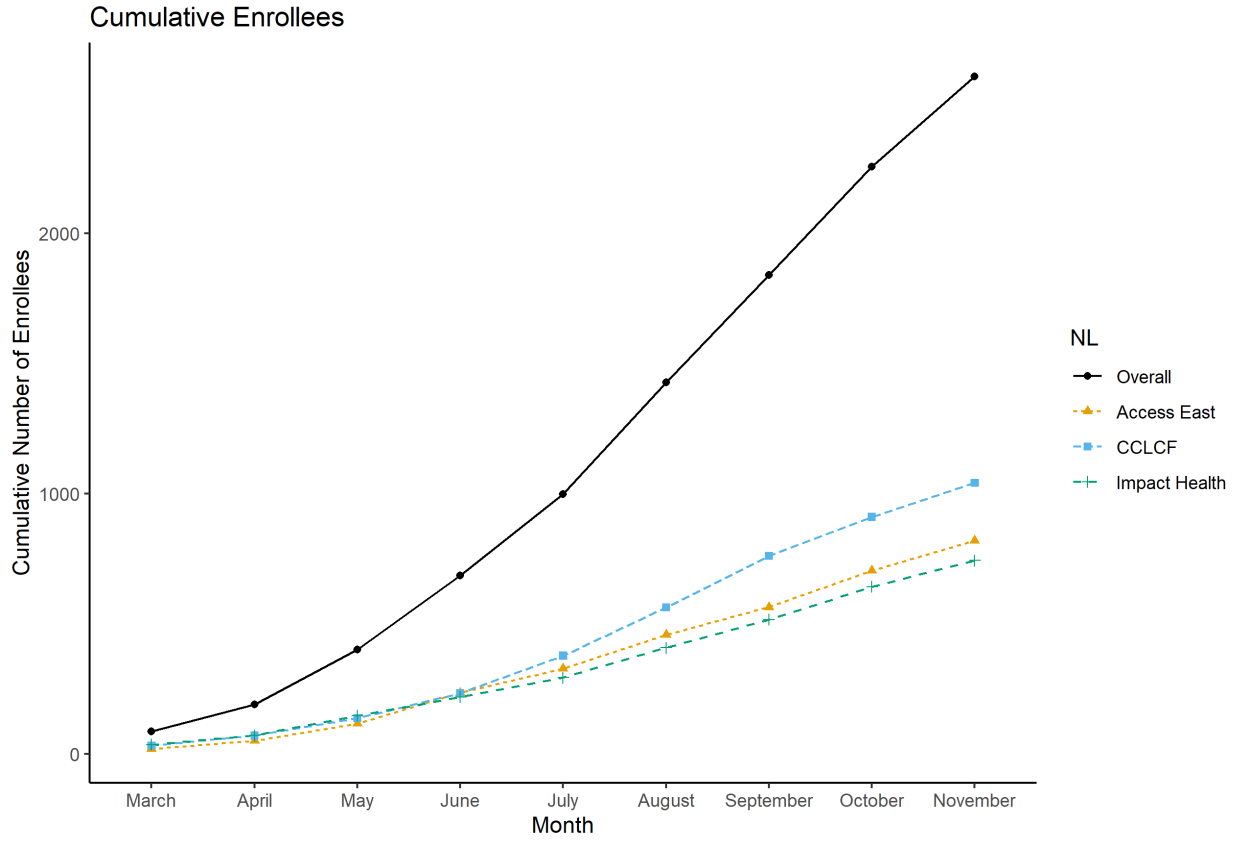


Figure 16: Cumulative Enrollees per Month

*Demographic Comparisons of Pilot Participants and Medicaid Beneficiaries in Pilot Regions*

We examined how the demographics of Pilot participants compared with the demographics of the population they were drawn from—Medicaid beneficiaries in Pilot regions. For this comparison, we note that we would not expect Pilot participants to have similar demographics of Medicaid beneficiaries in Pilot regions, owing to eligibility criteria for Pilot participation. That is to say, applying eligibility criteria inherently includes some individuals and excludes others, meaning there is no reason to think Pilot participants would be demographically similar to all Medicaid beneficiaries in Pilot regions. Pilot participants are a specific subset of Medicaid beneficiaries selected based on their likelihood of benefitting from Pilot services.

We analyzed the NC Medicaid Member file to better understand demographics for both Pilot participants and Pilot counties. The total number of Medicaid beneficiaries in the Pilot counties was 616,170. We were able to link 2,604 HOP participants to members within the Medicaid member file. Across all Pilot counties, 0.42% of Medicaid beneficiaries enrolled in the Pilots.

In order to maintain consistency of analysis across the total Medicaid population and HOP participants, this portion of analyses uses NC Medicaid Member File data, rather than NCCARE360 data.

**Table 15** shows enrollment in the Pilots as a percentage of Medicaid beneficiaries in the Pilot regions.

Table 15: Enrollment rate by region

Region*	HOP Enrollment Count	Percentage of Total HOP Participants	Number of Medicaid Beneficiaries	Percentage of Total Medicaid Beneficiaries in Pilot Regions	Proportion of Medicaid Beneficiaries Enrolled in HOP, of All Medicaid Beneficiaries
Access East	819	31.45%	165,186	26.81%	0.50%
CCLCF	1,040	39.94%	195,887	31.79%	0.53%
Impact Health	757	29.07%	256,870	41.69%	0.29%

\*Participant can be in more than one region

**Table 16** shows enrollment in the Pilots as a percentage of Medicaid beneficiaries in each Pilot county.

Table 16: Enrollment in HOP by County

Region*	County*	HOP Enrollment Count	Percentage of Total HOP Participants	Number of Medicaid Beneficiaries	Percentage of Total Medicaid Beneficiaries in Pilot Regions	Proportion of Medicaid Beneficiaries Enrolled in HOP, of All Medicaid Beneficiaries
Access East	Beaufort	101	3.88%	17,401	2.82%	0.58%
Access East	Bertie	52	2.00%	8,241	1.34%	0.63%
Access East	Chowan	22	0.84%	5,142	0.83%	0.43%
Access East	Edgecombe	116	4.45%	29,180	4.74%	0.40%
Access East	Halifax	56	2.15%	22,946	3.72%	0.24%
Access East	Hertford	54	2.07%	9,323	1.51%	0.58%
Access East	Martin	30	1.15%	9,206	1.49%	0.33%
Access East	Northampton	38	1.46%	7,686	1.25%	0.49%
Access East	Pitt	390	14.98%	63,328	10.28%	0.62%
CCLCF	Bladen	43	1.65%	14,660	2.38%	0.29%
CCLCF	Brunswick	116	4.45%	36,489	5.92%	0.32%
CCLCF	Columbus	162	6.22%	23,949	3.89%	0.68%
CCLCF	New Hanover	286	10.98%	53,421	8.67%	0.54%
CCLCF	Onslow	395	15.17%	55,134	8.95%	0.72%
CCLCF	Pender	104	3.99%	19,844	3.22%	0.52%
Impact Health	Avery	**	**	4,532	0.74%	**
Impact Health	Buncombe	252	9.68%	67,179	10.90%	0.38%
Impact Health	Burke	49	1.88%	31,583	5.13%	0.16%
Impact Health	Cherokee	**	**	10,031	1.63%	**
Impact Health	Clay	**	**	3,573	0.58%	**
Impact Health	Graham	**	**	3,417	0.55%	**

Table 16: Enrollment in HOP by County

Region*	County*	HOP Enrollment Count	Percentage of Total HOP Participants	Number of Medicaid Beneficiaries	Percentage of Total Medicaid Beneficiaries in Pilot Regions	Proportion of Medicaid Beneficiaries Enrolled in HOP, of All Medicaid Beneficiaries
Impact Health	Haywood	81	3.11%	19,111	3.10%	0.42%
Impact Health	Henderson	100	3.84%	27,802	4.51%	0.36%
Impact Health	Jackson	41	1.57%	12,294	2.00%	0.33%
Impact Health	Macon	29	1.11%	11,219	1.82%	0.26%
Impact Health	Madison	29	1.11%	7,219	1.17%	0.40%
Impact Health	McDowell	51	1.96%	16,346	2.65%	0.31%
Impact Health	Mitchell	**	**	4,936	0.80%	**
Impact Health	Polk	**	**	5,248	0.85%	**
Impact Health	Rutherford	46	1.77%	24,381	3.96%	0.19%
Impact Health	Swain	**	**	7,201	1.17%	**
Impact Health	Transylvania	48	1.84%	8,414	1.37%	0.57%
Impact Health	Yancey	14	0.54%	6,014	0.98%	0.23%

\*Participant can be in more than one region/county

\*\* Suppressed due to small cell count

Statistics relating to the age (in years), gender, and race and ethnicity of Pilot participants and Medicaid beneficiaries in Pilot regions are shown in **Tables 17-20**, below.

Table 17: Age, in years, by region

Sample	Region **	N	Min*	Median*	Max*	IQR (Q1, Q3)*	Mean	Std Dev
	Access East	819	0	38	66	(17, 51)	36	19

Table 17: Age, in years, by region

Sample	Region **	N	Min*	Median*	Max*	IQR (Q1, Q3)*	Mean	Std Dev
Enrolled in HOP	Impact Health	757	0	35	67	(11, 54)	32	21
	CCLCF	1040	0	33	65	(12, 51)	32	21
	Total HOP	2,604	0	35	81	(12, 52)	33	20
All Medicaid Beneficiaries in Pilot Region	Access East	165,186	0	22	99	(11, 45)	30	23
	Impact Health	195,887	0	22	96	(10, 42)	28	22
	CCLCF	256,870	0	22	98	(10, 45)	29	23
	All Pilot Regions	616,170	0	22	99	(10, 44)	29	23

\*Values have been aggregated to reflect the average of 11 values around this measure to comply with cell suppression

\*\* Participant can be in more than one region

Table 18: Gender by HOP Participants and All Medicaid Beneficiaries in Pilot Regions

Gender	Enrolled in HOP		All Medicaid Beneficiaries in Pilot Regions	
	Count	Percentage	Count	Percentage
Female	1,686	64.75%	350,330	56.86%
Male	918	35.25%	265,840	43.14%

A Pilot participant can report more than one race category. In order to most accurately capture this, the following race categories were designated: Individuals who only selected American Indian are represented in “American Indian Only”. Individuals who selected American Indian and any other race are represented in “American Indian Multi”. As such, a participant can be represented in multiple categories if they selected more than one race. Ethnicity categorization is reported separately.

Table 19: Racial Categorization among HOP Participants and All Medicaid Beneficiaries in Pilot Regions

Race*	Enrolled in HOP		All Medicaid Beneficiaries in Pilot Regions	
	Count	Percentage	Count	Percentage
American Indian & Alaskan Native Only	17	0.65%	11,647	1.89%
American Indian & Alaskan Native Multi-Racial	12	0.46%	4,713	0.76%
Asian Americans & Native Hawaiians and Other Pacific Islanders Only	19	0.73%	9,059	1.47%



Table 19: Racial Categorization among HOP Participants and All Medicaid Beneficiaries in Pilot Regions

Race*	Enrolled in HOP		All Medicaid Beneficiaries in Pilot Regions	
	Count	Percentage	Count	Percentage
Asian Americans & Native Hawaiians and Other Pacific Islanders Multi-Racial	**	**	3,489	0.57%
Black Only	1,292	49.62%	192,996	31.32%
Black Multi-Racial	92	3.53%	16,917	2.75%
White Only	1,384	53.15%	423,406	68.72%
White Multi-Racial	103	3.96%	21,434	3.48%
Unreported	**	**	2804	0.46%

\*Participant can be in more than one racial group

\*\* Suppressed due to small cell count

Table 20: Ethnicity Categorization among HOP Participants and All Medicaid Beneficiaries in Pilot Regions

Ethnicity	Enrolled in HOP		All Medicaid Beneficiaries in Pilot Regions	
	Count	Percentage	Count	Percentage
Hispanic	161	6.18%	59,266	9.62%
Not Hispanic	2,406	92.40%	547,266	88.82%
Unknown	37	1.42%	9,638	1.56%

*Social Needs Assessment and Needs Identified*

There were a total of 12,686 social needs assessments for 2,653 unique individuals recorded in the NCCARE360 data in this time period. Out of 2,705 individuals enrolled in the Pilots, this indicates that 98.1% had at least one assessment recorded. **Tables 21-24**, below, present information on assessments made.

Table 21: Assessments Provided by Region

Enrollment Region	Assessments Count	Assessments Percentage	Participant Count	Participant Percentage
Access East	3,859	30.42%	816	30.76%
CCLCF	5,654	44.57%	1032	38.90%
Impact Health	2,975	23.45%	736	27.74%
Missing	198	1.56%	69	2.60%
<b>Total</b>	<b>12,686</b>	<b>100.00%</b>	<b>2,653</b>	<b>100.00%</b>

Table 22: Assessments Provided by Eligibility Categories

Eligibility Category *	Assessments Count	Assessments Percentage	Participant Count	Participant Percentage
Children 0-3	770	6.07%	184	6.94%
Children 0-20	4,211	33.19%	928	34.98%
Adults 21+	8,374	66.01%	1,683	63.44%
Pregnant individuals	185	1.46%	39	1.47%
Missing	39	0.31%	17	0.64%

\*Participant can be in more than one category

Table 23: Assessments Provided by PHP

PHP	Assessments Count	Assessments Percentage	Participant Count	Participant Percentage
AmeriHealth Caritas North Carolina	2,157	17.00%	489	18.43%
Blue Cross and Blue Shield of North Carolina	2,817	22.21%	601	22.65%
Carolina Complete Health	487	3.84%	115	4.33%
UnitedHealthcare of North Carolina	1,972	15.54%	531	20.02%
WellCare of North Carolina	5,195	40.95%	893	33.66%
Missing	58	0.46%	24	0.90%
<b>Total</b>	<b>12,686</b>	<b>100.00%</b>	<b>2,653</b>	<b>100.00%</b>

Table 24: Assessments Per Month, by Assessments and by Unique Participant

Enrollment Month (2022)	Assessments Count	Assessments Percentage	Participant Count*	Participant Percentage
March	189	1.49%	45	1.70%
April	389	3.07%	116	4.37%
May	1,000	7.88%	249	9.39%
June	1,518	11.97%	399	15.04%
July	1,935	15.25%	485	18.28%
August	3,052	24.06%	695	26.20%
September	2,345	18.48%	702	26.46%
October	1,112	8.77%	701	26.42%
November	1,146	9.03%	719	27.10%

\*Participant can be represented in more than one month

\*\*statistics for months later in 2022 may be affected by data lag

The mean number of needs indicated on an assessment was 1.56. Food needs were the most common needs indicated, followed by housing (Table 25).

Table 25: Assessments and Participants with Identified Needs

Identified Need	Assessments Count*	Assessments Percentage	Participant Count*	Participant Percentage
Food	10,222	80.58%	2,129	80.25%
Housing	6,278	49.49%	1,330	50.13%
IPV-related / Toxic Stress	113	0.89%	21	0.79%
Transportation	3,160	24.91%	647	24.39%

\*Participant could indicate more than one need per screening

Pilot participants reported more than 1 need on slightly under half of assessments (43.7%) (Table 26).

Table 26: Needs per Assessment

Needs Indicated on a Screening	Count	Percentage
Zero needs	62	0.49%
One need	7,079	55.80%
Two needs	3,984	31.40%
Three needs	1518	11.97%
Four needs	43	0.34%
<b>Total</b>	<b>12,686</b>	<b>100.00%</b>

Pilot participants had needs assessments in a timely fashion, with almost all individuals (95%) assessed on the day of enrollment. **Tables 27** and **28** provide further information on time to first assessment, in days.

Table 27: Days from Enrollment to First Assessment by Region

Region	N	Min*	Mean*	Max*	IQR (Q1, Q3)*	% Immediately Assessed
Access East	816	0	1	52	(0, 0)	99%
CCLCF	1032	0	3	126	(0, 0)	95%
Impact Health	736	0	4	115	(0, 0)	95%
Missing	69	0	8	53	(0, 0)	90%
Overall	2629	0	3	169	(0, 0)	95%

\*Values have been aggregated to reflect the average of 11 values around this measure to comply with cell suppression

Table 28: Days from Enrollment to First Assessment by PHP

PHP	N	Min*	Mean*	Max*	IQR (Q1, Q3)*	% Immediately Assessed
AmeriHealth Caritas North Carolina	489	0	2	85	(0, 0)	95%
Blue Cross and Blue Shield of North Carolina	601	0	2	82	(0, 0)	99%
Carolina Complete Health	115	0	6	62	(0, 0)	90%
UnitedHealthcare of North Carolina	531	0	2	81	(0, 0)	99%
WellCare of North Carolina	893	0	4	133	(0, 0)	95%
Overall**	2629	0	3	169	(0, 0)	95%

\*Values have been aggregated to reflect the average of 11 values around this measure to comply with cell suppression

An analysis of needs identified per month and by assistance type is shown below (**Table 29**) across all assessments, with the trend depicted as **Figure 17**.

Table 29: Needs Identified by Month

Enrollment Month (2022)	Food	Housing	IPV/Stress	Transportation
March	189	-	-	-
April	389	**	-	**
May	832	< 400	-	< 275
June	1,166	610	19	391
July	1,527	855	38	390
August	2,417	1,802	37	862

September	1,884	1,398	**	724
October	882	593	**	273
November	936	633	**	249
<b>Total</b>	<b>10,222</b>	<b>6,278</b>	<b>113</b>	<b>3,160</b>

\*\* Suppressed due to small cell count

\*\*\*statistics for months later in 2022 may be affected by data lag

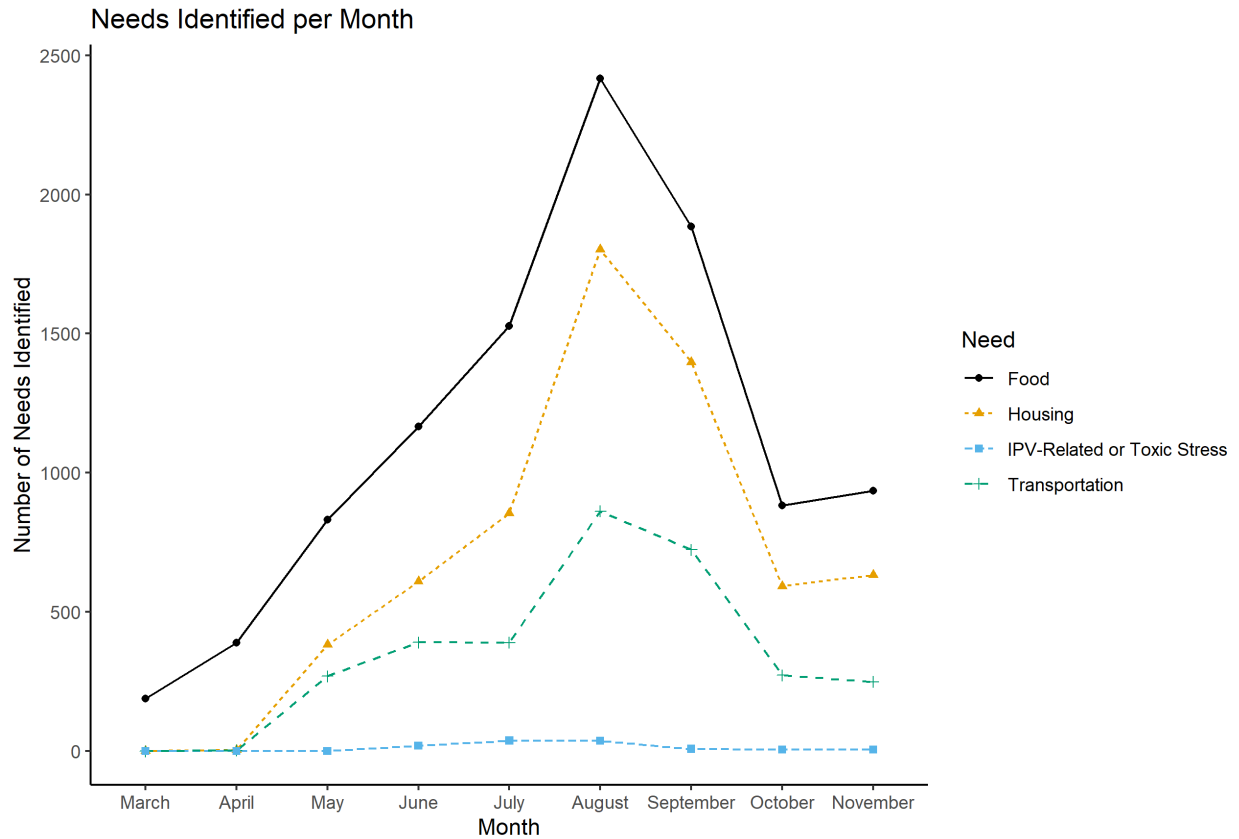


Figure 17: Needs Identified by Month

*Participants Served and Services Invoiced*

A total of 1,713 participants received services that were invoiced for through November 30, 2022. Out of 2,705 individuals enrolled in the Pilots, this means that 63.3% received at least 1 invoiced service. It is important to note that more individuals likely received services that had not yet been invoiced, and that even more would eventually receive services that were being arranged at the time data for this assessment period was received.

There was variation in the percentage of individuals who received services across types of services (**Table 30**), with food services provided to over two thirds of those who reported a food need. Of note, there were no invoices for IPV-related and Toxic Stress services during this reporting period. IPV-related services were not available for delivery during this time period. Toxic Stress services were available for delivery, but no Toxic Stress services were invoiced. The following table shows the number of individuals who screened positive for different need types, and of those, the number who received a related service to their need.

Table 30: Connection to Services by Service Type

Service Type	Total Participants Screened Positive	Participants Reporting Need Who Received Assistance For That Need	Screened Positive & Received Services
Food	2,129	1,442	67.73%
Housing	1,330	535	40.23%
IPV-related / Toxic Stress*	21	0	0%
Transportation	647	101	15.61%

*\*No invoices for IPV-related or Toxic Stress services were received during this period. IPV-related services were not available for delivery during this time period. Toxic Stress services were available for delivery, but no Toxic Stress services were invoiced.*

**Tables 31-34** below present information on Pilot participants who received services by region, eligibility category, PHP, and month. **Figure 18** depicts the trend in connections to services.

Table 31: Connection to Services by Region

Enrollment Region	Participant Count	Participant Percentage
Access East	493	28.78%
CCLCF	729	42.56%
Impact Health	477	27.85%
Missing	14	0.82%
<b>Total</b>	<b>1,713</b>	<b>100.00%</b>

Table 32: Connection to Services by Eligibility Category

Eligibility Category *	Participant Count	Participant Percentage
Children 0-3	112	6.54%
Children 0-20	604	35.26%
Adults 21+	1,104	64.45%

Pregnant individuals	**	**
Missing	**	**

\*Participant can be in more than one category

\*\* Suppressed due to small cell count

Table 33: Connection to Services by PHP

PHP	Participant Count	Percentage of HOP Participants
AmeriHealth Caritas North Carolina	320	18.68%
Blue Cross and Blue Shield of North Carolina	399	23.29%
Carolina Complete Health	78	4.55%
UnitedHealthcare of North Carolina	330	19.26%
WellCare of North Carolina	597	34.85%
<b>Total</b>	<b>1,724</b>	<b>100.00%</b>

\* Participant may have switched PHP during year

Table 34: Connection to Services by Month and Service Type

Benefit Month (2022)*	Total	Food	Housing	Transportation
March	22	22	0	0
April	110	109	0	**
May	242	228	**	**
June	439	402	65	**
July	677	608	132	19
August	966	822	284	27
September	1,108	969	257	35
October	964	877	117	37
November	572	540	38	**

\*Participant can be served in more than one month and receive more than one service in a month

\*\* Suppressed due to small cell count

\*\*\*2 Individuals received cross-domain services

\*\*\*\*No IPV-related/Stress services were invoiced through November 2022

\*\*\*\*\*statistics for months later in 2022 may be affected by data lag

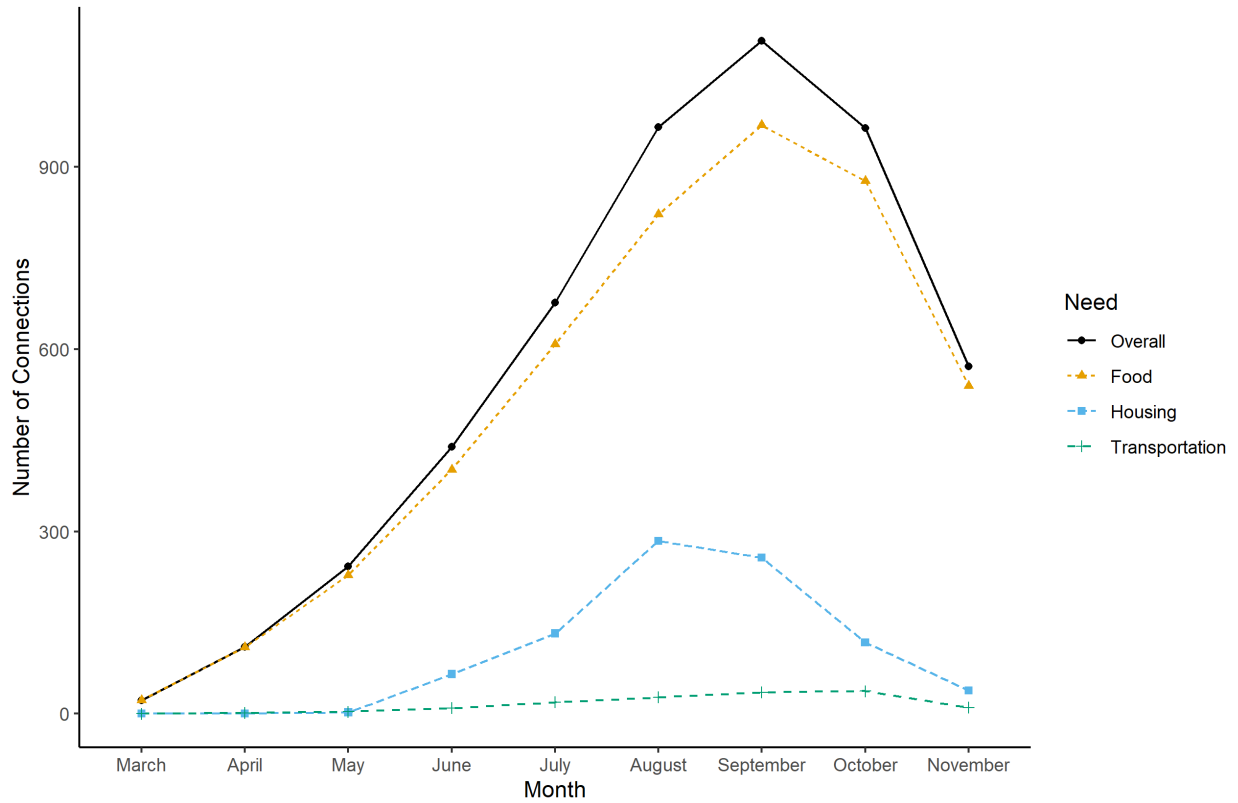


Figure 18: Connections to Services by Month

We calculated the cumulative number of services provided by HSOs with at least 1 paid invoice (Table 35).

Table 35: Services delivered by HSOs

Measure	Number of HSOs	Min	Median	Max	IQR (Q1, Q3)	Mean	Std Dev
Services Provided by HSO	83	1	31	2441	(13, 173)	174	358

Half of services had date of when the service began that was within a week after eligibility was established, and over 75% began within two weeks (Table 36).



Table 36: Time from Eligibility to Service Dates, in Days

Measure	N	Min*	Median*	Max*	IQR (Q1,Q3)*	Mean	Std Dev
Eligibility to Service Date	1,713	0	7	172	(4,13)	13	22

\*Value has been aggregated to reflect the average of 11 values around this measure to comply with cell suppression

There were a total of 14,427 services provided with a total amount invoiced of \$2,324,567.33.

Services were determined to have been delivered by identifying invoices with a status of: accepted by payer, paid, submitted by network lead, submitted contracted service note, submitted to network lead, transmitted to payer, or under dispute. Invoices with invoice status of rejected by administrator, rejected by NL, or rejected by payer were not included in analysis. These records would have resulted in erroneous counting of services and costs had they been included.

Across 14,427 services, the mean invoiced amount was \$161.13 per service. The mean invoiced amount per food service was \$131.82. The mean invoiced amount per transportation service was \$156.98. The mean invoiced amount per housing service is suppressed to prevent identification of small cell counts for other services. Across 2,705 enrolled Pilot participants, the mean invoiced amount was \$859.36 per enrolled participant. Across 1,713 individuals who received Pilot services, the mean invoiced amount was \$1,357.02 per individual who received HOP services. Of note, because more detailed cost reporting is conducted quarterly as part of ongoing Pilot monitoring, separate from the RCA, we do not focus on analyses of Pilot spending in this report.

**Tables 37-42** below provide more detail on number of services and spending on services by type of service, region, eligibility category, PHP, month, and month by type of service. Food services represent the bulk of services delivered and the majority of the invoiced amount, although housing services have higher invoiced amounts per service.

Table 37: Services Provided by Service Type

Service Type	Service Count	Service Percentage	Invoiced Amount Total	Invoiced Amount Percentage
Cross-Domain	**	**	**	**
Food	13,110	90.87%	\$1,728,218.92	74.35%
Housing	< 1,025	< 7.25%	\$510,643.68	21.97%
IPV-related / Toxic Stress*	0	0.00%	\$0	0.00%
Transportation	306	2.12%	\$48,034.37	2.07%
<b>Total</b>	<b>14,427</b>	<b>100.00%</b>	<b>\$2,324,567.33</b>	<b>100.00%</b>

*\*No invoices for IPV-related or Toxic Stress services were received during this period. IPV-related services were not available for delivery during this time period. Toxic Stress services were available for delivery, but no Toxic Stress services were invoiced.*

*\*\* Suppressed due to small cell count. Housing statistics are partially suppressed to prevent identification of cell counts for suppressed cells*

Table 38: Services Provided by Region

Enrollment Region	Service Count	Percentage of Total Services	Invoiced Amount Total	Percentage of Total Invoices
Access East	3,718	25.77%	\$571,938.53	24.60%
CCLCF	6,816	47.24%	\$1,091,222.96	46.94%
Impact Health	3,821	26.49%	\$645,515.36	27.77%
Missing	72	0.50%	\$15,890.48	0.68%
<b>Total</b>	<b>14,427</b>	<b>100.00%</b>	<b>\$2,324,567.33</b>	<b>100.00%</b>

Table 39: Services Provided by Eligibility Category

Eligibility Category *	Service Count	Percentage of Total Services	Invoiced Amount Total	Percentage of Total Invoices
Children 0-3	825	5.72%	\$125,172.54	5.38%
Children 0-20	4,898	33.95%	\$786,840.67	33.85%
Adults 21+	9,514	65.95%	\$1,534,324.86	66.00%
Pregnant individuals	< 175	< 1.25%	\$30,938.76	1.33%
Missing	**	**	**	**

*\*Participant can be in more than one category*

*\*\* Suppressed due to small cell count*

Table 40: Services Provided by PHP

PHP	Service Count	Percentage of Total Services	Invoiced Amount Total	Percentage of Total Invoices
AmeriHealth Caritas North Carolina	2,408	16.69%	\$370,498.65	15.94%
Blue Cross and Blue Shield of North Carolina	3,451	23.92%	\$630,220.41	27.11%
Carolina Complete Health	652	4.52%	\$98,937.04	4.26%
UnitedHealthcare of North Carolina	2,327	16.13%	\$401,729.67	17.28%
WellCare of North Carolina	5,589	38.74%	\$823,181.56	35.41%
<b>Total</b>	<b>14,427</b>	<b>100.00%</b>	<b>\$2,324,567.33</b>	<b>100.00%</b>

Month of service was determined by the service start date on the invoice. Lag in receiving invoices may explain lower invoiced amounts closer to the data cut-off date (e.g., in November 2022).

Table 41: Services Provided by Month

Service Month (2022)	Service Count	Percentage of Total Services	Invoiced Amount Total	Percentage of Total Invoices
March	29	0.20%	\$5,558.29	0.24%
April	207	1.43%	\$30,899.86	1.33%
May	701	4.86%	\$136,395.33	5.87%
June	1,256	8.71%	\$208,419.84	8.97%
July	1,919	13.30%	\$301,331.62	12.96%
August	2,941	20.39%	\$481,858.12	20.73%
September	3,724	25.81%	\$565,309.60	24.32%
October	2,694	18.67%	\$439,152.34	18.89%
November	956	6.63%	\$155,642.33	6.70%
<b>Total</b>	<b>14,427</b>	<b>100.00%</b>	<b>\$2,324,567.33</b>	<b>100.00%</b>

*\*statistics for months later in 2022 may be affected by data lag*

Table 42: Services Provided by Month and Service Type

Service Month (2022)	Food	Housing	Transportation
March	29	0	0
April	206	0	**
May	675	22	**
June	1,166	72	18
July	1,739	153	27
August	2,586	303	52
September	3,319	282	123
October	2,494	136	64
November	896	42	18
<b>Total</b>	<b>13,110</b>	<b>1,010</b>	<b>306</b>

*\*\* Suppressed due to small cell count*

*\*\*statistics for months later in 2022 may be affected by data lag*

### Payments

The following analyses present information about payments made for services.

We used invoiced amount within NCCARE360 Invoice data for cost calculations. We investigated using paid amount for cost calculations. However, there were instances where paid amount was greater than invoiced amount and/or unreasonably large in comparison to the fee schedule for a given service. Thus we believe there were errors in data entry in the paid amount field that made it less accurate to use. The table below (**Table 43**) shows these differences.

Table 43: Differences in Data Source Invoice Amounts

Source	N	Sum	Mean	Stan. Dev.	Min	Max
NCCARE360 Total Invoiced Amount	11,068	\$1,754,102.67	\$ 158.48	\$ 243.60	\$ 7.23	\$10,300.00
NCCARE360 Total Paid Amount	11,068	\$1,950,139.39	\$ 176.20	\$ 323.29	\$ 1.00	\$10,300.00

Most invoices were paid, and invoices paid were typically paid within 30 days, and almost all within 60 days (**Tables 44-45**).

Table 44: Invoices Submitted and Paid by PHP

PHP	Invoice Paid Count	Invoice Submitted Count	Percentage Paid
AmeriHealth Caritas North Carolina	1,942	2,408	80.65%
Blue Cross and Blue Shield of North Carolina	2,977	3,451	86.26%
Carolina Complete Health	548	652	84.05%
UnitedHealthcare of North Carolina	1,321	2,327	56.77%
WellCare of North Carolina	4,280	5,589	76.58%
<b>Total</b>	<b>11,068</b>	<b>14,427</b>	<b>76.72%</b>

Table 45: Time from Invoice Submission to Payment, in Days

PHP	N	Min*	Median*	Max*	IQR (Q1, Q3)*	Mean	Stan. Dev.
AmeriHealth Caritas North Carolina	1,942	10	21	116	(17, 37)	29	19
Blue Cross and Blue Shield of North Carolina	2,977	5	19	134	(13, 35)	26	19
Carolina Complete Health	548	13	27	85	(21, 35)	31	15
UnitedHealthcare of North Carolina	1,321	12	37	133	(26, 51)	41	22
WellCare of North Carolina	4,280	8	32	138	(24, 45)	37	19
<b>Total</b>	<b>11,068</b>	<b>4</b>	<b>28</b>	<b>155</b>	<b>(19, 42)</b>	<b>33</b>	<b>20</b>

*\*Values have been aggregated to reflect the average of 11 values around this measure to comply with cell suppression*

*Retention and End of Enrollment*

The majority of individuals who enrolled in the Pilots did not have a valid end date for their Pilot enrollment and were thus presumed to be currently enrolled. 331 individuals (12.2%) had an end date for the Pilots and were thus presumed to no longer be receiving Pilot services. **Tables 45-47**, below, present details of those whose Pilot enrollment had ended by the date of the report.

Table 46: Enrollment Ended by Region

Enrollment Region	Number	Percentage
Access East	< 50	< 15.25%
CCLCF	114	34.44%
Impact Health	162	48.94%
Missing	**	**
<b>Total</b>	<b>331</b>	<b>100.00%</b>

\*\* Suppressed due to small cell count

Table 47: Enrollment Ended by Eligibility Categories

Eligibility Category *	Number	Percentage
Children 0-3	37	39.88%
Children 0-20	132	34.64%
Adults 21+	197	59.52%
Pregnant individuals	**	**
Missing	**	**

\*Participant can be in more than one category

\*\* Suppressed due to small cell count

Table 48: Enrollment Ended by PHP

PHP	Number With Enrollment Ended	Total Number of Pilot Participants	Percentage with Enrollment Ended
AmeriHealth Caritas North Carolina	64	500	12.80%
Blue Cross and Blue Shield of North Carolina	87	617	14.10%
Carolina Complete Health	11	119	9.24%
UnitedHealthcare of North Carolina	86	557	15.44%
WellCare of North Carolina	83	912	9.10%
<b>Total</b>	<b>331</b>	<b>2,705</b>	<b>12.24%</b>

## Evaluation Question 2

Owing to lack of data, we were not able to complete analyses for Evaluation Question 2 (“Increased Rates of Social Risk Factor Screening and Connection to Appropriate Services”) during this reporting period, as described above in the methodological limitations section. These analyses will be conducted and reported in subsequent reporting periods.

### Evaluation Question 3

The goal of Evaluation Question 3 (“Improved Social Risk Factors”) analyses was to determine whether the overall burden of needs decreased with Pilot participation, among all participants and across different eligibility categories, along with determining whether the risk for specific needs decreased with Pilot enrollment. Finally, we sought to determine whether certain Pilot services were associated with greater reductions in needs than other services.

Evaluation Question 3 (“Improved Social Risk Factors”) analyses primarily used an individual-level interrupted time series approach that estimated a change in level (immediate change in needs after Pilot enrollment) associated with Pilot enrollment and a trend (changes in needs over time as Pilot services were received). We anticipated that the change in level would be positive (i.e., implying that enrolling in the Pilot would increase the number of measured needs as needs were uncovered during the enrollment process), and that the trend would be negative (i.e., that total needs would decrease over time as services were received, and the risk of any specific need would decrease over time). To help present results clearly, we compare needs at enrollment (day 0, or ‘baseline’) to estimated needs after 90 days of enrollment. Although all data received, including observations made beyond 90 days, were included in the analyses, presenting estimated needs at longer durations of time after enrollment was not feasible owing to there being few assessments beyond 90 days at this time. In subsequent reports, we plan to examine needs at 180 and 365 days of Pilot enrollment as well.

It is important to recognize that the time frame for change in needs covered in this RCA is relatively brief—likely the minimum needed to observe changes. Examining longer time periods of Pilot participation in subsequent evaluation periods will be important before drawing firm conclusions about the effectiveness of Pilot services.

### Eligibility Categories for Evaluation Question 3 Analyses

There were 12,686 needs assessments. 66.2% of all assessments were in non-pregnant adults. There were 185 assessments in pregnant individuals, 4,208 assessments in children age 0 to 20, and 769 assessments in the subset of children age 0 to 3. Of 3,265 assessments made after Pilot enrollment, most (71.7%) were in non-pregnant adults. There were 45 assessments made after Pilot enrollment in pregnant individuals, 889 in children age 0 to 20, and 153 in the subset of children age 0 to 3. Of 1,316



assessments made after 90 days or more of Pilot enrollment, most (67.9%) were in non-pregnant adults. 15 were for pregnant individuals, 393 were for children age 0 to 20, and 69 were for the subset of children age 0 to 3.

Overall, this means that results are most reliable for the non-pregnant adult and children age 0 to 20 eligibility categories.

### Total Needs

As expected, we observed an immediate increase in recorded needs associated with Pilot enrollment. Also as expected, we observed a negative trend, suggesting a decrease in needs over time. However, decline in needs was small in magnitude (**Table 48**). When examining different categories of eligibility, patterns were similar, with substantial uncertainty for the category of pregnant individuals.

Table 49: Changes in Total Needs

Eligibility Category	Change In Level (SE)	Trend (SE)	Needs at Enrollment (95% CI)	Needs at 90 Days (95% CI)	Difference (95% CI)
Overall	0.25 (0.03)	-0.04 (.009)	1.73 (1.67 to 1.81)	1.69 (1.63 to 1.75)	-0.05 (-0.07 to -0.02)
Non-Pregnant Adults	0.27 (0.04)	-0.04 (0.01)	1.76 (1.68 to 1.84)	1.72 (1.65 to 1.79)	-0.04 (-0.07 to -0.01)
Pregnant Individuals	0.10 (0.49)	-0.15 (0.07)	1.64 (0.53 to 2.75)	1.65 (1.01 to 2.30)	0.01 (-1.30 to 1.32)
Children 0 to 20 years of age	0.17 (0.05)	-0.06 (0.01)	1.67 (1.56 to 1.78)	1.63 (1.54 to 1.72)	-0.04 (-0.08 to 0.01)
Children 0 to 3 years of age	0.34 (0.13)	-0.02 (0.03)	1.94 (1.68 to 2.20)	1.81 (1.59 to 2.04)	-0.13 (-0.20 to -0.05)

Change in level indicates the change in number of needs immediately associated with Pilot enrollment. A positive number indicates more needs being identified. Trend indicates the change in needs per day associated with Pilot enrollment. A negative number indicates declining needs.

**Figures 19 and 20** depict the estimated change in total needs over time, both overall and by eligibility category.

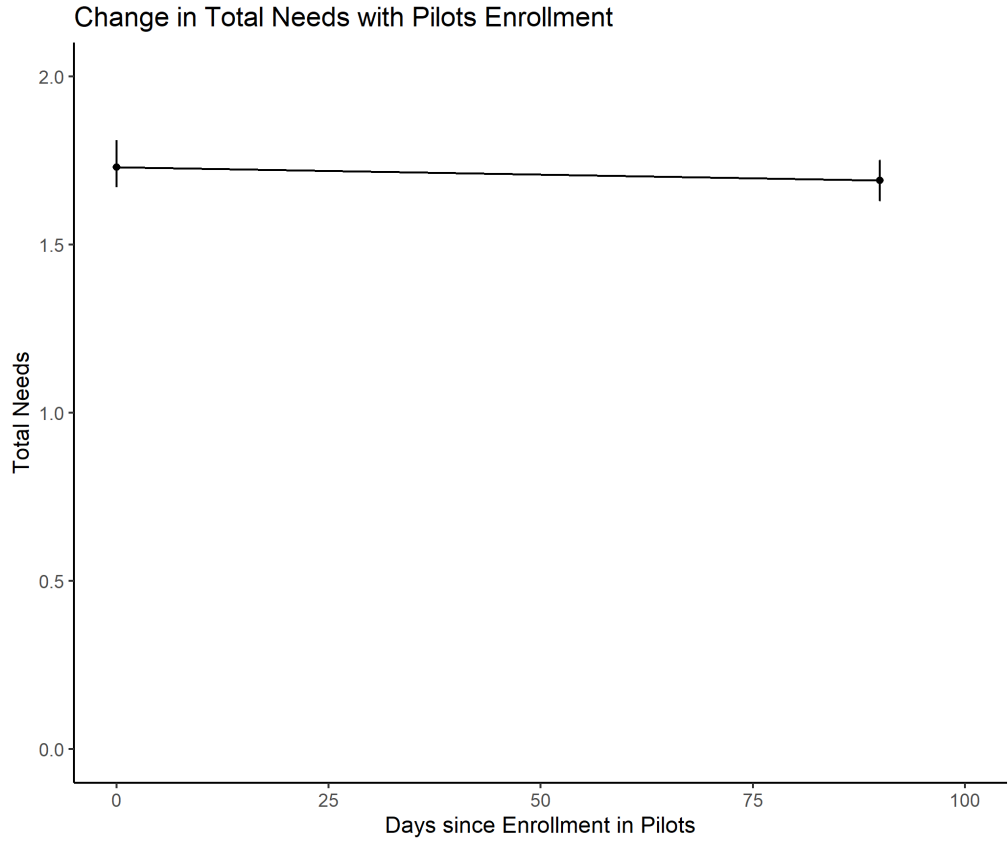


Figure 19: Change in Total Needs over Time for all Pilot Participants

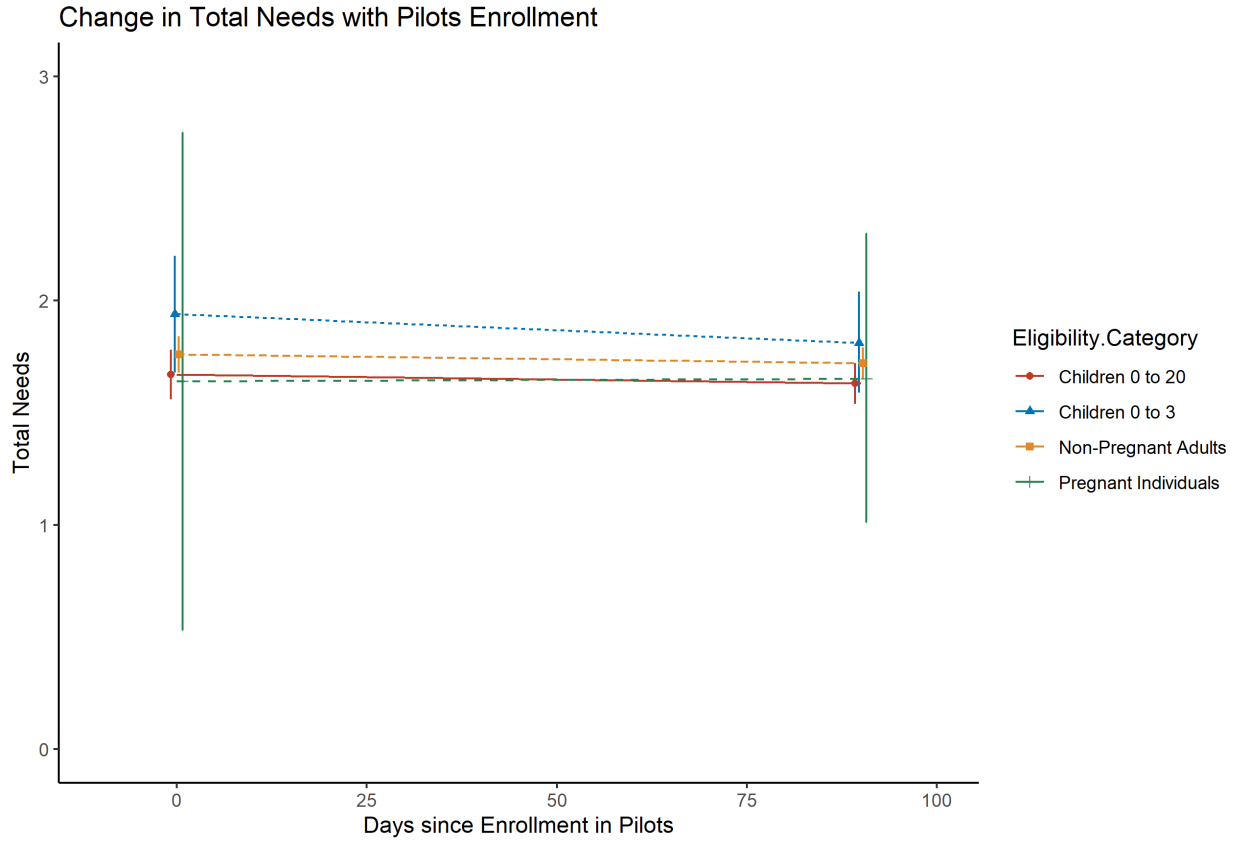


Figure 20: Change in Total Needs over Time by Pilot Eligibility Category

## Food Needs

We examined how the probability of reporting a food need changed over time with Pilot participation. We found that there was an increased probability immediately associated with Pilot enrollment, and we found a small, statistically insignificant decrease in food needs over time (**Table 49**). When examining categories of eligibility, there was little improvement for adults, and suggestions of improvement for children. Results for pregnant individuals were very uncertain, owing to small sample size.

Table 50: Probability of Reporting a Food Need

Eligibility Category	Change In Level (SE)	Trend (SE)	Probability At Enrollment (95% CI)	Probability at 90 Days (95% CI)	Difference (95% CI)
Overall	0.07 (0.02)	-0.003 (0.005)	0.86 (0.82 to 0.90)	0.85 (0.82 to 0.87)	-0.01 (-0.03 to 0.01)
Non-Pregnant Adults	0.05 (0.02)	-0.002 (0.006)	0.84 (0.79 to 0.88)	0.84 (0.81 to 0.87)	0.002 (-0.02 to 0.03)
Pregnant Individuals	-0.43 (0.23)	0.02 (0.06)	0.25 (-0.22 to 0.73)	0.84 (0.48 to 1.20)	0.58 (-0.02 to 1.18)
Children 0 to 20 years of age	0.10 (0.03)	-0.002 (0.007)	0.91 (0.84 to 0.96)	0.87 (0.83 to 0.92)	-0.04 (-0.08 to 0.01)
Children 0 to 3 years of age	0.23 (0.06)	0.01 (0.02)	0.97 (0.85 to 1.07)	0.83 (0.75 to 0.92)	-0.13 (-0.19 to -0.07)

Change in level indicates the change in the probability of reporting a food need immediately associated with Pilot enrollment. A positive number indicates greater probability. Trend indicates the change in probability of reporting a food need per day associated with Pilot enrollment. A negative number indicates declining probability.

'Out-of-bounds' estimates (estimates of probability < 0 or > 1) are due to use of linear regression models for analysis.

We also examined whether any particular food service was associated with lower probability of reporting a food need at 90 days, relative to other interventions. These comparisons were among all Pilot participants. Sample size did not permit comparisons by eligibility category. Though there were many possible food services, we focused on comparing the four most common food services (comparisons with other food services could not be made owing to sample size). These services were (roughly in order of increasing unit cost): a healthy food subsidy/voucher/'fruit and vegetable prescription', a food box (small or large) picked up by the participant, a food box (small or large) delivered to the participant's home, and healthy delivered meals.

Overall, we found that the probability of reporting a food need at 90 days was lower with healthy meals compared with other services. The probability was 0.08 lower (95% Confidence Interval [CI]: 0.12 lower to 0.02 lower,  $p = .001$ ) with delivered meals compared with a food subsidy, 0.06 lower (95%CI: 0.11 lower to 0.01 lower,  $p = 0.01$ ) with delivered meals compared with a food box for pick up, and 0.04 lower (95%CI: 0.08 lower to no difference,  $p = 0.05$ ) with delivered meals compared with a delivered food box.

A delivered food box was associated with 0.04 lower probability (95%CI: 0.06 lower to 0.02 lower,  $p = .001$ ), compared with a food subsidy. There was no difference between the probability of reporting a food need associated with a food box for pick up compared with a food box for delivery, or a food box for pick up compared with a food subsidy.

While interesting, these results should be interpreted with caution given that participants were not randomly assigned to food services, and so the differential probability observed could result from confounding. Later phases of the evaluation are designed to address this potential threat to validity.

## Housing Needs

We examined how the probability of reporting a housing need changed over time with Pilot participation. We found that there was an increased probability immediately associated with Pilot enrollment. This probability decreased over time, but the magnitude of the change was small (**Table 50**). When examining categories of eligibility, we did not observe statistically significant improvement for any category, and estimates of improvement were close to 0 for most categories. The models did estimate a change that was large in magnitude for pregnant individuals, but this was not statistically significant, with high uncertainty.

Table 51: Probability of Reporting a Housing Need

Eligibility Category	Change In Level (SE)	Trend (SE)	Probability At Enrollment (95% CI)	Probability at 90 Days (95% CI)	Difference (95% CI)
Overall	0.09 (0.02)	-0.02 (0.005)	0.55 (0.51 to 0.60)	0.55 (0.51 to 0.58)	-0.004 (-0.03 to 0.02)
Non-Pregnant Adults	0.10 (0.03)	-0.01 (0.007)	0.57 (0.52 to 0.63)	0.56 (0.52 to 0.61)	-0.01 (-0.05 to 0.03)
Pregnant Individuals	0.48 (0.21)	-0.04 (0.04)	1.04 (0.68 to 1.42)	0.57 (0.19 to 0.94)	-0.48 (-1.06 to 0.10)
Children 0 to 20 years of age	0.03 (0.04)	-0.03 (0.009)	0.49 (0.41 to 0.57)	0.51 (0.45 to 0.57)	0.02 (-0.03 to 0.06)
Children 0 to 3 years of age	0.01 (0.09)	-0.03 (0.02)	0.58 (0.40 to 0.77)	0.56 (0.41 to 0.71)	-0.02 (-0.15 to 0.10)

Change in level indicates the change in the probability of reporting a housing need immediately associated with Pilot enrollment. A positive number indicates greater probability. Trend indicates the change in probability of reporting a housing need per day associated with Pilot enrollment. A negative number indicates declining probability.

'Out-of-bounds' estimates (estimates of probability < 0 or > 1) are due to use of linear regression models for analysis.

We also examined whether any particular housing service was associated with lower probability of reporting a housing need at 90 days, relative to other interventions. These comparisons were among all Pilot participants. Sample size did not permit comparisons by eligibility category. We focused on comparing the three most commonly used housing services (comparisons with other services could not be made owing to sample size). These interventions were receipt of tenancy support and sustaining

services (which provides one-to-one case management and/or educational services to prepare an enrollee for stable, long-term housing), receipt of a home visit, and rental assistance.

Overall, we found that the probability of reporting a housing need at 90 days was lower with tenancy support and sustaining services compared with other housing services. The probability was 0.05 lower (95%CI: 0.10 lower to 0.01 lower,  $p = 0.02$ ) with tenancy support and sustaining services compared with a home inspection, and 0.08 lower (95%CI: 0.12 lower to 0.03 lower,  $p < .001$ ) with tenancy support and sustaining services compared with rental assistance.

We did not observe a difference between home visit and first month rental assistance in their association with probability of reporting a housing need.

As with food services, these results should be interpreted with caution given that participants were not randomly assigned to housing interventions, and so the differential probability observed could result from confounding. Later phases of the evaluation are designed to address this potential threat to validity.

## Transportation Needs

We examined how the probability of reporting a transportation need changed over time with Pilot participation. We found that there was an increased probability immediately associated with Pilot enrollment. There was a decreased probability over time, however the magnitude was small (**Table 51**). When examining categories of eligibility, benefit was most clear for non-pregnant adults. Substantial uncertainty limits conclusions about effectiveness for other eligibility categories.

Table 52: Probability of Reporting a Transportation Need

Eligibility Category	Change In Level (SE)	Trend (SE)	Probability At Enrollment (95% CI)	Probability at 90 Days (95% CI)	Difference (95% CI)
Overall	0.09 (0.02)	-0.02 (0.005)	0.31 (0.27 to 0.36)	0.29 (0.25 to 0.32)	-0.03 (-0.05 to -0.01)
Non-Pregnant Adults	0.11 (0.03 to 0.13)	-0.02 (0.007)	0.34 (0.29 to 0.39)	0.31 (0.27 to 0.35)	-0.03 (-0.05 to -0.01)
Pregnant Individuals	0.05 (0.25)	-0.12 (0.03)	0.34 (-0.22 to 0.90)	0.25 (0.01 to 0.49)	-0.09 (-0.68 to 0.50)
Children 0 to 20 years of age	0.02 (0.03)	-0.002 (0.008)	0.25 (0.18 to 0.31)	0.23 (0.18 to 0.28)	-0.01 (-0.05 to 0.02)
Children 0 to 3 years of age	0.04 (0.10)	0.004 (0.01)	0.33 (0.14 to 0.52)	0.37 (0.22 to 0.52)	0.03 (-0.09 to 0.16)

Change in level indicates the change in the probability of reporting a transportation need immediately associated with Pilot enrollment. A positive number indicates greater probability. Trend indicates the change in probability of reporting a transportation need per day associated with Pilot enrollment. A negative number indicates declining probability.

'Out-of-bounds' estimates (estimates of probability < 0 or > 1) are due to use of linear regression models for analysis.

We also examined whether any particular transportation service was associated with lower probability of reporting a transportation need at 90 days, relative to other transportation services. These comparisons were among all Pilot participants. Sample size did not permit comparisons by eligibility category. We focused on comparing the two most common commonly used transportation services (comparisons with other services could not be made owing to sample size). These services were receipt of a subsidy for public transportation, and receipt of a subsidy for private transportation.



Overall, we found that the probability of reporting a transportation need at 90 days was lower with a subsidy for private transportation compared with a subsidy for public transportation (0.11 lower, 95%CI 0.22 lower to 0.00,  $p = 0.06$ ), but this difference was not statistically significant.

As with other interventions, these results should be interpreted with caution given that participants were not randomly assigned to transportation interventions, and so the differential probability observed could result from confounding. Later phases of the evaluation are designed to address this potential threat to validity.

## Toxic Stress and IPV Needs

We examined how the probability of reporting a toxic stress and/or IPV-related need changed over time with pilot participation. The prevalence of reporting a toxic stress and/or IPV-related need was very low, and it is important to remember that no IPV-related or toxic stress specific services were invoiced during this assessment period. Further, as noted above, IPV-related services were not open to referral during this period. We did not find a statistically significant increased probability immediately associated with Pilot enrollment or a statistically significant decreased probability over time (**Table 52**). When examining categories of eligibility, patterns were similar. However, the low number of reported needs means these results should be interpreted cautiously.

Table 53: Probability of Reporting a Toxic Stress and/or IPV Need

Eligibility Category	Change In Level (SE)	Trend (SE)	Probability At Enrollment (95% CI)	Probability at 90 Days (95% CI)	Difference (95% CI)
Overall	0.005 (0.005)	-0.0006 (0.001)	0.01 (0.002 to 0.02)	0.01 (0.002 to 0.02)	-0.003 (-0.005 to -0.001)
Non-Pregnant Adults	0.0008 (0.003)	0.0002 (0.001)	0.01 (0.00 to 0.02)	0.01 (0.000 to 0.01)	-0.003 (-0.005 to 0.0001)
Pregnant Individuals	--	--	--	--	--
Children 0 to 20 years of age	0.02 (0.01 to 0.25)	-0.002 (0.002)	0.02 (0.00 to 0.05)	0.02 (0.00 to 0.04)	-0.004 (-0.001 to 0.001)
Children 0 to 3 years of age	0.06 (to 0.06)	-0.01 (0.008)	0.06 (-0.05 to 0.18)	0.05 (-0.05 to 0.15)	-0.01 (-0.03 to 0.01)

The model for pregnant individuals did not converge owing to small sample size.

Change in level indicates the change in the probability of reporting a toxic stress and/or IPV need immediately associated with Pilot enrollment. A positive number indicates greater probability. Trend indicates the change in probability of reporting a toxic stress and/or IPV need per day associated with Pilot enrollment. A negative number indicates declining probability.

'Out-of-bounds' estimates (estimates of probability < 0 or > 1) are due to use of linear regression models for analysis.

No Toxic Stress or IPV-related services were invoiced during the study period, so we could not conduct analyses comparing intervention types.

## Conclusions

With regard to Evaluation Question 1 (“Effective Delivery of Pilot Services”) analyses, the state of North Carolina’s goal of establishing a multi-sector collaboration between the state, PHPs, healthcare systems, and HSOs has been achieved. Although there are always areas of operations that can be improved, this was a major undertaking completed in a relatively compressed timeframe after unavoidable disruption due to the COVID-19 pandemic. In preparation to deliver services, staff at the organizations expressed concern about the scale of the task and the differences between the structure of the Pilots and their usual methods of operation, including interfacing with the Medicaid regulatory environment. Collaboration often began among organizations that had worked together previously, then grew substantially in order to offer a wide array of services for the Pilots.

Operational data reveal that despite challenges, Pilot infrastructure has successfully enabled delivery of services in the Pilots. As of November 30, 2022 a total of 2,705 unique individuals have been enrolled, and 14,427 services have been delivered across many different intervention types by 84 HSOs. Initial assessments of social needs occur quickly (most commonly right at the time of enrollment). As needs are uncovered, services to address them are delivered quickly. At the time of this report, 63% of those who enroll—1,713 out 2,705 Pilot participants—had received at least one invoiced service, with more participants in the pipeline to receive services as time progresses. Further, there can be a lag between service delivery and invoicing for services. The rate of service receipt varies across need types. 68% of individuals reporting a food need received an invoiced food service during this period, while 40% of those reporting a housing need received an invoiced housing service, and 16% of those reporting a transportation need received an invoiced transportation service. This difference may reflect both the phased rollout of services, with food services preceding all other services, and the complexity of delivering services to address the varying needs. For example, housing shortages are common in many communities served by the Pilots, and the availability of transportation resources varies across communities as well. Very few cross-domain services were invoiced during this period, and no toxic stress services were invoiced during this evaluation period. Further, no IPV-related services were invoiced, as these services are not yet offered.

Food services constituted the majority (90%) of services delivered, and over 75% of services had a service start date within 2 weeks of enrollment in the Pilots. Invoices for services were paid in a timely fashion. 56.2% of invoices were paid within 30 days, 90.3% within 60 days, and 97.9% within 90 days.

This is important as a major goal of the Pilots was to ensure that HSOs, many of which historically depend on grant funding received prior to delivery of services, could operate successfully with a financing model that includes payments made after services were delivered.

Owing to lack of data, we were unable to assess how activities to address health-related social needs in the areas served by the Pilots differed from those not served by the Pilots. Although we expect more substantial efforts were made in Pilot areas, we could not evaluate that directly at this time. Such questions will be addressed in subsequent evaluations.

Evaluation Question 3 (“Improved Social Risk Factors”) analyses analyze whether Pilot services seem to be addressing the health-related social needs that Pilot participants report. Following the Driver Diagram (**Figure 6**) that depicts the underlying logic of the Pilots, addressing those needs is a key pathway whereby Pilot services can lead to changes in health, healthcare utilization, and healthcare cost. Thus, optimizing services delivered to address those needs is important to the overall success of the Pilots, and a key rationale for conducting a RCA.

Overall, the evidence regarding the effectiveness of Pilot services at addressing social needs was mixed. As anticipated, we observed an initial increase in recorded needs as needs are identified by detailed assessments around the time of enrolling in the Pilots, followed by a decrease in needs as Pilot services address them. However, the magnitude of the decrease in needs was small. For example, we estimated that soon after enrollment in the Pilots, individuals reported an average of 1.73 needs, which declined to 1.68 needs at 90 days after enrollment. While statistically significant, whether a decrease of this magnitude is likely to improve health, healthcare utilization, or healthcare cost is unclear. However, 90 days is likely the minimum amount of time needed for a change to be observed<sup>23</sup>, and there have not been enough individuals with longer Pilot participation to examine needs at 180 or 365 days. Such analyses will be reported in subsequent assessments.

When examining specific needs, we estimated that the probability of an individual reporting a food need at 90 days after Pilot enrollment (0.85) was almost identical to the probability of reporting a food need around the time of enrollment (0.86). Similarly, the probability of reporting a housing need was 0.55 around the time of enrollment and still 0.55 at 90 days after Pilot enrollment, and the probability of reporting a transportation need was 0.31 around the time of enrollment and 0.29 at 90 days after Pilot enrollment. IPV-related and toxic stress needs were not reported very frequently during this evaluation period, and so we cannot draw conclusions about changes in those need types (and again, IPV-related services were not yet available in this time period).

In interpreting these findings, it is important to be mindful of two key limitations. First, owing to the timing of service delivery, there were relatively few individuals who were enrolled in the Pilots for longer periods of time. 90 days is a very brief period in which to observe an effect of the Pilots on social needs. Making comparisons at 180 and 365 days, which will be feasible in subsequent reporting periods, may reveal different patterns. Second, the study design in this phase of the analysis relies on repeated observations of participants in the Pilots. Because there was substantial variability in who received follow-up assessments of social needs, this could introduce selection bias that affects the results. Approaches to address this concern are discussed in the Lessons Learned section below.

We observed interesting findings with regards to specific services. A premise of the Pilots is that comparative effectiveness information needs to be generated, because there are often different services that might plausibly address a need, without sufficient evidence to choose one over another. For example, both a food subsidy and delivery of healthy meals might address food needs, but which is more effective is not clear. We did find suggestions of variations across intervention types that support this premise. Healthy meals delivery was associated with lower probability of reporting a food need at 90 days of Pilot enrollment than other food services offered within the Pilots like food subsidies (e.g., fruit and vegetable prescriptions) and food boxes, and these differences were large enough that they may be clinically meaningful. Similarly, with regard to housing services, tenancy support and sustaining services were associated with lower probability of reporting a housing need after 90 days of Pilot enrollment than other types of housing services.

Overall, these findings support a key rationale of conducting and evaluating the Pilots, which is to develop evidence on the comparative effectiveness of social needs interventions, so that the state of North Carolina can make an evidence-informed decision as to what services to offer for all Medicaid beneficiaries in subsequent years. However, these findings should also be interpreted cautiously, as receipt of services was not randomly assigned. Aspects of a participant's clinical or social situation could have influenced both what type of service they received for their need and the likelihood that such a need would resolve. This could confound the associations observed between type of service received and reduction in the probability of experiencing a particular social need. As per the approved Evaluation Design, subsequent reporting periods will include additional approaches to evaluation that can help overcome these limitations.

## Plans in Subsequent Evaluation Periods

The below sections describe plans to help answer evaluation questions in subsequent evaluation periods.

### Evaluation Question 1

We will continue to monitor enrollment, delivery of Pilot services, and spending on Pilot services. We will conduct network analyses examining the interrelationship between PHPs, NLs, and HSOs. We will conduct qualitative interviews with PHPs, NLs, and HSOs.

### Evaluation Question 2

We will examine rates of screening for health-related social needs and rates of enrollment in the Pilots (among those who screen positive), of Medicaid beneficiaries in Pilot regions. We will compare rates of screening for health-related social needs and services to address them between Medicaid beneficiaries in Pilot and non-Pilot regions.

### Evaluation Question 3

We will conduct analyses examining the effect of Pilot participation on changes in health-related social needs over longer timeframes. We will also conduct analyses comparing the effectiveness of different types of interventions (e.g., food subsidies versus meal delivery) for improving health-related social needs.

### Evaluation Question 4

We will conduct analyses examining the effect of Pilot participation on changes in clinical outcomes (as detailed in the evaluation design). We will also conduct analyses comparing the effectiveness of different types of interventions (e.g., food subsidies versus meal delivery) for improving clinical outcomes.

### Evaluation Question 5

We will conduct analyses examining the effect of Pilot participation on changes in healthcare utilization (as detailed in the evaluation design). We will also conduct analyses comparing the effectiveness of

different types of interventions (e.g., food subsidies versus meal delivery) for improving healthcare utilization.

### Evaluation Question 6

We will conduct analyses examining the effect of Pilot participation on changes in healthcare cost (as detailed in the evaluation design). We will also conduct analyses comparing the effectiveness of different types of interventions (e.g., food subsidies versus meal delivery) for improving healthcare cost.

## Interpretations, Policy Implications, and Interactions with Other State Initiatives

### Interpretations

We offer the following interpretations to integrate the findings of this first RCA.

First, the major achievement is the establishment of the infrastructure necessary for the Pilots to function. This included the necessary information technology platforms, the legal and regulatory agreements necessary for the state of North Carolina, PHPs, NL, HSOs, healthcare organizations to collaborate, integrating HSOs into the healthcare ecosystem, and the interpersonal work of making these relationships productive. It was a massive undertaking, and has been accomplished successfully, allowing for large-scale delivery of services across three regions of the state.

Second, the ability to address some questions of interest in this assessment was hindered by the number of individuals enrolled in the Pilots. The Pilots were designed to ramp up during this assessment period, and so the enrollment numbers may reflect that. Another explanatory factor could be that methods of social need assessment and enrollment require iteration. In any event, working to increase enrollment in the Pilots is a major goal going forward.

Third, we were unable to compare to results in Pilot regions to other regions in the state, or to evaluate the reach of Pilot services within their region. These will be important topics of analysis in future periods.

Fourth, delivery of services to those who enrolled in the Pilots has had both bright spots and limitations. Around two-thirds of those who enrolled in the Pilots have received invoiced services to date. This includes almost half of those reporting a housing need receiving housing services, which is a difficult need to address. It is likely that this percentage will rise as services that have already been delivered are invoiced, and as those in the pipeline to receive services receive them. At the same time, working to ensure as high a percentage of individuals who enroll in the Pilots as possible receive services is another major goal. Strategies to boost this number could include making modifications to the selection of services available and/or the processes for Pilot participants to receive services.

Fifth, the evolution of social needs reported followed an expected pattern. Needs were highest around the time of Pilot enrollment, and decreased over time. At this time, the magnitude of the decrease observed has been small, however, particularly given the overall goal of improving health, healthcare utilization, and healthcare cost. Two important factors for interpreting these findings,



however, are the relatively short amount of time individuals have been receiving services, and the relatively few (and unevenly distributed) follow-up assessments after receiving Pilot services. This makes it difficult to distinguish whether the impact of the services on needs is small, or whether there is selection bias such that those who continue to have needs are re-assessed, and those whose needs were successfully resolved do not receive further assessments. Distinguishing these possibilities will be a focus of subsequent analyses.

Sixth, we observed interesting potential variation in the effectiveness of different interventions. For example, healthy meal delivery was associated with lower probability of reporting a food need, among those who received a food service, compared with a food subsidy. This provides a justification for later parts of the Pilots, which emphasize a comparative effectiveness evaluation between services that can address social needs. However, at this time, results should be interpreted cautiously as there could be confounding factors related to why individuals received one type of intervention over another.

### Policy Implications

We believe the key policy implication of the Pilots so far is that the intended structure of Pilot service delivery is feasible, capable of reaching those in need and delivering services to them, and may be offering benefits (albeit small on average) with regard to reducing health-related social needs. Overall, this supports continuing the Pilots with modifications, as suggested below, in order to better pursue the state of North Carolina's goals to improve health for those experiencing health-related social needs.

### Interactions with Other State Initiatives

In this first RCA, the focus has been on the performance of the Pilots, and thus we have not assessed how the Pilots integrate with other state initiatives. Such an assessment will be a part of subsequent evaluation activities.

## Lessons Learned and Recommendations

Lessons learned from this Rapid Cycle Assessment suggest several recommendations for alterations of Health Opportunities Pilots activities going forward. These are:

1. Continue to Accelerate Enrollment in the Healthy Opportunities Pilots. This assessment period coincided with a planned ramp-up of Pilot services, which meant lower enrollment earlier in the period, and growing enrollment later in the assessment period. In subsequent assessment periods, greater enrollment in the Pilots is likely to be beneficial both for Medicaid beneficiaries and for the purposes of evaluation. If Medicaid beneficiaries who could benefit from Pilot services are not enrolled, it could leave them in need. Greater enrollment would also help increase the power of evaluation activities, and permit evaluation of a broader set of questions. This is particularly important for detecting differences in response to services across groups, and for more in-depth analysis of groups that are of interest to the state of North Carolina, but are less common among Pilot participants, such as pregnant individuals. Without adequate numbers of individuals from categories of interest, there will be substantial uncertainty in any conclusions drawn from evaluation activities.
2. Ensure High Rates of Service Delivery. We found that around one third of individuals who enrolled in the Pilots did not have an invoice for Pilot services at time of the evaluation. This does not necessarily mean these individuals will not receive any Pilot services—this observation could reflect a lag in data from delivery of services to invoicing for them, or simply reflect the time needed for services to be arranged after enrollment in the Pilots. However, ensuring that as many individuals who enroll in the Pilots as possible do receive services is an important goal for the Pilots. Continuing to monitor service delivery will be important in subsequent periods.
3. Collect Repeated Needs Assessments. As of this report, the short duration of participation for many individuals in the Pilots means that sufficient time for repeated needs assessments to occur may not yet have elapsed. However, ensuring these assessments do occur in subsequent periods is an important goal. A key feature of the Pilots is the use of needs assessments to help determine whether Pilot services are having their intended effect. If the services are not reducing needs, it is less likely that they will improve health, healthcare utilization, or healthcare spending. Finding that needs persist despite receiving services means that alternative services could be offered. On the other hand, if needs are being met, this would suggest that services are

working and should be continued, if the Pilot participant so desires. In addition, repeated assessments can serve to evaluate whether Pilot services are having their intended effect and suggest whether course corrections in service delivery are needed, which may increase the likelihood of achieving hoped-for effects in the summative phase of the evaluation. Thus, repeated assessment of needs periodically throughout Pilot participation is an important part of the program—both for participants and for NLs and HSOs who want to ensure the services being delivered are working as intended. As time goes on, it will be important to ensure processes for routine collection of health-related social needs information are implemented with fidelity.

4. We Do Not Recommend Changes to Services at This Time. In this initial Rapid Cycle Assessment, we noted interesting signals that some services may be more effective at reducing needs than others. However, these should be interpreted as preliminary findings at this time. The associations observed may be confounded, and the sample sizes are small. Thus, we believe the best course of action is to continue delivering services to more Pilot participants, in order to collect more data. When more data are in hand, informed decisions about which services to continue, modify, or discontinue can be made. Although we do not recommend changes to specific services offered by the Pilots at this time, we do recommend that the state of North Carolina continue with the efforts it is making for operational improvements to the Pilots. Such planned improvements include those related to capacity building funding, streamlining the process of Pilot enrollment, and making the NCCARE360 data platform more user friendly. These improvements that the state of North Carolina plans to make are in accord with feedback provided by NLs and HSOs in surveys and qualitative interviews.

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## Attachments

### CMS Approved Evaluation Design

*Please see separate PDF of the CMS approved Evaluation Design*

## Healthy Opportunities Pilots Fee Schedule

*Please see separate PDF of the Healthy Opportunities Pilots Fee Schedule*



## Interview Guide

### Healthy Opportunities Pilots Evaluation

#### Introduction

**Greeting:** Hello, my name is \_\_\_\_\_ and I work with the evaluation team at University of North Carolina at Chapel Hill. The NC Department of Health and Human Services has asked us to evaluate North Carolina Medicaid’s Healthy Opportunities Pilots. I really appreciate you taking the time to participate in this interview.

**Purpose:** I am part of a research team working on the evaluation to learn more about how organizations are preparing to provide services in the pilot regions. From these interviews, we would like to better understand what you are doing and how you plan to carry out these services.

**Confidentiality and Introduction:** To start, I’d like to stress that we will keep everything said here today confidential. Also, nothing you say will be connected with your name. I hope that you will feel free to speak openly. I will ask you some specific questions, but the most important part of the discussion will be the information that you will share with us. Please know that there is no right or wrong answer to these questions. Our main goal is to learn from you and have you feel comfortable sharing your thoughts and experiences about this pilot work. Our discussion today will last about **30 minutes**.

(If applicable) As a thank you for your time and participation, we will send you (incentive information here)

Before we begin, I would like to State that the conversation is being recorded to help us remember what is said during this interview. You may ask me to turn off the recorder at any time or simply say you do not want to answer a question.

Do you have any questions before we begin? May I start the recorders?

#### START RECORDERS

#### Section 1. Background and Context

To start off, I would like to learn a little bit about you. Please tell me:

- What is your role and how long you have been in this position?
- What is your favorite thing about the work you do?

#### Section 2. Organizational Capacity and Readiness

One of the things I would like to learn more about is your organization. Let’s start off with staffing.

##### *Staffing*

1. How adequate is the current staffing structure for what you are being asked to do for this pilot implementation?

2. What changes, if any, happened in the staffing or organizational result? (Positions added, expanded, consolidated?)

#### *Services and Resources*

3. In terms of service and resources, tell me some of the key services and resources offered by your organization?
  - a. What services or resources, if any, were newly added as a result of the Healthy Opportunities Pilots?
  - b. What services or resources, if any, were modified or changed?
  - c. What gaps in services or resources would you like to see addressed and added to the Healthy Opportunities Pilots?

#### *Financial Stability*

4. In terms of funding and revenue streams, how does provision of services through the Healthy Opportunities Pilots fit into other services offered and populations served by your organization?

#### *Readiness*

5. What most excites you about this Healthy Opportunities Pilot?
  - a. What are the main benefits you see with this pilot?
6. What most worries you about this Healthy Opportunities Pilot?
  - a. What are the main challenges you see with this pilot?
7. What would help you feel ready to successfully participate in the Healthy Opportunities Pilots?
8. The Healthy Opportunities Pilots will provide an opportunity for cross-sectoral collaboration (e.g., Medicaid, housing policy, food policy etc) to address needs of the individuals served. If at all, how has the need to involved different sectors and associated regulatory environments affected your preparations?

### **Section 3. Preparation for the Pilot**

9. What are your short term and long-term goals for your organization with regard to the Healthy Opportunities Pilots?
10. If you were to picture a successful plan to provide services in your region, what are the key components involved in that plan?
  - a. What has been most beneficial in your preparations to provide these services?

- b. What has been most challenging in your preparations to provide these services?
- c. As the Healthy Opportunities Pilots are a Medicaid program, has that affected your preparations, and if so, how?

#### Section 4. Networks and Partnerships

11. Think back to when you first began planning for these programs and services. Who are the main partnerships that will collaborate to promote and provide support for this initiative? This can include any individuals, community partners or agencies involved in this pilot.
- a. How did you choose who would be in this partnership?
  - b. What are the key assets they bring to this collaboration?
12. Thinking about your current partners, who is missing? What other individuals, organizations, or agencies should be engaged in this work?

#### Section 5. Communication

13. What types of communication strategies are you using to promote your programs and services?
- a. Internally within your organization?
  - b. Externally with your partnerships?
14. To further enhance your work, what additional communication strategies should be considered or included?

#### Section 6. Internal Evaluations

15. Once services begin, what plans, if any, do you (or your organization) have to internally keep track of progress?
- a. What will be assessed? (How and when)

#### Section 7. Closing

16. We have talked about many different aspects of your programs and services. Based on our discussion today, what is one thing you feel is essential to enable effective delivery of pilot services in your region?
17. What advice would you offer other organizations that seek to do this type of work?

Is there anything else you feel we did not cover that I need to know?

Thank you!

**TURN OFF RECORDERS**

## Qualitative Analysis Codebook

## Healthy Opportunities Pilots Evaluation Codebook

Code Name	Description	Notes
<b>Section 1. Participant Background</b>		
Participant codes refer to information about participant, their role or position and what excites them about the pilot.		
Participant Role	Comments about participant's role and how long they have been in this position. Also include any comments about favorite thing(s) about work.	To supplement demographic info as needed
Participant Excitement	Comments about what most excites participant about this Healthy Opportunities Pilot.	
<b>Section 2. Organizational Capacity and Readiness</b>		
Organizational codes refer to information about the organization's capacity and readiness as it relates to Healthy Opportunities Pilots. It includes comments about key components of staffing, services and resources, finances, and the impact of regulatory environment.		
Organ Staffing	Comments about how adequate the current staffing structure is for pilot implementation and any changes (positions added, expanded, consolidated) that may have happened.	
Organ Services & Resources	Comments about key service and resources offered by organization, including any newly added, modified or changed because of the Healthy Opportunities Pilots. Also include any comments about gaps in services or resources participant would like to see addressed and added.	Subcodes: <ul style="list-style-type: none"> <li>• Service Changes</li> <li>• Service Gaps</li> </ul>
Organ Financial Stability	Comments about funding and revenue streams, or how provision of services through the Healthy Opportunities Pilots fit into other services offered and populations served by organizations	
Organ Regulatory Impact	Comments about how the need to involve different sectors and associated regulatory environments affected organization's preparations	
<b>Section 3. Preparation for the Pilot</b>		
Prep codes refer to the goals, components of success, benefits and challenges, and the impact of Medicaid on preparations.		
Prep Goals	Comments about short term and long-term goals for organizations with regard to the Healthy Opportunities Pilots	
Prep Benefits & Success	Comments about what has been most beneficial in the preparations to provide these services. Also include comments about what may be viewed as the main benefits this pilot.  (Edits 07.06.22) Combine code with PREP SUCCESS:	Subcodes: <ul style="list-style-type: none"> <li>• Benefit Prep</li> <li>• Benefit Pilot</li> </ul>

Code Name	Description	Notes
	Comments about the key components involved in a successful plan to provide these services. Also include comments about what would help organizations feel ready to successfully participate in the Healthy Opportunities Pilots	
Prep Challenges	Comments about what has been most challenging in the preparations to provide these services. Also include comments about what most worries participants about this Healthy Opportunities Pilot or the main challenges seen with this pilot.	Subcodes: <ul style="list-style-type: none"> <li>• Challenge Prep</li> <li>• Challenge Pilot</li> </ul>
Prep Medicaid	Comments about any affect the Medicaid program has on organization's preparations	
<b>Section 4. Networks and Partnerships</b>		
Partnership code refers to the partners and collaborators who play a role in the Healthy Opportunity Pilot, reasons for their selection and involvement and their contributions. It also includes individuals, community partners or agencies that are missing and should be involved in this work.		
Partnerships	Comments about who are the main partnerships and collaborations involved in this initiative, including individuals, community partners or agencies involved in this pilot. Also include comments about how partners were selected and key assets they bring to this collaboration. Use this code for any comments about missing individuals, organizations, or agencies that should be engaged in this work.	Subcodes: <ul style="list-style-type: none"> <li>• Partners Assets</li> <li>• Partners Missing</li> </ul>
<b>Section 5. Communication</b>		
Communication code refers to types of strategies being used to promote programs and services within and outside of organizations.		
Communication	Comments about types of communication strategies being using to promote programs and services, both internally within organizations and externally with your partnerships. Also include comments any additional communication strategies that should be considered or included to enhance this work.	Subcodes: <ul style="list-style-type: none"> <li>• Comm Internal</li> <li>• Comm External</li> <li>• Comm Add</li> </ul>
<b>Section 6. Internal Evaluations</b>		
Internal Eval codes refer to any plans or things that will be assessed internally to track progress once service begins.		
Internal Eval	Comments about what plans or things that will be assessed (how and when) internally to track progress once service begins. Also include any comments about the ABSENCE of internal plans for tracking progress	
<b>Additional Codes</b>		
Recommendations	Comments about what participants feel is essential to enable effective delivery of pilot services in their region. Also include any advice would for other organizations that seek to do this type of work	
Quotables	Comments about any particular aspects of the HOP that are particularly important and well articulated that should be noted for inclusion in final reports, presentations.	

