NC MEDICAID MATERNAL HEALTH QUALITY REPORT

A Comprehensive Evaluation of NC Medicaid's Maternal Health Outcomes from 2021-2024

NC DEPARTMENT OF
HEALTH AND
HUMAN SERVICES
Division of Health Benefits

Table of Contents

Introduction

Maternal Health in North Carolina

North Carolina is experiencing a maternal health crisis, with rates of preterm birth, infant mortality and maternal mortality above national averages.[1] Throughout the state, roughly 18% of pregnant women report receiving inadequate prenatal care,[2] leaving them at an increased risk for poor health outcomes. Additionally, pregnant women with chronic conditions, those of certain racial groups and women living in rural areas are at an even higher risk of adverse perinatal outcomes.[3,4] Table 1 outlines data found in North Carolina's 2025 March of Dimes Report Card, providing comparisons to national averages and rankings when available.

Table 1: North Carolina 2025 March of Dimes Report Card[5]

	 North Carolina	 National Average	 National Ranking
Preterm Birth	10.7%	10.4%	32nd out of 52*
Infant Mortality	6.9 deaths per 1,000 live births	5.6 deaths per 1,000 live births	41st out of 52*
Maternal Mortality	29.8 deaths per 100,000 births	23.5 deaths per 100,000 live births	35th out of 48**
Inadequate Prenatal Care***	18.6%	16.1%	N/A

*Includes the fifty states in the United States, the District of Columbia and Puerto Rico.

**Only 48 out of the United States' 52 states and territories (including the District of Columbia and Puerto Rico) had available data for this measure.

***Percent of pregnant women who received care beginning in the fifth month or later or less than 50% of the appropriate number of visits for the infant's gestational age.

1 Ratliff, M. (2025). North Carolina grapples with maternal, infant health crisis; organizations offer a lifeline. *Fox 8 News*. https://myfox8.com/news/north-carolina/north-carolina-grapples-with-maternal-infant-health-crisis-organizations-offer-a-lifeline/

2 March of Dimes defines inadequate prenatal care as "pregnancy-related care beginning in the fifth month of pregnancy or later or less than 50% of the appropriate number of visits for an infant's gestational age."

3 Race/Rurality: Lemas, D. J., Layton, C., Ballard, H., Xu, K., Smulian, J. C., Gurka, M., Loop, M. S., Smith, E. L., Reeder, C. F., Louis-Jacques, A., Hsiao, C. J., Cacho, N., & Hall, J. (2023). Perinatal Health Outcomes Across Rural and Nonrural Counties Within a Single Health System Catchment. *Women's Health Reports*, 4(1), 169–181. https://doi.org/10.1089/whr.2022.0061

4 Chronic conditions/disability: Gleason, J. L., Grewal, J., Chen, Z., Cernich, A. N., & Grantz, K. L. (2023). Risk of adverse neonatal outcomes among pregnant women with disabilities. *International Journal of Epidemiology*, 52(1), 203–213. https://doi.org/10.1093/ije/dyac183

5 March of Dimes - Peristats. (2025). 2024 March Of Dimes Report Card For North Carolina. https://www.marchofdimes.org/peristats/reports/north-carolina/report-card

Maternal Health and North Carolina Medicaid

North Carolina Medicaid currently provides critical health insurance coverage and support to over three million North Carolinians, including low-income individuals and families, medically fragile children,[6] people with severe mental illness, those in adult care homes and nursing homes, and pregnant women.[7] Medicaid is jointly financed by the states and federal government. In this partnership, the federal government sets requirements and standards, while individual state governments administer Medicaid programs and have flexibility in determining who is covered, what services are delivered, and how much providers are reimbursed.[8] Following Medicaid expansion (sometimes referred to as "Expansion") in North Carolina in December 2023, all adults ages 19 through 64 who earn up to 138% of the Federal Poverty Level (FPL) became eligible to receive Medicaid coverage.[9] At the time of launch, over 270,000 North Carolinians who were previously enrolled with limited benefits automatically received full Medicaid coverage. Those who were automatically enrolled following Expansion were only a fraction of the estimated 600,000 individuals who became newly eligible to receive full benefits, only emphasizing the need to ensure quality health services for the populations NC Medicaid serves.[10]

The importance of the NC Medicaid program in optimizing maternal health care across the state cannot be understated. NC Medicaid covers a wide array of maternal health services including prenatal and postpartum checkups, vaginal and cesarean deliveries, group prenatal care, maternal mental health care, breastfeeding education and childbirth classes.[11,12] In North Carolina, Medicaid pays for over 50% of births each year, with rates nearing 60% in certain regions of the state.[10]

However, Medicaid coverage at the time of birth is not equally distributed across racial and ethnic groups.[13] As seen in Table 2, births among certain racial groups like American Indian/Alaska Native and Black individuals only make up a fraction of the births that take place in the state each year. However, a vast majority of mothers who identify as American Indian/Alaska Native and Black are covered by NC Medicaid at the time of birth. In contrast, a majority of the births that take place in North Carolina are among White individuals but only 27.9% of White mothers are covered by NC Medicaid at the time of birth. The fact that NC Medicaid is the primary payer for births among populations that have been historically marginalized highlights the important role that NC Medicaid plays in addressing maternal health disparities and providing the highest levels of maternal care to some of the state's most vulnerable populations.

Table 2: Differences in Percent of Total Births and Medicaid Coverage at Time of Birth Across Racial/Ethnic Groups[14,15]

Population	Percent of Total NC Births	Percent of Mothers Covered by NC Medicaid at Time of Birth
American Indian/Alaska Native	1.4%	68.5%
Black	24.9%	62.9%
Asian/Pacific Islander	4.1%	20.0%
Hispanic	18.5%	38.0%
White	65.9%	27.9%

6 "Medically fragile children" refers to children with complex medical needs that require ongoing care.
7 NC Medicaid. (n.d.). What We Do. https://medicaid.ncdhhs.gov/about-nc-medicaid/what-we-do
8 Burns, A., Hinton, E., Rudowitz, R., & Mohamed M. (2025, February 18). 10 Things to Know About Medicaid. KFF. https://www.kff.org/medicaid/issue-brief/10-things-to-know-about-medicaid/
9 *Questions and Answers about Medicaid Expansion | NC Medicaid.* (n.d.). https://medicaid.ncdhhs.gov/questions-and-answers-about-medicaid-expansion
10 *North Carolina Celebrates More Than 500,000 Enrolled in Medicaid Expansion | NC Gov. Cooper.* https://governor.nc.gov/news/press-releases/2024/07/12/north-carolina-celebrates-more-500000-enrolled-medicaid-expansion.
11 Medicaid Coverage of Pregnancy-Related Services: Findings from a 2021 State Survey - Report - 9936. (2022, May 19). KFF. https://www.kff.org/report-section/medicaid-coverage-of-pregnancy-related-services-findings-from-a-2021-state-survey-report/
12 *Medicaid-and-Maternal-Health-MDC-website.pdf.* (n.d.). Retrieved August 4, 2025, from https://www.mdcinc.org/wp-content/uploads/2023/07/Medicaid-and-Maternal-Health-MDC-website.pdf
13 *NC Birth Demographics | Division of Public Health.* (n.d.). Retrieved August 4, 2025, from https://www.dph.ncdhhs.gov/programs/title-v-maternal-and-child-health-block-grant/nc-maternal-and-infant-health-data-dashboard/nc-birth-demographics
14 *Percentage of births by race: North Carolina, 2021-2023 Average.* (n.d.). March of Dimes | PeriStats. Retrieved August 4, 2025, from https://www.marchofdimes.org/peristats/data?top=2&lev=1&stop=9&reg=99&sreg=37&obj=3&slev=4
15 *Medicaid Coverage by Race/Ethnicity: North Carolina, 2021-2023 Average.* (n.d.). March of Dimes | PeriStats. Retrieved August 4, 2025, from https://www.marchofdimes.org/peristats/data?reg=99&top=11&stop=653&lev=1&slev=4&obj=1&sreg=37

NC Medicaid has increased its delivery of high quality, holistic maternal health care to pregnant and postpartum beneficiaries. In addition to Expansion, which granted many individuals (including those who are trying to conceive or pregnant) full Medicaid benefits, NC Medicaid extended postpartum coverage from 60 days to 12 months in April 2022.[16] This extension primarily benefits individuals who only qualify for Medicaid due to their pregnancy and acknowledges NC Medicaid's commitment to supporting new parents throughout the postpartum period.[17] Additionally, NC Medicaid recently updated its 1E-5 Obstetrical Services Policy, including changes that allow for the capture of more accurate maternal health data, the inclusion of group prenatal care as a billable service and coverage of more postpartum depression screenings following delivery.[18]

Purpose and Structure of the Report

The first of its kind for the state, this report aims to shed light on NC Medicaid's performance on key maternal health outcome metrics and different initiatives that are diligently working to improve maternal care in North Carolina. NC Medicaid hopes that this report provides policymakers, state-partners, maternal health organizations, and those with a passion for maternal health with a comprehensive landscape of maternal health across North Carolina; sharing maternal health outcomes among the NC Medicaid beneficiary population, highlighting organizations driving change in the maternal health space, informing best practices and inspiring new innovations.

This report is organized along the pregnancy continuum, moving from preconception through pregnancy and concluding in the postpartum period. The indicators in the Maternal and Infant Health Data Dashboard (the primary data source for this report) are organized along this continuum and maternal health interventions are featured in the sections for which they are most relevant. Interventions highlighted in teal boxes indicate those run by the North Carolina Department of Health and Human Services (NCDHHS)[19] that are specific to NC Medicaid, while interventions highlighted in purple boxes identify interventions run by other organizations outside of the Department that may serve populations outside of NC Medicaid beneficiaries.

[16] *Postpartum Coverage Extended to 12 Months for NC Medicaid Beneficiaries Beginning April 1 | NCDHHS.* (n.d.). Retrieved August 4, 2025, from https://www.ncdhhs.gov/news/press-releases/2022/03/31/postpartum-coverage-extended-12-months-nc-medicaid-beneficiaries-beginning-april-1

[17] *Postpartum Coverage for NC Medicaid Beneficiaries | NC Medicaid.* (n.d.). Retrieved August 4, 2025, from https://medicaid.ncdhhs.gov/providers/programs-and-services/postpartum-coverage-nc-medicaid-beneficiaries

[18] *Changes to the 1E-5 Obstetrical Services Policy Effective April 1, 2024 | NC Medicaid.* (2024, April 16). https://medicaid.ncdhhs.gov/blog/2024/04/16/changes-1e-5-obstetrical-services-policy-effective-april-1-2024

[19] NCDHHS is hereafter referred to as the Department.

Methodology

The NC Maternal and Infant Health Data Dashboard

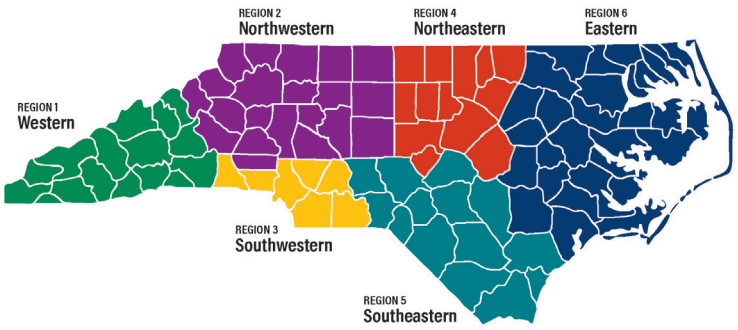
The majority of the health outcome data included in this report are from the NC Maternal and Infant Health Data Dashboard, a robust dashboard managed by the NCDHHS Division of Public Health (DPH) and the NC Title V Office. The dashboard features 20 maternal and infant health indicators and allows users to stratify over time and by maternal race/ethnicity, maternal age, maternal education, region and county. In May 2025, a partnership between NC Medicaid, DPH and Title V led to the addition of a *Maternal Medicaid Status* stratum. This new stratum allows users to compare rates for the "Medicaid" and "Non-Medicaid" populations across 14 of the dashboard's indicators, with the opportunity to stratify even further over time and by region and county. The *Maternal Medicaid Status* stratum links live birth certificate data and Medicaid claims data. For the purposes of the dashboard, the "Medicaid" population represents all live births linked to a paid Medicaid claim for delivery (including those on emergency Medicaid), and the "non-Medicaid" population represents births that were not.

The new Maternal Medicaid Status stratum improves the Department's ability to assess maternal and infant health outcomes. Prior to the implementation of the dashboard, the Department's preexisting quality measures[20] focused on assessing care delivery using billing claims and encounters data and lacked the ability to consistently assess associated maternal health outcomes. With the addition of the new stratum, the dashboard can be used to consistently track and assess maternal and infant health outcomes among NC Medicaid beneficiaries.

Indicators from the Maternal and Infant Health Data Dashboard are calculated by the NC Title V Office using live birth certificate data, death certificate data and inpatient hospital discharge data maintained by the North Carolina State Center for Health Statistics. Certain measures included in the dashboard, like *Birth Defect Rates and Critical Congenital Heart Defects Rates*, are calculated using other sources of data like the Birth Defects Monitoring Program (BDMP), North Carolina's statewide birth defects registry.[21] More information about these data sources can be found in the dashboard's Appendix. To maintain privacy, counts and rates for any strata that have less than 10 individuals represented are not displayed and are instead labeled as "suppressed" on the dashboard. The maps included in this report follow this same methodology and any counties with less than 10 births are suppressed.[17]

In addition to the other strata, some of the indicators presented in this report are stratified by perinatal care region (PCR). There are six PCRs that encompass all 100 counties in North Carolina.[17] For each indicator, PCRs are defined by the county of residence recorded on the birth certificates, death certificates or inpatient hospital discharge records. Figure 1 provides more information about county assignments to PCRs.[17]

Figure 1: North Carolina Perinatal Care Regions



[20] Please review North Carolina's Medicaid Quality Measurement Technical Specifications Manual for more information on quality measures.

[21] NCDHHS. (n.d.). N.C. Maternal and Infant Health Data Dashboard: Appendix. https://www.dph.ncdhhs.gov/programs/title-v-maternal-and-child-health-block-grant/nc-maternal-and-infant-health-data-dashboard/nc-maternal-and-infant-health-data-dashboard-appendix

Other Data Sources

In addition to the data from the dashboard, this report presents information on postpartum mental health and perinatal substance use. Rates for these indicators cannot be calculated using traditional state data sources such as live birth certificate and Medicaid claims data. Because of this, NC Medicaid located other sources of data to use in this report. Each individual section includes additional information about these external data sources.

Report Terminology

To align with the language used by the North Carolina State Center for Health Statistics, the NC Maternal and Infant Health Data Dashboard and the North Carolina birth certificate, this report refers to those who birthed a baby as "mothers" or "women."

This report uses additional terminology that may not be familiar to some readers. Please refer to Table 3 for more information about the maternal health terminology used in this report.

Table 3: Report Terminology

Terms	Definitions
Perinatal	The period immediately before and after birth, typically from the 20th week of gestation until six weeks after birth[22]
Antenatal/Prenatal	Having to do with the time a female is pregnant, before birth occurs[23]
Postpartum/Postnatal	First year following delivery[24]
Fetus	Used to describe a baby while still developing in utero[25]
Gestation	The time from fertilization of an egg until birth[26]
Newborn	The newborn period begins at birth and continues through the completed 28th day after birth[27]
Infant	Generally refers to a baby from birth to two years old[28]
Pregnancy-related death	A death during pregnancy or within one year of the end of the pregnancy from a pregnancy complication, a chain of events initiated by pregnancy or the aggravation of an unrelated condition by the physiologic effects of pregnancy[29]

[22] North Carolina Department of Health and Human Services. (2022). NC Perinatal Health Strategic Plan. https://wicws.dph.ncdhhs.gov/phsp/docs/PerinatalHealthStrategicPlan-9-15-22_WEB.pdf
[23] National Cancer Institute. (n.d.). NCI Dictionary of Cancer terms – Antenatal. https://www.cancer.gov/publications/dictionaries/cancer-terms/def/antenatal
[24] While the postpartum period is typically clinically defined as the first 12 weeks following delivery, this report defines the postpartum period as the first year following delivery as it is a high-risk time for mothers.
[25] National Cancer Institute. (n.d.). NCI Dictionary of Cancer terms - Fetal. https://www.cancer.gov/publications/dictionaries/cancer-terms/def/fetal
[26] ACOG. (n.d.). Dictionary. https://www.acog.org/womens-health/dictionary
[27] "Hospital Care of the Newborn", Coding for Pediatrics 2024: A Manual for Pediatric Documentation and Payment, Committee on Coding and Nomenclature, American Academy of Pediatrics, Linda D. Parsi, MD, MBA, CPEDC, FAAP
[28] U.S. Department of Health and Human Services. (2021). About infant care and infant health. Eunice Kennedy Shriver National Institute of Child Health and Human Development. https://www.nichd.nih.gov/health/topics/infantcare/conditioninfo
[29] NCDHHS. (2024). 2018-2019 maternal mortality review report. https://wicws.dph.ncdhhs.gov/docs/MMRCReport.pdf

Content & Results

This section demonstrates NC Medicaid's performance on various indicators from the Maternal and Infant Health Data Dashboard from 2021-2024. This report provides context for each maternal health indicator/ topic area, a graph or visual outlining NC Medicaid's performance when available and an interpretation of performance with additional context when relevant. Comparisons to Medicaid national averages are not available for the data provided in the dashboard, but discussion surrounding national performance has been included when available. Regional analyses have also been included when relevant.

Preconception

The period prior to conception plays a crucial role in promoting favorable health outcomes for mothers and their babies. Research shows that individuals' health behaviors, lifestyle choices and health status prior to conceiving can influence the health outcomes of their children.[30] Because of this, identifying and addressing certain health behaviors and conditions before conception can have significant positive impacts on both maternal and infant health outcomes.

It should be noted that prior to Medicaid Expansion in December 2023, a majority of the members included in the following preconception health measures were only eligible for full Medicaid benefits after becoming pregnant. Prior to getting pregnant, many of these beneficiaries received Medicaid services through North Carolina's Family Planning Medicaid (FPM). FPM is a limited benefit plan that provides reproductive health services for individuals of reproductive age (as determined by a provider) whose income is 195% or less of the FPL. As such, FPM is available to those with higher incomes than those who would qualify for full Medicaid benefits, making it easier to qualify for coverage. While it does not offer full coverage, beneficiaries enrolled in FPM have access to an array of services, including preventative health care services, birth control, STI testing and treatment and transportation to and from medical appointments.[31] Following Medicaid Expansion, FPM still plays an important role in providing certain services to individuals who do not qualify for full Medicaid benefits.

Smoking Prior to Pregnancy

While smoking during pregnancy is known to have serious health risks, smoking prior to conception can also impact maternal and infant health outcomes. In North Carolina, rates of smoking and tobacco use prior to pregnancy vary significantly based on demographic factors including maternal education, race/ ethnicity and geographic location.[32] On a national scale, the Centers for Disease Control and Prevention (CDC) found that those with low incomes and those enrolled in Medicaid were more likely to smoke compared to their counterparts.[33] This relationship between socioeconomic status and smoking is rooted in the targeted, often manipulative, marketing of tobacco products to low-income communities.[34] These same communities have neighborhoods with a denser concentration of tobacco retailers, lower rates of education, and fewer social supports and resources if residents wanted to quit.[34]

[30] Khekade, H., Potdukhe, A., Taksande, A. B., Wanjari, M. B., & Yelne, S. (n.d.). Preconception Care: A Strategic Intervention for the Prevention of Neonatal and Birth Disorders. *Cureus*, 15(6), e41141. https://doi.org/10.7759/cureus.41141

[31] *Family Planning Medicaid | NC Medicaid.* (n.d.). Retrieved August 4, 2025, from https://medicaid.ncdhhs.gov/providers/programs-and-services/family-planning-and-maternity/family-planning-medicaid

[32] *Smoking Prior to Pregnancy | Division of Public Health.* (n.d.). Retrieved August 4, 2025, from https://www.dph.ncdhhs.gov/programs/title-v-maternal-and-child-health-block-grant/nc-maternal-and-infant-health-data-dashboard/smoking-prior-pregnancy

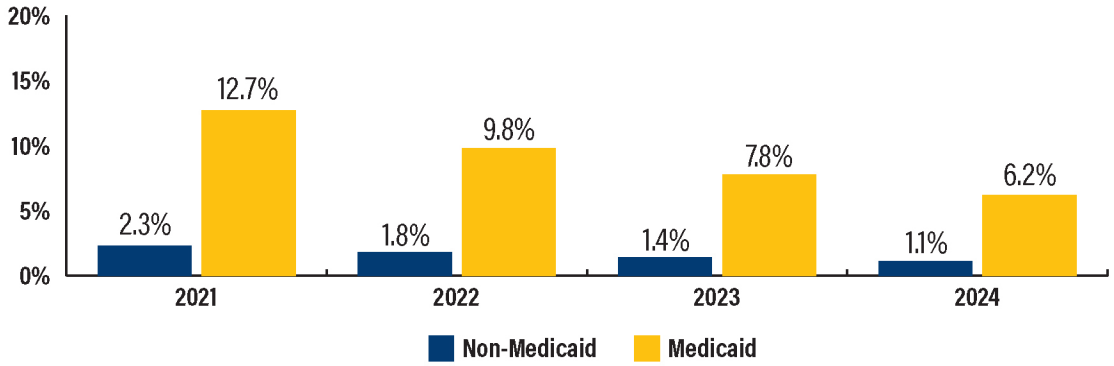
[33] CDC Tobacco Free. (2024). *Burden of Tobacco Use in the U.S. Centers for Disease Control and Prevention.* https://www.cdc.gov/tobacco/campaign/tips/resources/data/cigarette-smoking-in-united-states.html

[34] *Tobacco and social justice: Smoking in low-income communities.* (n.d.). Retrieved August 4, 2025, from https://truthinitiative.org/research-resources/targeted-communities/tobacco-social-justice-issue-low-income-communities

Higher rates of smoking among low-income individuals and Medicaid beneficiaries are consistent with findings for the NC Medicaid population and are incredibly important, as studies have found that smoking can increase the risk of severe infant morbidity[35] and congenital abnormalities, and make it more challenging for women to get pregnant.[36, 37, 38]

As seen in Figure 2, rates of smoking prior to pregnancy from 2021-2024 are higher among those enrolled in NC Medicaid compared to those who are not. These findings are consistent with the CDC's findings surrounding rates of smoking, Medicaid status and socioeconomic status. However, rates of smoking prior to pregnancy decreased substantially from 2021 to 2024, an encouraging sign given the state's effort to reduce rates of smoking including reimbursing providers for smoking cessation counseling, promoting QuitlineNC, North Carolina's free tobacco cessation phone and web service, and eliminating barriers to nicotine replacement therapies.[39]

Figure 2: North Carolina Smoking Prior to Pregnancy, Stratified by Maternal Medicaid Status (2021-2024)



Pre-Pregnancy Overweight or Obesity

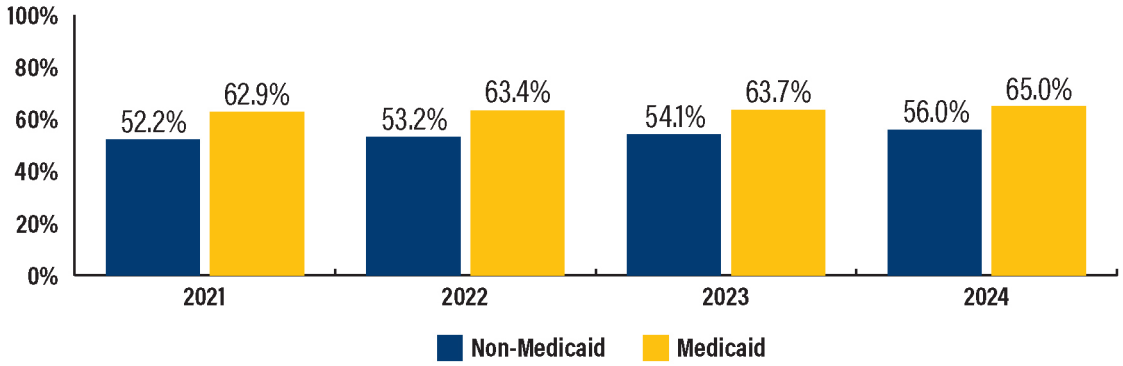
Like smoking, low-income populations and those enrolled in Medicaid have a higher number of individuals who are classified as overweight or obese than the general population.[40] This can be attributed to a multitude of factors including availability and cost of healthy foods, built environment and chronic stress.[41, 42]

Having obesity prior to pregnancy can make it harder to get pregnant and potentially lead to infertility. In the United States, roughly 34% of women of childbearing age (ages 18 through 44) are classified as obese and approximately 55% of births are among women who were overweight or obese prior to pregnancy.[43] Being overweight or obese during pregnancy can result in serious complications including gestational diabetes, high blood pressure or preeclampsia, preterm birth, low birthweight and an increased risk of cesarean delivery.[44] One study found that 18.5% of women not classified as overweight or obese had cesarean deliveries, while 24.5% of overweight women and 32.3% of obese women delivered via c-section.[45]

[35] Morbidity refers to having a specific condition, illness or symptom of a disease. It is most often used to describe chronic diseases. (https://www.definitivehc.com/resources/glossary/morbidity)
[36] CDC. (2025). *Health Effects of Cigarettes: Reproductive Health*. Smoking and Tobacco Use. https://www.cdc.gov/tobacco/about/cigarettes-and-reproductive-health.html
[37] Yang, L., Wang, H., Yang, L., Zhao, M., Guo, Y., Bovet, P., & Xi, B. (2022). Maternal cigarette smoking before or during pregnancy increases the risk of birth congenital anomalies: A population-based retrospective cohort study of 12 million mother-infant pairs. *BMC Medicine*, 20(1). https://doi.org/10.1186/s12916-021-02196-x
[38] Yang, L., Yang, L., Wang, H., Guo, Y., Zhao, M., Bovet, P., & Xi, B. (2024). Maternal cigarette smoking before or during pregnancy increases the risk of severe neonatal morbidity after delivery: A nationwide population-based retrospective cohort study. *Journal of Epidemiology and Community Health*, 78(11), 690–699. https://doi.org/10.1136/jech-2024-222259
[39] Centers for Disease Control and Prevention. (2022). North Carolina: Improving Access to Medicaid Tobacco Cessation Benefits. https://archive.cdc.gov/www_cdc_gov/sixeighteen/state-collaborations/nc-medicaid-tobacco-cessation/index.html#:~:text=Under%20the%20transition%20to%20managed,sessions%20to%20help%20patients%20quit.
[40] Mylona, E. K., Benitez, G., Shehadeh, F., Fleury, E., Mylonakis, S. C., Kalligeros, M., & Mylonakis, E. (2020). The association of obesity with health insurance coverage and demographic characteristics: a statewide cross-sectional study. *Medicine, 99*(27), e21016. https://doi.org/10.1097/MD.0000000000021016
[41] LaVeist, T., Pollack, K., Thorpe, R., Jr, Fesahazion, R., & Gaskin, D. (2011). Place, not race: disparities dissipate in southwest Baltimore when blacks and whites live under similar conditions. *Health affairs (Project Hope), 30*(10), 1880–1887. https://doi.org/10.1377/hlthaff.2011.0640
[42] Lee, A., Cardel, M., & Donahoo, W. T. (2019). Social and Environmental Factors Influencing Obesity. In K. R. Feingold (Eds.) et. al., *Endotext*. MDText.com, Inc.
[43] March of Dimes. (2024). Maternal Weight. https://www.marchofdimes.org/peristats/data?top=27&lev=1&stop=365&reg=99&obj=36&slev=1
[44] Simpson SE, Malek AM, Wen C, Neelon B, Wilson DA, Mateus J, et al. Trends in Gestational Weight Gain and Prepregnancy Obesity in South Carolina, 2015–2021. Prev Chronic Dis 2024;21:240137. DOI: http://dx.doi.org/10.5888/pcd21.240137
[45] Kawakita, T., Reddy, U. M., Landy, H. J., Iqbal, S. N., Huang, C. C., & Grantz, K. L. (2016). Indications for primary cesarean delivery relative to body mass index. *American journal of obstetrics and gynecology, 215*(4), 515.e1–515.e5159. https://doi.org/10.1016/j.ajog.2016.05.023

As seen in Figure 3, NC Medicaid's rates of pre-pregnancy overweight and obesity were relatively stable from 2021 to 2023, with a slight increase in 2024. When stratified by perinatal care region, however, the Eastern region of the state has much higher rates of overweight and obesity prior to pregnancy. The counties in the Eastern region also experience higher rates of food insecurity.[46] These findings coincide with evidence showing that women in the United States who live in food-insecure counties or food deserts face a higher risk of being overweight or obese. This emphasizes the important role that addressing food insecurity plays in decreasing rates of overweight and obesity and improving maternal and infant health and wellbeing.[47, 48]

Figure 3: North Carolina Pre-Pregnancy Overweight or Obesity, Stratified by Maternal Medicaid Status (2021-2024)



One way that NC Medicaid has worked to reduce rates of food insecurity and overweight and obesity among its beneficiaries, is through the Healthy Opportunities Pilots (HOP). HOP is the nation's first comprehensive program to evaluate the impact of providing select evidence-based, non-medical interventions related to housing, food, transportation and interpersonal safety/toxic stress on high-needs Medicaid enrollees' health outcomes and health care costs. Access to high-quality medical care is critical; however, research shows up to 80% of health is determined by social and environmental factors and the behaviors that emerge as a result.[49] Because of this, HOP connects beneficiaries with food and nutrition case management services, group nutrition classes and diabetes prevention programs as well as providing fruit and vegetable prescriptions and healthy food boxes/meals.[50]

In addition to HOP, many of NC Medicaid's Managed Care Organizations (MCOs) offer value-added services or benefits that aim to address food insecurity and decrease rates of overweight and obesity among enrollees. These included value-added services such as free home-delivered meals for qualifying members, nutritional counseling, money to purchase fresh fruits and vegetables and online fitness and exercise classes.[51]

North Carolina March of Dimes – Preconception Health

For over 85 years, March of Dimes has been working to fund research, provide programs and education and lead advocacy efforts to improve maternal and infant health equity and outcomes across the United States. March of Dimes has chapters in all 50 states that work at the state level to influence legislation and regulations, state-specific research, education and programs. In North Carolina, March of Dimes is a leader in promoting the health of mothers

[46] Feeding America. (2023). Food Insecurity among the Overall Population in the Food Back of Central and Eastern North Carolina Service Area. https://map.feedingamerica.org/county/2022/overall/north-carolina/organization/food-bank-of-central-and-eastern-north-carolina

[47] Carvajal-Aldaz, D., Cucalon, G., & Ordonez, C. (2022). Food insecurity as a risk factor for obesity: A review. *Frontiers in nutrition, 9*, 1012734. https://doi.org/10.3389/fnut.2022.1012734

[48] Mulrooney, Timothy, Erica Mulrooney, and Christopher McGinn. 2022. "Exploring Rural Food Insecurity in North Carolina: Debunking an Urban Myth." Sociation, 20(2), 40-50.

[49] Hood CM, Gennuso KP, Swain GR, et al. County Health Rankings: Relationships Between Determinant Factors and Health Outcomes. *American Journal of Preventive Medicine 50* (2) (2016): 129–135. https://pubmed.ncbi.nlm.nih.gov/26526164/. Accessed on: Feb 1, 2023

[50] NCDHHS. (2022). Healthy opportunities food services available. https://medicaid.ncdhhs.gov/blog/2022/03/15/healthy-opportunities-food-services-available#:~:text=Qualifying%20Medicaid%20Standard%20Plan%20members,Medically%20tailored%20meal%20delivery

[51] NCDHHS. (n.d.). Compare health plans. https://ncmedicaidplans.gov/en/viewhealthplans

and their infants, leading efforts to improve maternal and child health across the state.[52] To learn more about NC March of Dimes, please click here.

In 2024, NC March of Dimes launched a 12-month preconception health grant in partnership with the North Carolina Department of Health and Human Services (NCDHHS). This grant educates providers and communities about the importance of preconception health and the role that it plays in ensuring healthy pregnancies. Through this program, NC March of Dimes delivered in-person provider education sessions reaching roughly 110 healthcare providers in Eastern NC and conducted seven provider webinars on a variety of preconception health topics. In addition to working with providers, NC March of Dimes hosted four community maternity health and wellness events with an estimated 380 participants and distributed over 12,000 bottles of prenatal/folic acid vitamins to community members in the Eastern part of the state.

Access to Care During the Perinatal Period

Having access to care during the perinatal period is crucial to ensuring positive health outcomes for both mother and infant. Prenatal care appointments help pregnant women gain access to essential education and necessary resources and aid in the early identification of complications that may lead to adverse health outcomes.[53] Access to care during this period can be complicated by a multitude of factors including geographic location and physical proximity to services, availability of appointments and one's ability to afford care.[54] This access to care throughout pregnancy and postpartum is even more important for low-income populations that are considered high-risk, the same populations that are served by NC Medicaid.[55]

First Trimester Prenatal Care

Comprehensive prenatal care is one of the most important ways to promote a healthy pregnancy and delivery for both mother and infant. Babies of mothers who did not receive prenatal care are three times more likely to be low birth weight and five times more likely to die.[56] While receiving prenatal care throughout the entire duration of a pregnancy is important, research shows that receiving prenatal care in the first trimester, or within the first 12 weeks of pregnancy, increases one's likelihood of delivering a healthy infant.[56]

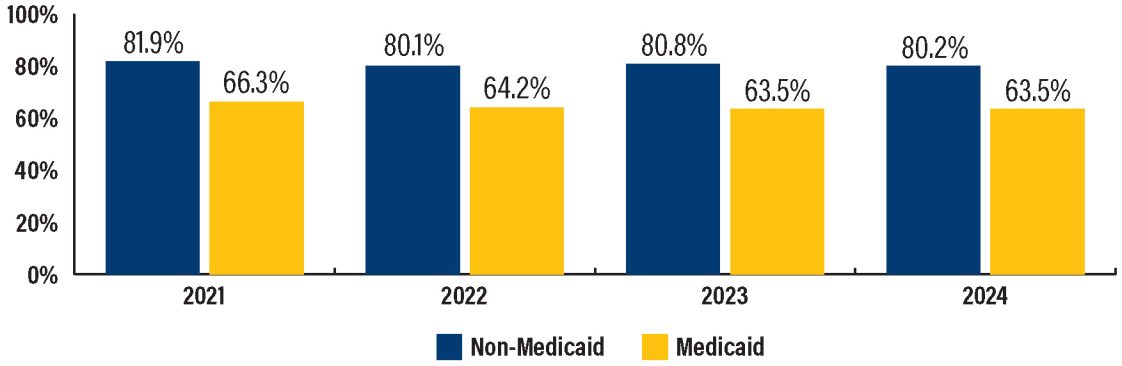
Prenatal care within the first trimester allows providers to identify maternal medical conditions and fetal and placental abnormalities early on in pregnancy, and establish early monitoring, interventions and treatment. This ultimately improves birth outcomes and decreases rates of maternal and infant morbidity and mortality. First trimester prenatal care also allows providers to give early education on the importance of eating a balanced diet and getting adequate exercise, using prenatal vitamins consistently and eliminating smoking and alcohol consumption.[57] In 2023, roughly 76% of live births in the United States were among women who received early prenatal care, indicating a need for interventions that work to improve rates of timely prenatal care.[58]

Nationally, even after controlling for factors like income and race, women enrolled in Medicaid are less likely to receive timely and adequate prenatal care compared to women enrolled in private insurance.[55] As seen in Figure 4, pregnant women enrolled in NC Medicaid were substantially less likely to receive prenatal care in their first trimester. While rates of first trimester prenatal care remained relatively stable

[52] March of Dimes. (2025). Our mission. https://www.marchofdimes.org/about-us/mission
[53] Access to Prenatal Care: The Importance of Making it Accessible for All Pregnant Women. (2023). *Nebraska Children's Home Society*. https://blog.nchs.org/lack-of-prenatal-care
[54] McLaughlin, C. G., & Wyszewianski, L. (2002). Access to care: remembering old lessons. *Health services research, 37*(6), 1441–1443. https://doi.org/10.1111/1475-6773.12171
[55] Medicaid and CHIP Payment and Access Commission. (2018). Access in brief: Pregnant women and Medicaid. https://www.macpac.gov/wp-content/uploads/2018/11/Pregnant-Women-and-Medicaid.pdf
[56] *State approaches to ensuring healthy pregnancies through prenatal care.* National Conference of State Legislatures. (2025). https://www.ncsl.org/health/state-approaches-to-ensuring-healthy-pregnancies-through-prenatal-care
[57] Krukowski, R. A., Jacobson, L. T., John, J., Kinser, P., Campbell, K., Ledoux, T., Gavin, K. L., Chiu, C. Y., Wang, J., & Kruper, A. (2022). Correlates of Early Prenatal Care Access among U.S. Women: Data from the Pregnancy Risk Assessment Monitoring System (PRAMS). *Maternal and child health journal, 26*(2), 328–341. https://pmc.ncbi.nlm.nih.gov/articles/PMC8488070/pdf/10995_2021_Article_3232.pdf
[58] March of Dimes. (2024). Inadequate prenatal care: *United States, 2018-2023.* March of Dimes | PeriStats. https://www.marchofdimes.org/peristats/data?reg=99&top=5&stop=34&lev=1&slev=4&obj=1

for non-Medicaid beneficiaries, rates for those enrolled in NC Medicaid decreased from 2021 to 2023 before stabilizing from 2023 through 2024. These decreasing rates may be attributed to challenges in access to care and availability of Medicaid providers across the state. NC Medicaid continues to work to ensure pregnant beneficiaries have access to timely prenatal care.

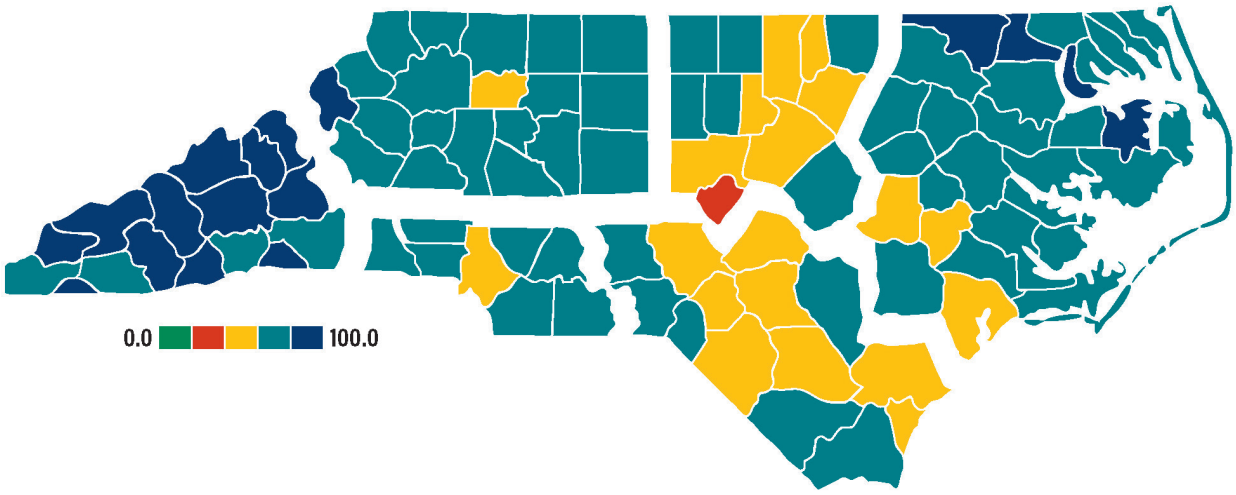
Figure 4: North Carolina First Trimester Prenatal Care, Stratified by Maternal Medicaid Status (2021-2024)



This disparity between the Medicaid and non-Medicaid populations may stem from the challenges Medicaid beneficiaries face when accessing prenatal care compared to individuals enrolled in other insurance options. Maternity care deserts, lack of transportation and limited access to childcare are all barriers that are more commonly faced by Medicaid beneficiaries.[59, 60, 61] The following section explores some of these barriers and highlights programs aimed at addressing these challenges.

Additionally, stratifying by perinatal care region reveals differences in rates of first trimester prenatal care. When analyzing NC Medicaid rates of first-trimester prenatal care receipt by county and region, counties in the Northeastern (56.0%) and Southeastern (61.3%) regions of the state had lower rates compared to the Western (80.7%), Northwestern (64.3%), Southwestern (64.5%) and Eastern (67.1%) regions (see Figure 5).

Figure 5: 2024 North Carolina Medicaid County-Level Rates of First Trimester Prenatal Care, Stratified by Perinatal Care Region



[59] Baxley, J. (2025, February 24). *Rural North Carolina counties would suffer most from Medicaid cuts.* North Carolina Health News. https://www.northcarolinahealthnews.org/2025/02/17/medicaid-cuts-in-rural-nc/

[60] Malasky, A. (2022). (rep.). FTA Research. Federal Transit Administration. Retrieved from https://www.transit.dot.gov/sites/fta.dot.gov/files/2022-02/FTA-Report-No-0211.pdf.

[61] Hasan, A. (2025). *Addressing social determinants of health for pregnant and postpartum Medicaid beneficiaries.* NASHP. https://nashp.org/addressing-social-determinants-of-health-for-pregnant-and-postpartum-medicaid-beneficiaries/#:~:text=Access%20to%20reliable%2C%20high%2Dquality,as%20transportation%20and%20child%20care

When analyzing these rates of first trimester prenatal care across regions, it is important to note that there are a multitude of factors that impact these rates and these rates alone do not give a clear picture of access to maternity services in a region. Additionally, receiving care in the first trimester does not indicate the quantity or quality of prenatal services throughout the entirety of a pregnancy, which are important considerations.[62]

Prenatal and Postpartum Care (PPC) F Codes

While the *First Trimester Prenatal Care* dashboard data included in this report are calculated using birth certificate data, NC Medicaid also calculates rates for the National Committee for Quality Assurance (NCQA) Health Effectiveness Information Data Set (HEDIS) *Prenatal and Postpartum Care (PPC)* quality measure.[63] Unlike the *First Trimester Prenatal Care* rates reported in the dashboard, the PPC measure uses claims and encounters data to assess both the Timeliness of Prenatal Care and Postpartum Care appointments.[63] This measure is central to NC Medicaid's quality efforts and is included in NC Medicaid's Advanced Medical Home (AMH) Measure Set and the Standard Plan Withhold Program. More information on the PPC measure can be found in Table 4.

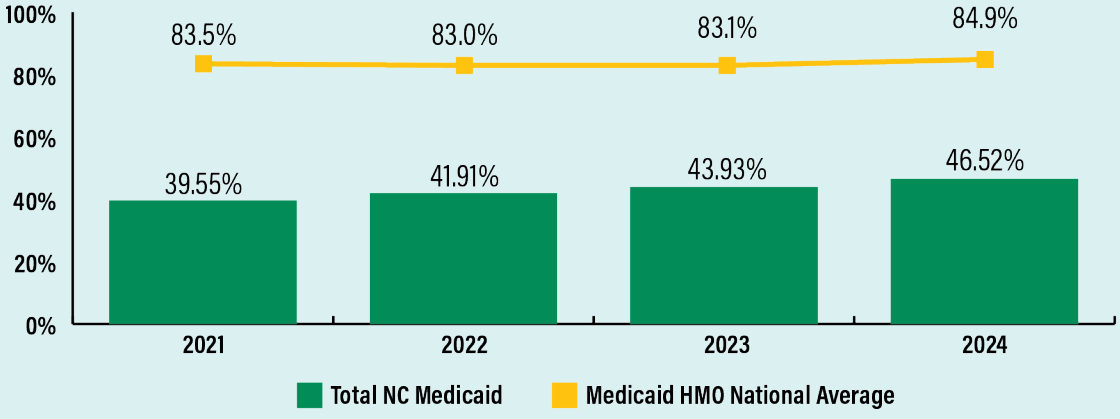
Table 4: NCQA HEDIS Prenatal and Postpartum Care (PPC)[42]

Prenatal and Postpartum Care (PPC)*	
Timeliness of Prenatal Care	The percentage of deliveries that received a prenatal care visit in the first trimester, on or before the enrollment start date or within 42 days of enrollment in the organization.
Postpartum Care	The percentage of deliveries that had a postpartum visit between seven and 84 days after delivery.

*View the NC Medicaid Quality Measurement Technical Specifications Manual to learn more about the PPC measure.

As seen in Figures 6 and 7, NC Medicaid has historically underperformed compared to the NCQA Medicaid HMO national average. While multiple factors influence NC Medicaid's performance, the use of global billing codes, which may not be billed for up to 84 days after the end of pregnancy, play a significant role in this poorer performance.

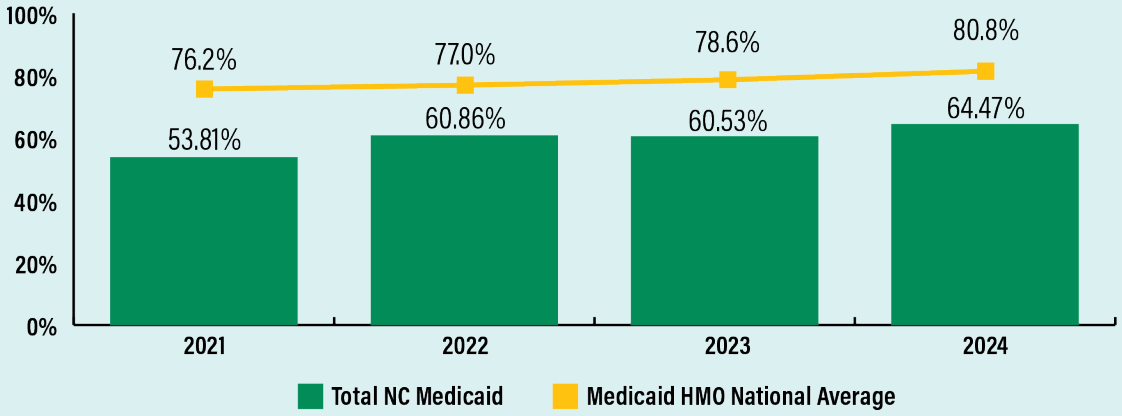
Figure 6: NC Medicaid *PPC, Timeliness of Prenatal Care* (2021-2024)*



*While PPC - Timeliness of Prenatal Care and *First Trimester Prenatal Care* from the NC Maternal and Infant Health Data Dashboard both assess prenatal care during the first trimester, the rates are vastly different. These rates are calculated using different data sources, one using claims and encounters data and the other using live birth certificate and inpatient hospital discharge data.

[62] Kotelchuck, M. (1994). An evaluation of the Kessner Adequacy of Prenatal Care Index and a proposed Adequacy of Prenatal Care Utilization Index. *American Journal of Public Health, 84*(9), 1414–1420. https://doi.org/10.2105/AJPH.84.9.1414
[63] National Committee for Quality Assurance. (2025). Prenatal and Postpartum Care (PPC). https://www.ncqa.org/report-cards/health-plans/state-of-health-care-quality-report/prenatal-and-postpartum-care-ppc/

Figure 7: NC Medicaid PPC, *Postpartum Care* (2021-2024)



When using global billing codes, the first instance of prenatal care and subsequent postpartum care visits are often not adequately captured in claims and encounters data, which is especially important given the time sensitive nature of both PPC sub measures. To ensure more accurate data capture, NC Medicaid added two, non-paid F codes to its clinical policy in June 2024. These codes, 0500F for prenatal care and 0503F for postpartum care, are meant to improve data collection to ensure a more accurate picture of prenatal and postpartum care delivery. By implementing these new F codes, and more accurately capturing care delivery for pregnant beneficiaries, NC Medicaid aims to have a better understanding of the care being delivered to this population to improve performance on the PPC quality measure.

To learn more, please view the PPC F Codes Fact Sheet and FAQ Document, and the updated 1E-5 Obstetrical Services Policy.

Oral Evaluation During Pregnancy (OEVP)

Access to preventative oral health services during pregnancy is critical, as dental problems can be exacerbated due to hormonal changes. Additionally, oral health complications during pregnancy can lead to an increased risk of premature delivery, low birth weight and pre-eclampsia, emphasizing the importance of preventative dental services. To ensure that pregnant members are receiving oral health evaluations and other preventive oral healthcare, NC Medicaid added the Oral Evaluation During Pregnancy (OEVP) quality measure to its NC Medicaid Direct Measure Set for measurement year 2025. This measure calculates the percentage of members ages 15 to 44 with live-birth deliveries during the measurement year who received a comprehensive or periodic oral evaluation during their pregnancy. By adding OEVP to the Medicaid Direct Measure Set, NC Medicaid can monitor the utilization of preventative oral health services among pregnant beneficiaries enrolled in NC Medicaid Direct. To learn more about OEVP and NC Medicaid's Measure Sets, click here.

CITATIONS: Yenen, Z., & Ataçağ, T. (2019). Oral care in pregnancy. Journal of the Turkish German Gynecological Association, 20(4), 264–268. https://doi.org/10.4274/jtgga.galenos.2018.2018.0139 • https://www.medicaid.gov/medicaid/quality-of-care/downloads/dentaloralhealth-ta-resource.pdf

Group Prenatal Care

While individual prenatal care has historically been the primary method of prenatal care delivery in the United States, group prenatal care continues to be an innovative and effective method of delivering prenatal care services. Group prenatal care models are designed to improve levels of patient education and expand social supports for pregnant women while maintaining the crucial physical assessments provided in individual prenatal care settings.[64] After having their individual physical assessment with the provider, women with similar due dates meet in a group setting to learn and discuss various prenatal topics. Bringing patients with similar needs together to receive prenatal care increases the time that providers have to share educational materials and increase prenatal knowledge, while also improving provider efficiency and reducing repetition.[64] Not only does this model decrease a woman's likelihood of receiving inadequate prenatal care, but it has also been proven to increase rates of prenatal knowledge, help women feel more prepared for labor and delivery, improve parental health and emotional wellbeing, boost maternal nutrition and exercise habits, increase rates of breastfeeding initiation and improve patient satisfaction with their overall care.[64] Additionally, group prenatal care allows for the sharing of personal experiences that may help others and the opportunity to build relationships through peer support.[64]

In North Carolina, Medicaid providers are compensated for group prenatal care through the standard obstetrical service package codes. To encourage and reward this model of care, as of July 2023, providers may now receive an incentive for offering group prenatal care when a pregnant woman completes five or more documented group prenatal appointments during her pregnancy.

To learn more, please view the updated the 1E-5 Obstetrical Services Policy.

Maternity Care Deserts

One significant barrier to accessing maternal health care is geographic proximity to maternity care services. Maternity care services are especially scarce in rural areas, with over 45% of rural counties throughout the United States having no maternity services and less than half of rural counties having only hospital-based obstetric services.[65]

The North Carolina Office of Rural Health defines rural counties as any county that is not a central county of a Metropolitan Core Based Statistical Area (CBSA).[66] Based on this classification, 71 of North Carolina's counties are rural and 29 counties are urban (see Figure 8), with roughly 40% of Medicaid beneficiaries living in rural counties.[67, 68] This interconnected relationship between maternity care, rurality and Medicaid status emphasizes the vulnerability of pregnant NC Medicaid beneficiaries who live in rural counties and identifies a need for targeted interventions to improve access to services.

[64] American College of Obstetrics and Gynecology. (2018). *Group prenatal care*. https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2018/03/group-prenatal-care

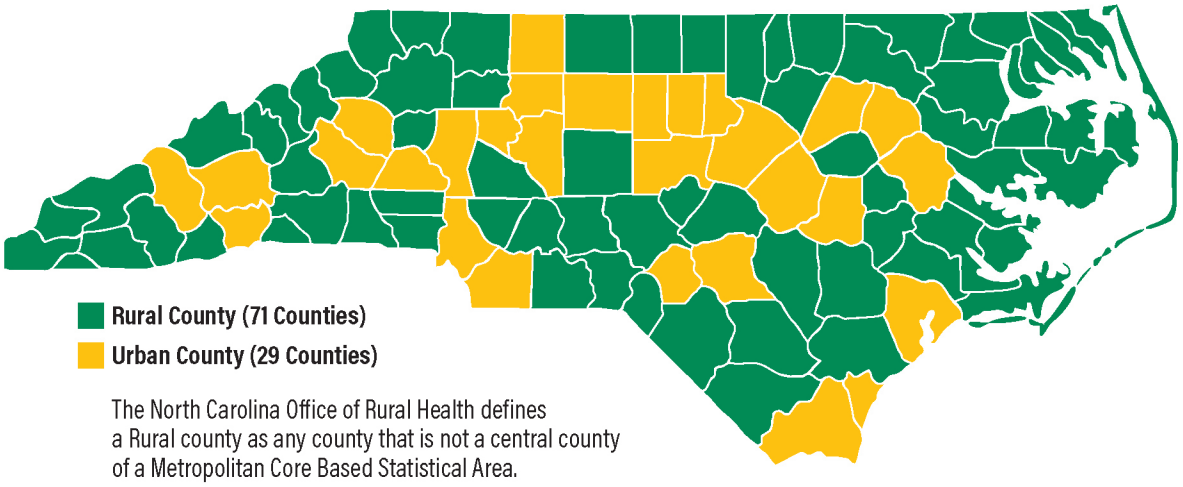
[65] Sugg, M., Shakya, S., Ulrich, S., Tyson, J. S., & Runkle, J. (2025). Mapping maternity care deserts: Driving distance and health outcomes in North Carolina. *The Journal of rural health: official journal of the American Rural Health Association and the National Rural Health Care Association, 41*(2), e70020. https://doi.org/10.1111/jrh.70020

[66] CBSAs are Census Bureau-defined urban clusters of at least 10,000 people. (https://data.cms.gov/resources/market-saturation-utilization-core-based-statistical-areas-methodology#:~:text=Percentage%20Change%20Metrics-,CBSA%20Definition,the%20Nation%20+%20Territories%20level%20totals.)

[67] North Carolina Office of Rural Health. (2023.) Rural and Urban Counties. *NCDHHS*. https://www.ncdhhs.gov/ruralurban-2019/open

[68] Fontenot, J, Lucas, R, Stoneburner, A, Brigance, C, Hubbard, K, Jones, E, Mishkin, K. (2023). *Where You Live Matters: Maternity Care Deserts and the Crisis of Access and Equity in North Carolina*. March of Dimes.

Figure 8: North Carolina Urban and Rural Counties (as of July 2023)[69]



Throughout the United States, over two million women of childbearing age live in maternity care deserts, defined as counties with limited or no access to maternity care services. Using this definition produced by the March of Dimes, maternity care services include a hospital, birth center or obstetric clinicians (obstetricians, family physicians who deliver babies, certified nurse midwives or nurse midwives).[68] In North Carolina, 20% of counties are classified as maternity care deserts and an additional 17% have low access to maternity services.[72]

To understand access to care across the state, it is important to evaluate the individual components that contribute to maternity care deserts. For counties that are not maternity care deserts, the level of access falls into three classifications: low, moderate and full access.[69] Counties with low access to maternity care services are defined as having one or fewer hospitals or birth centers providing obstetric care, few obstetric clinicians or a high proportion of women without health insurance (see Figure 9).[69]

Figure 9: March of Dimes Maternity Care Access Classifications

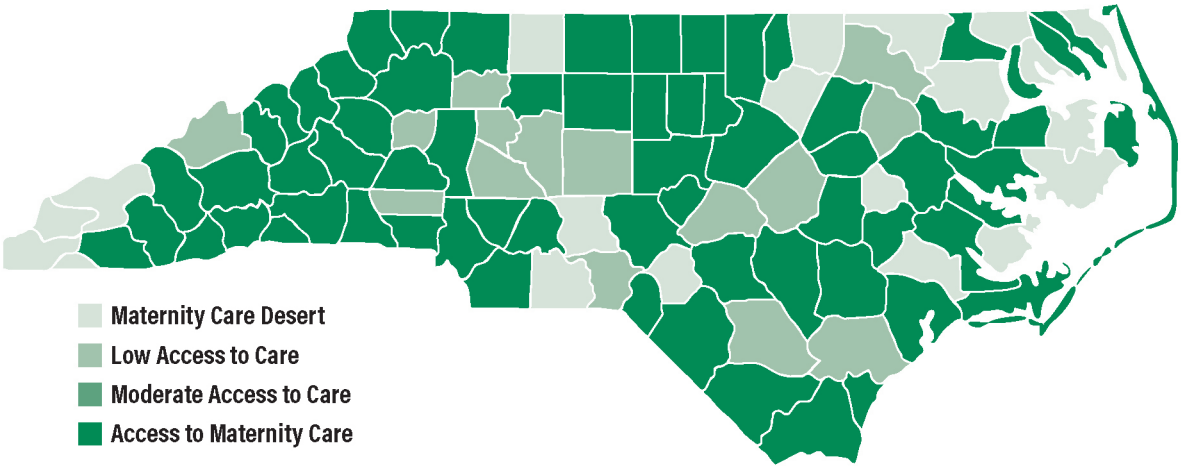
Definitions	Maternity care deserts	Low access	Moderate access	Full access*
Hospitals or birth centers	Zero	<2	<2	≥2
Obstetric providers (obstetrician, family physicians who provide obstetric care, certified nurse midwives/ nurse midwives) per 10,000 births	Zero	<60	<60	≥60
Proportion of women age 19-54 without health insurance	Any	≥10%	<10%	Any

*A county must only meet one of the criteria to be labeled low, moderate or full access.

According to these criteria, a vast majority of counties across North Carolina have full access to maternity care services, as seen in Figure 10. However, it is crucial to evaluate each of these individual components across counties to gain a comprehensive understanding of what counties truly have access to maternity care and which do not.

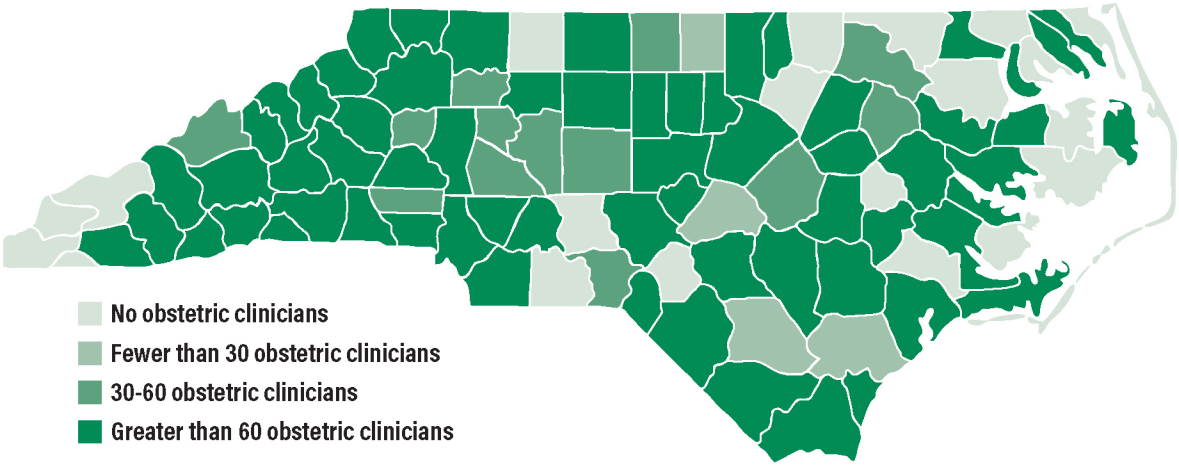
[69] March of Dimes Peristats. (2025). Maternity care desert. https://www.marchofdimes.org/peristats/data?top=23&lev=1&stop=641&reg=37&sreg=37&obj=9&slev=4

Figure 10: 2021 March of Dimes Maternity Care Access Designations, North Carolina[69]



As seen in Figure 11, the distribution of obstetric providers varies across the state. Based on this map, regions of the state like Western and Northwestern NC, that are traditionally thought of as having low access to maternity care due to rurality, have an adequate number of obstetric clinicians per 10,000 births. In contrast, the Eastern region of the state has a higher density of counties with very few or no obstetric clinicians, contributing to the higher quantity of maternity care deserts in the region (see Figure 11). A majority of counties with greater numbers of obstetric clinicians are located in more urban regions of the state like the areas surrounding Forsyth, Guilford, Wake and Orange counties.[69]

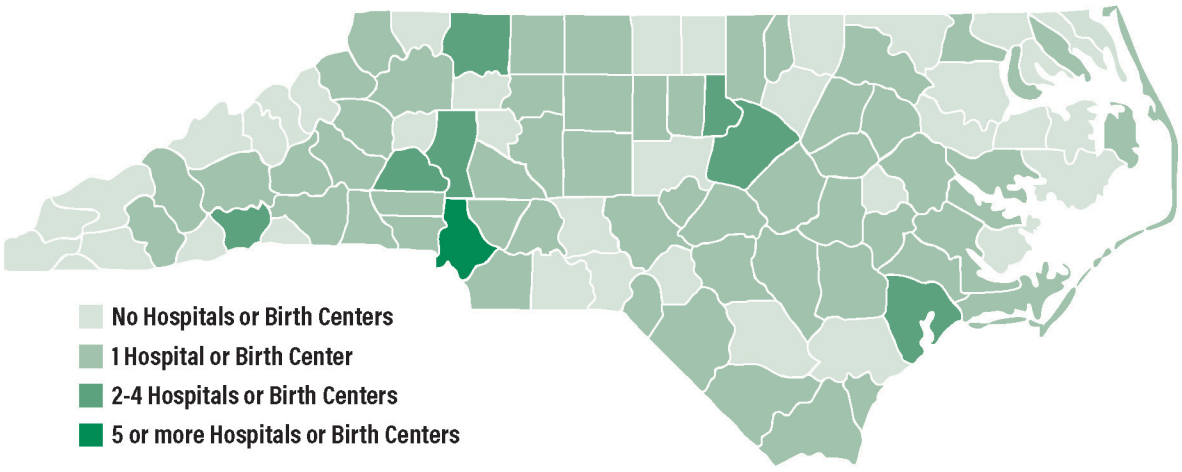
Figure 11: 2021 March of Dimes Distribution of Obstetric Clinicians, North Carolina[69]



While some counties may satisfy the criteria for the number of obstetric providers, Figure 12 makes it clear that a lack of facilities presents additional challenges and impacts a region's access to maternity care services. In the Western, Eastern and Northeastern regions of the state, there is a high density of counties with one or no hospitals or birth centers. This means that regions that met the criteria to have full access to maternity care services in Figure 11 because they have an adequate number of clinicians may not actually have adequate access to facilities, meaning there is not true availability of services. Depending on the topography of the region, pregnant women in rural counties with limited or no access to facilities are made to travel far distances to reach the nearest hospital or birthing center. Approximately 60% of women in rural counties live over 30 minutes from a birthing hospital compared to only 11% of women living in urban areas.[70]

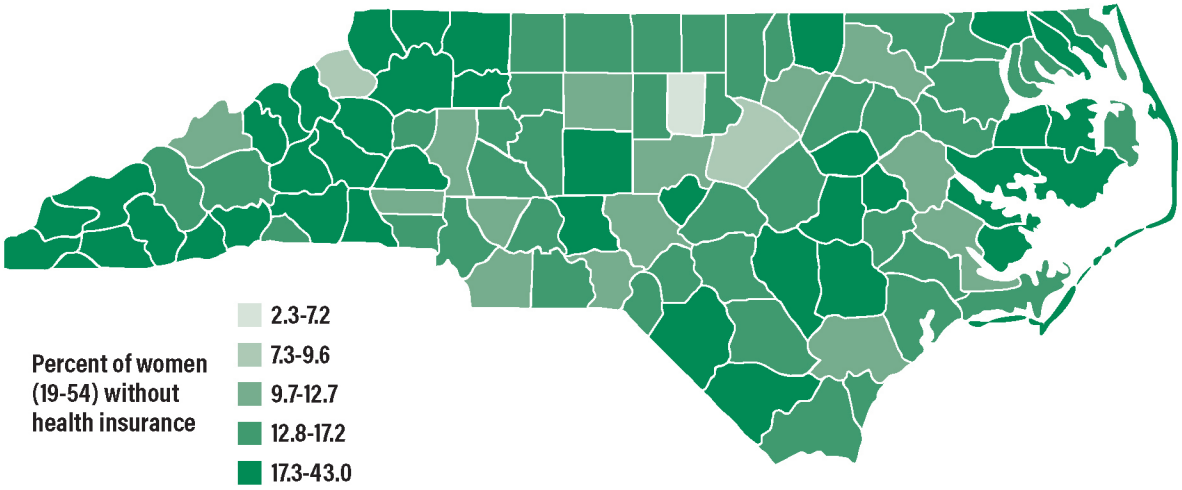
[70] March of Dimes. (2023). Where you live matters: Maternity care in North Carolina. https://www.marchofdimes.org/peristats/assets/s3/reports/mcd/Maternity-Care-Report-NorthCarolina.pdf

Figure 12: 2022 March of Dimes Access to Hospitals or Birth Centers, North Carolina[69]



The final criteria that March of Dimes uses to determine if a county is a maternity care desert is the percentage of women (ages 19-54) who are uninsured. As seen in Figure 13, the Western, Northwestern and Eastern regions of the state have a higher density of counties with high rates of uninsured women within this age group.[69] While these rates do not reflect Medicaid expansion, it is important to understand the relationship between the number of obstetric providers and facilities, and insurance coverage. After all, even if women live in counties where they can access obstetric clinicians and birthing facilities, being uninsured and unable to pay for care is a major barrier.

Figure 13: 2022 March of Dimes Women Without Health Insurance, North Carolina[69]*



*This data was collected prior to North Carolina Medicaid expansion.

While this data provides extensive information about the availability of providers and services, it also emphasizes the importance of evaluating maternity care deserts using a holistic lens. Understanding the different components that impact a region's status as having low, moderate or full access to maternity services reveals different ways that care may or may not be available. Because March of Dimes considers a county as having access to maternity care if they satisfy just one of these three domains, looking at all aspects is crucial to ensuring a full picture is painted.

Additionally, regional and county-level factors outside of the number of obstetric providers and birthing centers also influence an individual's access to care. In North Carolina, where many counties are rural, unique factors like health education and transportation play a substantial role in determining access to care.[71] It is crucial that North Carolina's efforts to address maternity care deserts also focus on addressing these individual factors. These efforts may include implementing programs that aim to educate women on the importance of perinatal care, creating reliable methods of transportation or providing Medicaid enrollment support to communities with a high proportion of uninsured women.

Nurture North Carolina

Nurture North Carolina (Nurture NC) is a statewide, multi-sector initiative designed to improve maternal and infant health outcomes and reduce maternal health disparities across North Carolina. Led by the HopeStar Foundation in partnership with the Kate B. Reynolds Trust, Dogwood Health Trust and North Carolina's Maternal Health Funders Collaborative, this comprehensive effort addresses the urgent need for strong, coordinated action on maternal and infant health.

Nurture NC's primary role is to identify and amplify the critical work already underway across the state, helping these initiatives move forward more effectively rather than duplicating existing efforts. The initiative identifies strategic ways to prioritize maternal and infant health through evidence-based policy recommendations, cross-sector collaboration and coordinated advocacy.

Currently in the planning phase, the initiative is bringing together government agencies, healthcare systems, community-based organizations, advocates and philanthropists through a public-private Steering Committee. The initiative will move into the implementation phase in fall 2025, focusing on three core strategies: advancing state public policy and utilization of publicly funded resources to improve maternal health access and outcomes; growing and diversifying the birth workforce; and improving maternal care access in rural North Carolina. Click here to learn more.

A Guided Journey – Mecklenburg County

In 2021, Mecklenburg County launched *'A Guided Journey'* as part of the county's priority funding to address health disparities. Using the Community Health Worker (CHW) model,[72] *A Guided Journey* links low-income pregnant individuals and those up to 90 days postpartum to prenatal and postpartum care. The program is funded by Mecklenburg County Public Health and facilitated by a local non-profit organization, Care Ring. Founded in 1955, Care Ring provides health services to the uninsured, underinsured or those lacking access to affordable, high-quality preventive health care. *A Guided Journey's* curriculum is modeled after evidence-based home visiting programs with each CHW receiving perinatal-specific training. A CHW partners with a pregnant person or new mom to identify individual needs and connect families to support services that address food, transportation and housing needs, and provide health education and social support. Now in its fifth year, *A Guided Journey* has supported over 400 mom-baby pairs and their families annually. In fiscal year 2025, *A Guided Journey* program screened 100% of participating postpartum moms for postpartum depression, 85% of participants reported having a medical home and CHWs made over 300 referrals to address social determinant of health needs. Click here to learn more about *A Guided Journey*.

[71] Centers for Medicare & Medicaid Services. (n.d.). Improving access to maternal health care in rural communities issue brief. https://www.cms.gov/about-cms/agency-information/omh/equity-initiatives/rural-health/09032019-maternal-health-care-in-rural-communities.pdf

[72] As defined by the American Public Health Association, a community health worker is a "frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community served. This trusting relationship enables the worker to serve as a liaison/link/intermediary between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery."

Pregnancy-Related Conditions and Health Behaviors

A variety of health conditions can develop before or during pregnancy that affect the health and well-being of both mother and baby. Some common pregnancy-related complications include anemia, gestational diabetes, hypertensive disorders and placental problems.[73] Some individuals enter pregnancy with preexisting conditions, such as diabetes or hypertension, which can further increase the risk of complications. Individuals are more likely to have pregnancy-related complications due to age (younger than 18 or older than 35), obesity, poor nutrition, limited access to prenatal care and high levels of chronic stress.[74, 75, 76] When one or more of these factors are present, a pregnancy may be classified as high-risk.

High-risk pregnancies often require close monitoring, frequent prenatal visits and in some cases, care from specialists trained in maternal-fetal medicine.[77] Without proper management, these complications can lead to more serious outcomes such as premature delivery, low birth weight and increased risk of maternal or infant mortality.[78] Early identification and intervention are critical to improve health outcomes and to ensure a safe pregnancy and delivery for both the mother and baby.

Gestational Diabetes

Gestational diabetes (GD) is a condition that causes elevated blood glucose levels that first develop during pregnancy in individuals without a prior diagnosis of Type 1 or Type 2 diabetes. While pregnancy naturally triggers hormonal changes that impact insulin sensitivity, GD occurs when these changes lead to significant insulin resistance, resulting in high blood sugar levels.[79] Clinicians typically diagnose GD between 24 and 28 weeks of gestation through a glucose tolerance test during routine prenatal care.[80] Testing may occur earlier for individuals at higher risk, such as those with obesity, advanced maternal age, multiparity (multiple prior pregnancies) or a family history of Type 2 diabetes.[80]

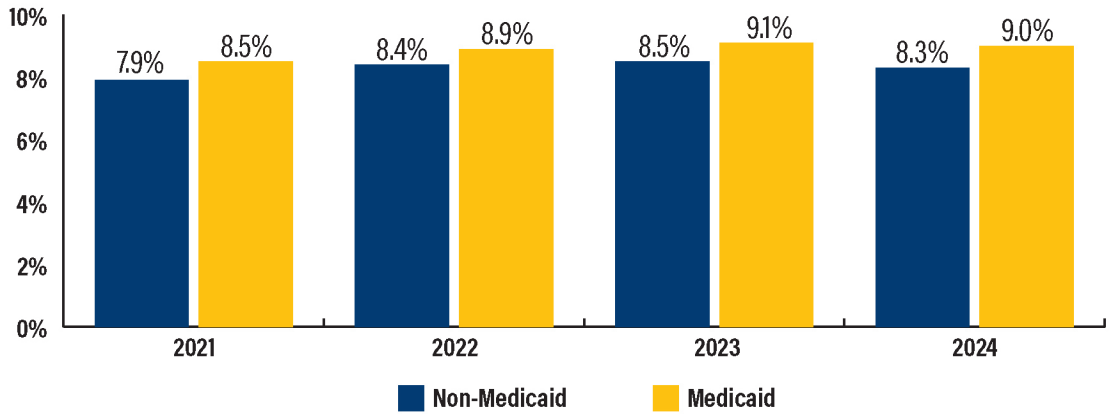
Although GD often resolves after childbirth, the condition poses both short and long-term health risks to the mother and infant. Infants of mothers with GD are at a greater risk of congenital anomalies and are four to five times more likely to be born prematurely.[81, 82] Maternal complications associated with GD include high blood pressure during pregnancy, preterm delivery, higher chances of cesarean section delivery, stillbirth and perinatal depression.[83] Following delivery, mothers are at an increased risk of cardiovascular disease and more than half of those with GD will develop Type 2 diabetes.[84, 85] However, lifestyle changes and the use of metformin, a drug commonly used to treat Type 2 diabetes, decrease the risk of developing Type 2 diabetes by 50% among those with a history of GD, highlighting the importance of early screening and intervention.[86]

GD is a national concern, with the number of cases of GD in the United States increasing by 20% from 2016 to 2020.[87] In North Carolina, rates of GD steadily increased from 2019 through 2023, with 2023 statewide data showing an all-time high of 8.8% of births by mothers with GD.[88]

[73] *Pregnancy Complications: Most Common & Risk Factors.* (n.d.). Cleveland Clinic. https://my.clevelandclinic.org/health/articles/24442-pregnancy-complications
[74] *What are some factors that make a pregnancy high risk?* | NICHD - Eunice Kennedy Shriver National Institute of Child Health and Human Development. (2025). https://www.nichd.nih.gov/health/topics/high-risk/conditioninfo/factors
[75] Coussons-Read, M. E. (2013). Effects of prenatal stress on pregnancy and human development: mechanisms and pathways. Obstetric Medicine, 6(2), 52–57. https://doi.org/10.1177/1753495X12473751
[76] Marshall, N. E., Abrams, B., Barbour, L. A., Catalano, P., Christian, P., Friedman, J. E., Hay, W. W., Hernandez, T. L., Krebs, N. F., Oken, E., Purnell, J. Q., Roberts, J. M., Soltani, H., Wallace, J., & Thornburg, K. L. (2022). The importance of nutrition in pregnancy and lactation: lifelong consequences. *American Journal of Obstetrics and Gynecology, 226*(5), 607–632. https://doi.org/10.1016/j.ajog.2021.12.035
[77] U.S. Department of Health and Human Services. (2017). *What is a high-risk pregnancy?*. National Institutes of Health. https://www.nichd.nih.gov/health/topics/pregnancy/conditioninfo/high-risk
[78] Cleveland Clinic. (2024). High-risk pregnancy. https://my.clevelandclinic.org/health/diseases/22190-high-risk-pregnancy
[79] Alejandro, E. U., Mamerto, T. P., Chung, G., Villavieja, A., Gaus, N. L., Morgan, E., & Pineda-Cortel, M. R. B. (2020). Gestational Diabetes Mellitus: A Harbinger of the Vicious Cycle of Diabetes. *International Journal of Molecular Sciences, 21*(14), 5003. https://doi.org/10.3390/ijms21145003
[80] ACOG Practice Bulletin No. 190: Gestational Diabetes Mellitus. (2018). *Obstetrics & Gynecology, 131*(2), e49–e64. https://doi.org/10.1097/AOG.0000000000002501
[81] Negrato, C. A., Mattar, R., & Gomes, M. B. (2012). Adverse pregnancy outcomes in women with diabetes. *Diabetology & Metabolic Syndrome, 4*, 41. https://doi.org/10.1186/1758-5996-4-41
[82] Evers, I. M., de Valk, H. W., & Visser, G. H. A. (2004). Risk of complications of pregnancy in women with type 1 diabetes: nationwide prospective study in the Netherlands. BMJ : *British Medical Journal, 328*(7445), 915. https://doi.org/10.1136/bmj.38043.583160.EE
[83] *Gestational diabetes*. (n.d.). [Health Topic]. Retrieved August 5, 2025, from https://www.marchofdimes.org/find-support/topics/pregnancy/gestational-diabetes
[84] Bellamy, L., Casas, J.-P., Hingorani, A. D., & Williams, D. (2009). Type 2 diabetes mellitus after gestational diabetes: a systematic review and meta-analysis. *The Lancet, 373*(9677), 1773–1779. https://doi.org/10.1016/S0140-6736(09)60731-5
[85] Kramer, C. K., Campbell, S., & Retnakaran, R. (2019). Gestational diabetes and the risk of cardiovascular disease in women: a systematic review and meta-analysis. *Diabetologia, 62*(6), 905–914. https://doi.org/10.1007/s00125-019-4840-2
[86] Bellamy, L., Casas, J.-P., Hingorani, A. D., & Williams, D. (2009). Type 2 diabetes mellitus after gestational diabetes: a systematic review and meta-analysis. *The Lancet, 373*(9677), 1773–1779. https://doi.org/10.1016/S0140-6736(09)60731-5
[87] Gregory, E., Ely, D. (2022) *National Vital Statistics Reports Volume 71, Number 3*. https://www.cdc.gov/nchs/data/nvsr/nvsr71/nvsr71-03.pdf
[88] *Gestational Diabetes | Division of Public Health.* (n.d.). Retrieved August 5, 2025, from https://www.dph.ncdhhs.gov/programs/title-v-maternal-and-child-health-block-grant/nc-maternal-and-infant-health-data-dashboard/gestational-diabetes

As seen in Figure 14, rates of GD in NC increased from 2021 to 2023 and slightly decreased in 2024 across both Medicaid and non-Medicaid populations, but the percentage of births by mothers with GD is slightly higher among Medicaid beneficiaries. Additionally, it is important to note that rates of GD among NC Medicaid beneficiaries are much higher in the Western region of NC compared to other perinatal care regions. In the Western region in 2023, 12.7% of pregnant Medicaid beneficiaries experienced GD compared to only 8.5% of individuals who are not enrolled in Medicaid.

Figure 14: North Carolina Gestational Diabetes, Stratified by Maternal Medicaid Status (2021-2024)



These higher rates of GD among Medicaid beneficiaries could be a result of the Western region's rurality and high prevalence of poverty rather than their Medicaid classification itself. Research shows that individuals raised in households below 130% of the federal poverty level are at higher risk of developing GD compared to those from higher-income households.[89] Additionally, living in rural areas (particularly in the southern United States) is associated with increased risk of GD compared to urban communities.[90] Factors more common in rural and low-income populations such as food insecurity and limited access to healthcare also contribute to poor glycemic control and a heightened risk of GD.[90]

NC Medicaid's Pregnancy Management Program (PMP) and Care Management for High-Risk Pregnancies (CMHRP)

The Pregnancy Management Program (PMP), formerly known as the Pregnancy Medical Home, is a Department-led care program aimed at improving maternal and infant health outcomes and reducing health care costs by setting mandatory standards and clinical initiatives for obstetric services. Eligible women are automatically enrolled in PMP. Additionally, all providers eligible to bill NC Medicaid for obstetric services are automatically considered participating PMP providers.[91]

A key feature of PMP is the use of a standardized pregnancy risk screening tool that is used to identify women at higher risk of adverse birth outcomes. NC Medicaid's rates of pregnancy risk screening have historically hovered around 50%. To increase screening rates, NC Medicaid distributes incentive payments each time a provider successfully uses the screening tool; a total of up to three times during a pregnancy.[92]

[89] Bittner, J. M. P., Gilman, S. E., Zhang, C., Chen, Z., & Cheon, B. K. (2023). Relationships between early-life family poverty and relative socioeconomic status with gestational diabetes, preeclampsia, and hypertensive disorders of pregnancy later in life. *Annals of Epidemiology, 86*, 8–15. https://doi.org/10.1016/j.annepidem.2023.08.002

[90] Venkatesh, K. K., Huang, X., Cameron, N. A., Petito, L. C., Joseph, J., Landon, M. B., Grobman, W. A., & Khan, S. S. (2024). Rural-Urban Disparities in Pregestational and Gestational Diabetes in Pregnancy: Serial, cross-sectional analysis of over 12 million pregnancies. BJOG : *An International Journal of Obstetrics and Gynaecology, 131*(1), 26–35. https://doi.org/10.1111/1471-0528.17587

[91] *Clinical Coverage Policy No: 1E-6*. North Carolina Department of Health and Human Services. (2022). https://medicaid.ncdhhs.gov/1e-6/open

[92] *Healthy Moms, healthy babies: Building a Risk-Appropriate Perinatal System of Care for North Carolina*. North Carolina Institute of Medicine. (2020). https://nciom.org/wp-content/uploads/2020/04/Perinatal-Report-FINAL.pdf

Those who are identified as being high risk are connected to more extensive care management services through the Care Management for High-Risk Pregnancies (CMHRP) program. These services are delivered through local health departments, helping women navigate prenatal and postpartum care and addressing barriers to care (e.g., health related resource needs).[93, 94] CMHRP also connects women with a care manager at their local health department who works with the beneficiary and the beneficiary's prenatal care provider to review the clinical plan, provide information and educational materials and connect families with resources that could be helpful during and after pregnancy. The introduction of CMHRP marked a switch to more intensive and multidisciplinary care management for women with high-risk pregnancies. Today, CMHRP services are provided by 75 of the 86 local health departments across North Carolina. Check out the Department's CMHRP webpage to learn more about this program.

Maternal Hypertension

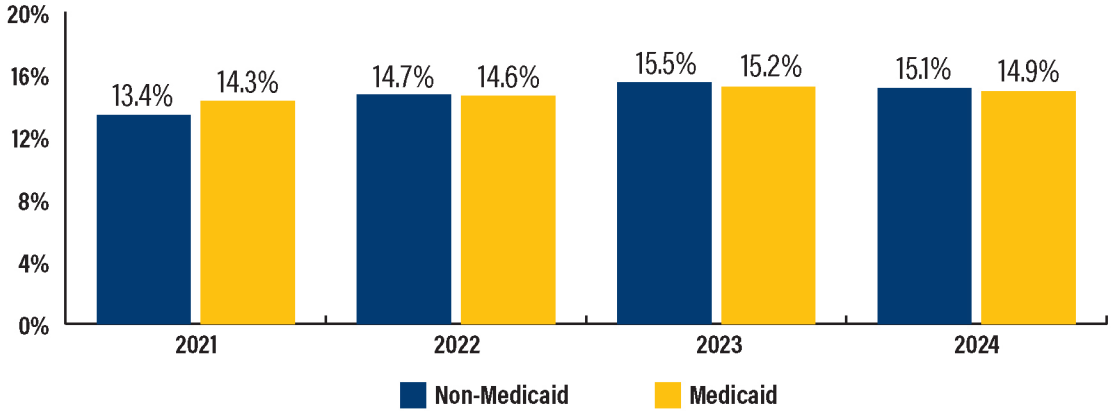
High blood pressure (also called hypertension) during pregnancy (called maternal hypertension) is one of the leading causes of pregnancy-related deaths in the United States.[95] Maternal hypertension is classified as either chronic or gestational. Chronic hypertension refers to high blood pressure that exists prior to pregnancy or develops before 20 weeks of gestation.[96] In contrast, gestational hypertension develops after 20 weeks of pregnancy in women without high blood pressure prior to pregnancy. Without intervention, gestational hypertension can increase the risk of preterm birth, low birth weight, restricted fetal growth, damage to maternal organs, long-term cardiovascular disease for the mother or preeclampsia.[97, 98] Preeclampsia is a more severe condition in which high blood pressure is accompanied by signs of damage to the kidneys, liver or other organs.[99] Preeclampsia increases the risk of serious complications, including placental abruption, stroke or maternal and infant mortality.[100]

In addition to biological risk factors, there are several social and structural determinants that can increase the risk of developing preeclampsia for Medicaid beneficiaries. Having inadequate access to care, being low income and being enrolled in public insurance (Medicaid) increases one's risk of maternal hypertension and related complications such as preeclampsia.[96] Additionally, Black and African American women face a higher risk of developing maternal hypertension and preeclampsia, often due to systemic inequities.[101] Timely screening, diagnosis and management of maternal hypertension are essential in preventing adverse maternal and infant health outcomes.

As seen in Figure 15, the percentage of infants born to mothers enrolled in NC Medicaid with maternal hypertension[102] increased from 14.3% of births in 2021 to 14.9% of births in 2024. Although social and structural determinants might suggest otherwise, statewide data from 2022 through 2024 show that North Carolina's non-Medicaid population had a higher percentage of births to mothers with hypertension.

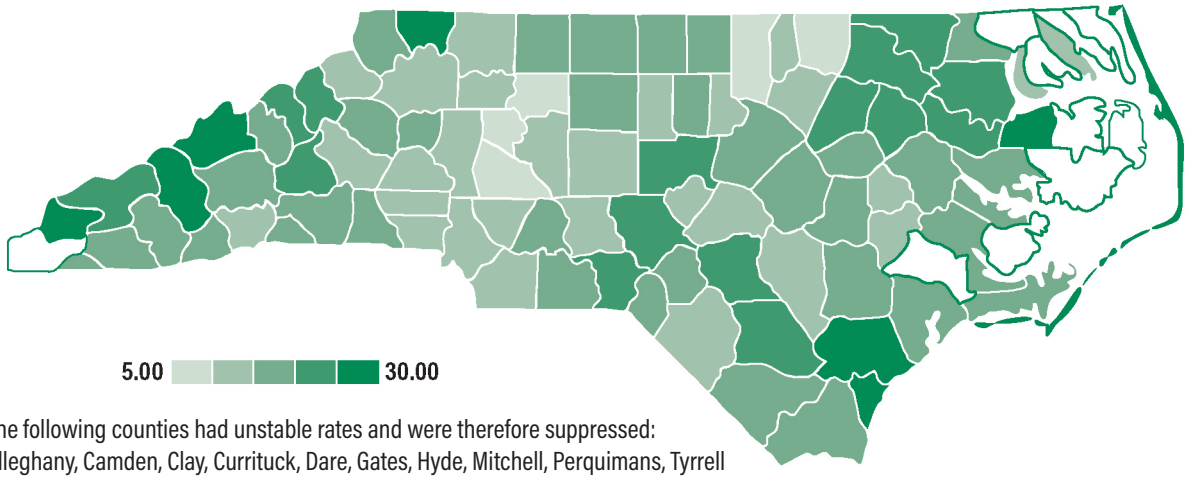
[93] Health-related resource needs include factors such as housing, education, transportation, income, and employment that greatly influence health and wellbeing.
[94] *Program guide: Management of High-Risk Pregnancies and At-Risk Children in Managed Care.* North Carolina Department of Health and Human Services. (2024). https://medicaid.ncdhhs.gov/program-guide-management-high-risk-pregnancies-and-risk-children-managed-care/download?attachment
[95] Ford ND, Cox S, Ko JY, et al. Hypertensive Disorders in Pregnancy and Mortality at Delivery Hospitalization — United States, 2017–2019. MMWR Morb Mortal Wkly Rep 2022;71:585–591. DOI: http://dx.doi.org/10.15585/mmwr.mm7117a1
[96] *Preeclampsia and High Blood Pressure During Pregnancy.* (n.d.). Retrieved August 5, 2025, from https://www.acog.org/womens-health/faqs/preeclampsia-and-high-blood-pressure-during-pregnancy
[97] *High Blood Pressure During Pregnancy.* (2025). CDC. https://www.cdc.gov/high-blood-pressure/about/high-blood-pressure-during-pregnancy.html
[98] *How might high blood pressure affect you and your baby?* (n.d.). Mayo Clinic. Retrieved August 5, 2025, from https://www.mayoclinic.org/healthy-lifestyle/pregnancy-week-by-week/in-depth/pregnancy/art-20046098
[99] *Preeclampsia- Symptoms & causes.* (n.d.). Mayo Clinic. https://www.mayoclinic.org/diseases-conditions/preeclampsia/symptoms-causes/syc-20355745
[100] *Preeclampsia.* (n.d.). [Health Topic]. Retrieved September 22, 2025, from https://www.marchofdimes.org/find-support/topics/pregnancy/preeclampsia
[101] Fasanya, H. O., Hsiao, C. J., Armstrong-Sylvester, K. R., & Beal, S. G. (2021). A Critical Review on the Use of Race in Understanding Racial Disparities in Preeclampsia. *The journal of applied laboratory medicine, 6*(1), 247–256. https://doi.org/10.1093/jalm/jfaa149
[102] The North Carolina Maternal and Infant Health Data Dashboard's maternal hypertension data includes pre-pregnancy hypertension, pregnancy-related hypertension and preeclampsia.

Figure 15: North Carolina Maternal Hypertension, Stratified by Maternal Medicaid Status (2021-2024)



However, after stratifying by perinatal care region, there are notable disparities in rural regions of the state (see Figure 16). In 2024, maternal hypertension rates among Medicaid beneficiaries were highest in the Western (17.3%), Eastern (17.6%) and Southeastern (18.5%) regions of the state. These areas exceeded rates in the Northeastern (13.5%), Northwestern (14.1%) and Southwestern (11.6%) regions. Given that the regions with the highest rates are also the most rural, these disparities align with national findings that women in rural areas have a 20% to 60% higher rate of pre-pregnancy chronic hypertension and are 9% more likely to have pregnancy-related hypertension or preeclampsia.[103, 104]

Figure 16: 2024 North Carolina Medicaid County-Level Rates of Maternal Hypertension, Stratified by Perinatal Care Region*



*The following counties had unstable rates and were therefore suppressed:
Alleghany, Camden, Clay, Currituck, Dare, Gates, Hyde, Mitchell, Perquimans, Tyrrell

[101] Fasanya, H. O., Hsiao, C. J., Armstrong-Sylvester, K. R., & Beal, S. G. (2021). A Critical Review on the Use of Race in Understanding Racial Disparities in Preeclampsia. *The journal of applied laboratory medicine, 6*(1), 247–256. https://doi.org/10.1093/jalm/jfaa149

[102] The North Carolina Maternal and Infant Health Data Dashboard's maternal hypertension data includes pre-pregnancy hypertension, pregnancy-related hypertension and preeclampsia.

[103] Cameron, N. A., Molsberry, R., Pierce, J. B., Perak, A. M., Grobman, W. A., Allen, N. B., Greenland, P., Lloyd-Jones, D. M., & Khan, S. S. (2020). Pre-Pregnancy Hypertension Among Women in Rural and Urban Areas of the United States. *Journal of the American College of Cardiology, 76*(22), 2611–2619. https://doi.org/10.1016/j.jacc.2020.09.601

[104] *Trends in the Incidence of New-Onset Hypertensive Disorders of Pregnancy Among Rural and Urban Areas in the United States, 2007 to 2019* | Journal of the American Heart Association. (n.d.). Retrieved August 13, 2025, from https://www.ahajournals.org/doi/10.1161/JAHA.121.023791

Medicaid Coverage of Over-the-Counter Low Dose Aspirin

In 2023, NC Medicaid added low dose Aspirin to its list of covered over-the-counter medications.[105] Low dose Aspirin is commonly used to prevent or delay the onset of preeclampsia and is often recommended for pregnant women at high risk of preeclampsia. Risk factors for preeclampsia include history of preeclampsia, diabetes, chronic hypertension, maternal age of 35 years or older and a body mass index greater than 30 among others.[106] As low dose Aspirin is extremely effective in lowering blood pressure, covering low dose Aspirin is a step toward reducing severe maternal morbidity and promoting the health of pregnant and postpartum NC Medicaid beneficiaries.

NC March of Dimes – Low-Dose Aspirin Campaign

In 2024, both nationally and within North Carolina, March of Dimes launched its Low-Dose Aspirin Awareness Campaign. This campaign aims to increase awareness among healthcare providers and individuals of childbearing age about the risk factors for preeclampsia and share the benefits of low-dose aspirin in mitigating the effects of preeclampsia. Overall, the campaign aims to reduce healthcare disparities by ensuring equitable access to critical information across all racial and ethnic groups.

To learn more about NC March of Dimes, please see page 11 of this report or click here.

Thriving Hearts

Thriving Hearts aims to implement programs through local health departments (LHDs) that cultivate conditions for mothers and birthing people to not only survive pregnancy, but to thrive. A collaboration with LHDs in 10 counties across central North Carolina, Thriving Hearts is dedicated to decreasing the number of people with hypertensive disorders of pregnancy (HDP) by providing support and connection at the individual, healthcare provider and community-level.

To address hypertensive disorders at the individual level, Thriving Hearts works with LHDs to screen pregnant individuals who are at high risk of HDP, provide them with home blood pressure monitors, distribute low dose aspirin and send blood pressure reminders and health tips via text. For providers and healthcare teams, Thriving Hearts hosts workshops and trainings on healing-centered, trauma-informed care to support healthcare workers and prevent burnout. Finally, at the community level, Thriving Hearts connects families with community health workers who share resources to address health related resource needs, community events and medical-legal partnership to address health harming legal and social needs. Thriving Hearts is confident that addressing HDP at all three levels is instrumental in reducing maternal morbidity and mortality in North Carolina. Click here to learn more about Thriving Hearts.

[105] NC Medicaid. (2023). *Clinical Coverage Policy No: 9A.* https://medicaid.ncdhhs.gov/media/14870/download?attachment
[106] *Low-dose aspirin use during pregnancy.* The American College of Obstetricians and Gynecologists. (2018). https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2018/07/low-dose-aspirin-use-during-pregnancy

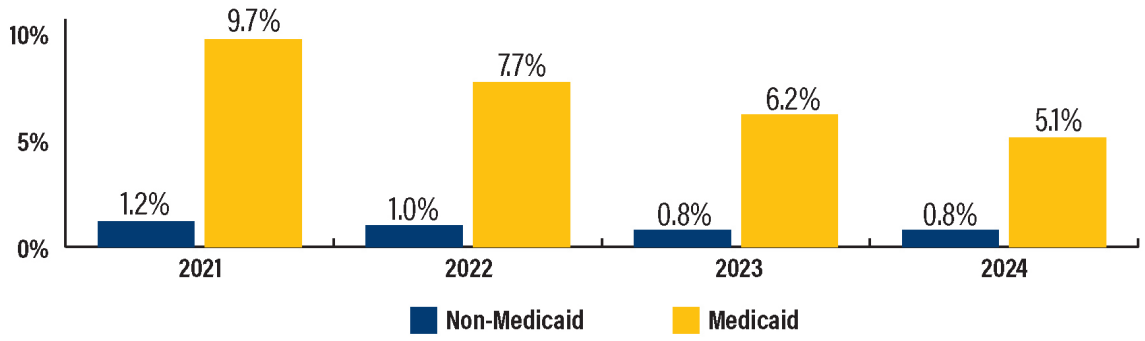
Smoking During Pregnancy

As discussed in the *Smoking Prior to Pregnancy* section of this report, the CDC has found that those with low incomes and those enrolled in Medicaid are more likely to smoke compared to their counterparts.[33] This is partly due to tobacco companies' history of using manipulative tactics to target low-income communities.[34] As nicotine is an extremely addictive chemical, it is very difficult to quit. While 70% of smokers report wanting to quit, nicotine dependence often continues into pregnancy.[107]

This is alarming, as smoking during pregnancy poses many risks. Not only does smoking double the risk of abnormal bleeding during pregnancy and delivery, jeopardizing the health of both mother and baby, it can also lead to low birthweight, ectopic pregnancy, preterm birth, stillbirth or placenta previa.[108, 109] Children whose mothers smoked during pregnancy have an increased risk of damaged lung and brain development, birth defects (including cleft lip, cleft palate or both) and sudden infant death syndrome (SIDS).

As seen in Figure 17, NC Medicaid beneficiaries experience a much higher rate of smoking during pregnancy compared to those not enrolled in Medicaid. While this rate has decreased since 2021, indicating positive steps in smoking cessation support, 5.1% of Medicaid beneficiaries still reported smoking during pregnancy as compared to only 0.8% of the non-Medicaid population in 2024. With the significant health risks posed by smoking during pregnancy, this data indicates that NC Medicaid beneficiaries and their infants may be experiencing the harms of smoking at higher rates compared to non-Medicaid population.

Figure 17: North Carolina Smoking During Pregnancy, Stratified by Maternal Medicaid Status (2021-2024)



To help reduce these harms and support NC Medicaid beneficiaries in their desire to quit smoking, NC Medicaid covers the cost of tobacco cessation counseling. This counseling can be provided by physicians, nurse practitioners, physician assistants or certified nurse midwives in doctors' offices and certain local health departments.[110] Cessation counseling aims to provide medical advice and support to NC Medicaid beneficiaries who wish to stop smoking and can include creating a cessation plan, providing education or guidance surrounding cessation medications and discussing tools for coping with withdrawal and cravings.[111]

Perinatal Substance Use

While some mothers may take opioids as prescribed by a healthcare provider, if used incorrectly, substances like oxycodone, morphine, hydrocodone and fentanyl can pose as a significant threat when used during the perinatal period.[112] Illicit substance use during pregnancy may result in an increased risk of overdose, pregnancy loss, stillbirth, preeclampsia, preterm labor or more negative outcomes.[113] For infants, opioid exposure in utero can lead to low birthweight, birth defects and neonatal abstinence

[107] *Nicotine dependence*. (2025). ucsfhealth.org. https://www.ucsfhealth.org/conditions/nicotine-dependence
[108] Placenta previa is a condition in which the placenta blocks the entry to the cervix, leading to an increased risk of adverse health outcomes for both mother and baby.
[109] Centers for Disease Control and Prevention. (2025a). *Health effects of cigarettes: Reproductive Health.* https://www.cdc.gov/tobacco/about/cigarettes-and-reproductive-health.html#:~:text=Smoking%20and%20pregnancy&text=Smoking%20doubles%20the%20risk%20of,Stillbirth
[110] NC Medicaid. (2022). *Clinical Coverage Policy No: 1E-5.* https://medicaid.ncdhhs.gov/1e-5-0/open
[111] *Quitlines and Other Cessation Support Resources | Smoking and Tobacco Use | CDC.* (n.d.). Retrieved August 13, 2025, from https://www.cdc.gov/tobacco/hcp/patient-care/quitlines-and-other-resources.html
[112] NIDA. 2025, January 31. Substance Use While Pregnant and Breastfeeding. Retrieved from https://nida.nih.gov/publications/research-reports/substance-use-in-women/substance-use-while-pregnant-breastfeeding on 2025, August 19
[113] Wilson, L. A., & Gandhi, P. (2023). Opioid Agonist Therapies and Pregnancy Outcomes for Pregnant People With Opioid Use Disorder: Protocol for a Systematic Review. *JMIR Research Protocols, 12,* e42417. https://doi.org/10.2196/42417

syndrome (NAS), which occurs when a newborn experiences withdrawal because their bodies became dependent on substances while in utero.[114] NAS can cause symptoms such as tremors, excessive crying, feeding difficulties and respiratory problems and typically requires specialized care.[115] In North Carolina, the number of newborn hospitalizations due to NAS increased from 2.7 per 1,000 newborn hospitalizations in 2009 to 6.6 per 1,000 newborn hospitalizations in 2022.[116] While the rate has increased, it reached a peak of 10.5 per 1,000 newborn hospitalizations in 2017 and has been slowly declining since.[115] Multiple factors likely contributed to these increased rates of newborn hospitalization due to NAS, including social and economic factors, availability of healthcare and punitive policies that criminalize substance use during pregnancy and have been found to increase odds of NAS.[117] However, statewide initiatives such as the ones referenced in this section of the report and state policy changes that focus on providing crucial services and care management to families impacted by substance use led to decreased rates of NAS newborn hospitalizations.[118] In 2023, North Carolina reported a rate of 5.9 newborn hospitalizations due to NAS per 1,000 newborn hospitalizations.

The perinatal period provides a unique opportunity to identify and treat women with substance use disorders to promote the health of not only the mother but also the baby. Because of this, screening should be standard and done early in pregnancy to minimize health risks.[119] For example, the American College of Obstetricians and Gynecologists (ACOG) and the CDC recommend using medications for opioid use disorder (MOUD) like methadone or buprenorphine to support pregnant women who wish to stop using illicit drugs instead of withdrawing entirely or continuing usage.[120] This is because withdrawal from substances during pregnancy without MOUD can lead to higher rates of relapse, fetal distress, preterm labor or miscarriage.[121] Infants typically still face NAS when exposed to MOUD while in utero; however, the benefits of MOUD for both the mother and infant outweigh the impacts of withdrawal or continued use.[114]

In North Carolina, the impact of perinatal substance use during pregnancy is reflected within the state's maternal mortality data. From 2018-2019, substance use during pregnancy was a contributing factor for 38.2% of all pregnancy-related deaths.[19, 122] Additionally, from 2018-2019, 43.4% of pregnancy-related deaths were among people who had a history of substance use.[19] This highlights the importance of accessible, evidence-based treatment and support services for pregnant women navigating opioid use disorder.

For individuals enrolled in NC Medicaid, rates of deliveries among beneficiaries who had a documented history of opioid use during pregnancy or postpartum decreased from 2021 to 2024.[123] This is an encouraging sign given the state's efforts to reduce perinatal substance use, including the North Carolina Perinatal Substance Use Disorder Network and the NC Perinatal and Maternal Substance Abuse and CASAWORKS Initiatives mentioned in the following paragraphs.

North Carolina Perinatal Substance Use Disorder Network

While perinatal substance use disorders can pose major risks to mothers and their babies, barriers to care can make it challenging for mothers to receive the help that they need. Substance use during pregnancy and throughout the postpartum period carries great stigma, potentially even impacting the way providers deliver screening and treatment for patients with perinatal substance use disorder. The North Carolina Perinatal Substance Use Disorder Network aims to address the impacts of stigma on the care provided to patients.

[114] Anbalagan, S., Falkowitz, D. M., & Mendez, M. D. (2025). Neonatal Abstinence Syndrome. *In StatPearls. StatPearls Publishing.* http://www.ncbi.nlm.nih.gov/books/NBK551498/
[115] *Neonatal Abstinence Syndrome (NAS).* (n.d.). [Health Topic]. Retrieved August 22, 2025, from https://www.marchofdimes.org/find-support/topics/planning-baby/neonatal-abstinence-syndrome-nas
[116] *HCUP Fast Stats Data Tools – Healthcare Cost and Utilization Project (HCUP) Fast Stats.* (n.d.). https://datatools.ahrq.gov/hcup-fast-stats/?tab=special-emphasis&dash=83
[117] West, K. D., Ali, M. M., Blanco, M., Natzke, B., & Nguyen, L. (2023). Prenatal Substance Exposure and Neonatal Abstinence Syndrome: State Estimates from the 2016-2020 Transformed Medicaid Statistical Information System. *Maternal and child health journal, 27*(Suppl 1), 14–22. https://doi.org/10.1007/s10995-023-03670-z
[118] NCDHHS. (n.d.). Infant plan of safe care. https://www.ncdhhs.gov/divisions/mental-health-developmental-disabilities-and-substance-use-services/care-management-risk-children-cmarc/infant-plan-safe-care
[119] *Opioid Use and Opioid Use Disorder in Pregnancy.* (n.d.). Retrieved August 22, 2025, from https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2017/08/opioid-use-and-opioid-use-disorder-in-pregnancy
[120] CDC. (2025, May 7). *Treatment of Opioid Use Disorder Before, During, and After Pregnancy.* Opioid Use During Pregnancy. https://www.cdc.gov/opioid-use-during-pregnancy/treatment/index.html
[121] Anbalagan, S., Falkowitz, D. M., & Mendez, M. D. (2025). Neonatal Abstinence Syndrome. *In StatPearls.* StatPearls Publishing. http://www.ncbi.nlm.nih.gov/books/NBK551498/
[122] While this data is not within the timeframe highlighted in this report, it is from the most recent iteration of the Maternal Mortality Review Report published in 2024.
[123] These rates were calculated using NC Medicaid claims and encounters data.

The NC Perinatal Substance Use Disorder Network consists of six perinatal substance use disorder programs that have partnered together to harness their shared expertise. These programs include UNC Horizons, Project CARA, SUN Clinic, Tides, REACH and IMPACT. Together they provide guidance on best practices for treating women with perinatal substance use disorder, expanding access to treatment across the state and advocating for policy change. One of the Network's main goals is to increase the number of clinicians that provide perinatal substance use services by empowering more providers through regionalized peer-to-peer learning. By training providers throughout the different regions of the state, the NC Perinatal Substance Use Disorder Network hopes that women can receive care near where they live and will not have to travel to specialists outside of their own communities. Click here to learn more about the Network and the work they are doing to empower providers.

NC Perinatal and Maternal Substance Abuse and CASAWORKS Initiatives

The North Carolina Perinatal and Maternal Substance Abuse and CASAWORKS for Families initiatives provide specialized treatment programs designed to serve pregnant and parenting women who have substance use disorders. Operated through a network of licensed providers across the state, these initiatives provide a trauma-informed, comprehensive continuum of care that supports both maternal recovery and child wellbeing.

Women entering these programs often face complex challenges, including co-occurring mental health disorders, histories of trauma, domestic violence, poverty and involvement with the child welfare or criminal justice systems. Services include substance use treatment, individual and group therapy, parenting education, family reunification support, employment readiness, housing assistance, and medical and behavioral healthcare coordination. Importantly, these programs allow women to live with their children while in treatment, preserving the mother-child bond and supporting early childhood development through on-site childcare, case management and developmental screenings.

CASAWORKS, in particular, focuses on strengthening the entire family unit by combining clinical services with workforce development and peer support. Both initiatives are committed to reducing barriers to care and improving long-term outcomes for families impacted by substance use, including reducing foster care placements and supporting maternal recovery and self-sufficiency.

These programs are rooted in evidence-based practices that recognize the unique needs of women and children. They play a vital role in advancing maternal and child health equity across North Carolina by addressing the intergenerational impact of substance use with compassion and comprehensive care. Click here to learn more.

Birth Outcomes

Birth outcomes can be key indicators of overall maternal and infant health, reflecting not only the individual health status of a pregnant woman, but also the broader systems that support or fail to support healthy pregnancies. Outcomes such as cesarean delivery, preterm birth, low birthweight and infant mortality can be influenced by a wide range of factors including access to timely and high-quality

prenatal care, underlying medical conditions, and a multitude of the social determinants of health.[124, 125] While this section focuses specifically on measures related to birth outcomes, improving these outcomes requires focus on the entire continuum of care from preconception through postpartum.

Cesarean Section Deliveries

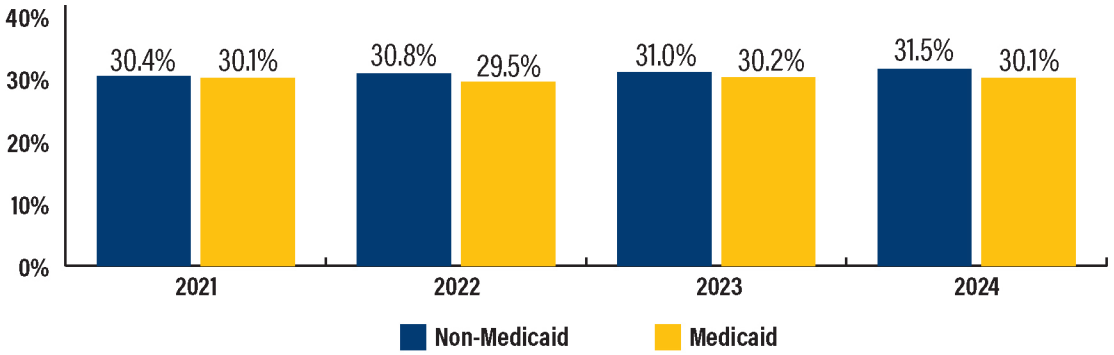
Cesarean sections, more commonly referred to as "C-sections," are a procedure in which a surgical incision is made through the mother's abdomen and uterus, and the baby is delivered without the need for a vaginal birth.[126]

In roughly 16% of births, C-section deliveries are planned prior to labor due to the potential risks associated with a vaginal birth.[127] These risks can come from pregnancy-related conditions like placenta previa, diabetes, high blood pressure or from carrying multiple babies.[128] However, in the vast majority of cases, the need for a C-section isn't clear until labor is already underway. C-sections are often conducted if labor isn't progressing normally, the baby is in distress or in a position that would make birth dangerous, there is a blockage or if the umbilical cord slips through the cervix in front of the baby. In these instances, C-sections are a lifesaving procedure for both mother and baby.

However, it is important to note that while modern advancements make this procedure safer than it has historically been, there are risks involved with a C-section delivery.[126] A C-section is a major surgery, and mothers who give birth via C-section are at an increased risk of heavy bleeding, infection, hemorrhage, uterine rupture, increased likelihood of complications in future pregnancies and experience slower recovery times after childbirth.[129, 130] Additionally, infants can face respiratory issues following a C-section.[130] Thus, it is important that C-sections are only used when medically necessary to avoid unnecessary risk.

While rates of C-section deliveries among the NC Medicaid and non-Medicaid populations are similar, the overall C-section delivery rate is still high. In fact, large-scale ecological studies have found that the ideal rate of C-section deliveries to be between 15 and 19%.[131] As seen in Figure 18, rates of C-section deliveries among NC Medicaid beneficiaries were consistent from 2021-2024, hovering around 30%. While slightly lower than the non-Medicaid population, these rates are considerably higher than the ideal C-section rate.

Figure 18: North Carolina Cesarean Section Deliveries, Stratified by Maternal Medicaid Status (2021-2024)



Racial Disparities in Cesarean Births

Racial disparities in C-section delivery rates remain a persistent and troubling indicator of inequity within maternal health care. National and state-level data consistently show that Black, Indigenous and other women of color experience higher rates of C-sections compared to White women, even when controlling

[124] Michael D. Warren, Ashley H. Hirai, Vanessa Lee. (2022). *Accelerating Upstream Together: Achieving Infant Health Equity in the United States by 2030.* Pediatrics. https://doi.org/10.1542/peds.2021-052800
[125] Milcent, C., Zbiri, S. (2018). *Prenatal care and socioeconomic status: effect on cesarean delivery. Health Economics Review.* https://doi.org/10.1186/s13561-018-0190-x
[126] Mayo Foundation for Medical Education and Research. (2022). *C-section.* Mayo Clinic. https://www.mayoclinic.org/tests-procedures/c-section/about/pac-20393655
[127] *Caesarean section (C-section).* NHS Inform. (2025). https://www.nhsinform.scot/ready-steady-baby/labour-and-birth/assisted-birth/caesarean-section-c-section/
[128] March of Dimes. (2024). *Medical reasons for a C-section.* https://www.marchofdimes.org/find-support/topics/birth/medical-reasons-c-section
[129] World Health Organization. (2021). *Caesarean section rates continue to rise, amid growing inequalities in access.* https://www.who.int/news/item/16-06-2021-caesarean-section-rates-continue-to-rise-amid-growing-inequalities-in-access
[130] Heiser, T. (2025). *Unnecessary C-sections pose health risks for mother and baby.* Norton Healthcare. https://nortonhealthcare.com/news/c-section-risks/
[131] Montoya-Williams, D., Lemas, D. J., Spiryda, L., Patel, K., Neu, J., & Carson, T. L. (2017). What Are Optimal Cesarean Section Rates in the U.S. and How Do We Get There? A Review of Evidence-Based Recommendations and Interventions. *Journal of women's health (2002), 26*(12), 1285–1291. https://doi.org/10.1089/jwh.2016.6188

for clinical risk factors and socioeconomic status.[132] In North Carolina, in 2023, 34.9% of non-Hispanic Black or African American mothers and 34.7% of American Indian/Alaska Native mothers delivered by C-section, compared to 30.1% of non-Hispanic White mothers, highlighting a notable racial disparity.[133]

These disparities reflect more than differences in medical need—they point to systemic issues within healthcare delivery, including implicit bias, unequal access to quality prenatal care, variation in provider practices and insufficient support for physiological birth. Research shows that women of color are more likely to report not feeling heard, respected or involved in decision-making during labor and delivery, all of which may contribute to higher intervention rates, including unplanned or unnecessary cesareans.[134]

Reducing unwarranted C-sections among racially and ethnically minoritized populations is critical in advancing quality and equity. Strategies such as implementing standardized labor management protocols, incorporating doula and midwifery services, supporting informed decision-making, integrating culturally responsive care practices and engaging in ongoing monitoring of disparities are essential to improving maternal outcomes and achieving birth equity.[135, 136] Monitoring these disparities within quality improvement initiatives will help ensure that all birthing people receive equitable, respectful and high-quality birthing care.

Doulas in North Carolina: A Landscape Analysis and Summit Report

In recent years, there has been an increasing focus on insurance reimbursement of doula services given the improved maternal health outcomes associated with receiving doula support. Existing literature shows that having a doula as a source of support during birth can lower odds of cesarean delivery, lower rates of preterm birth and low birthweight, and improve rates of breastfeeding initiation.[137] As a result, multiple states passed legislation allowing their Medicaid programs to cover doula services.[138] However, as of 2025, North Carolina has yet to pass such legislation.[139] To support NCDHHS' exploration of covering doula services as a way to improve maternal health outcomes, NCDHHS launched a Doula Landscape Survey in 2021 to learn more about doulas practicing in North Carolina.[140] The survey was comprised of 29 multiple choice and short answer questions divided into five sections: demographics, practice and services offered, training and certification, compensation and additional/contact information. The survey respondents were not a representative sample, but among the 116 respondents, the majority of doulas identified as White and/or Black, served urban counties, provided services exclusively in English, were certified, were part of a doula collective, clinic or other group, and received out-of-pocket payments for their services. Respondents provided doula services in 69 of North Carolina's 100 counties with the most served areas being Wake, Durham and Orange counties.

As a follow up to the Landscape Survey, NCDHHS convened a NC Doula Summit in October 2022. To make it more accessible, the Summit was offered for free at three sites across the state. The purpose of the Summit was to create a space for NC-based doulas to learn about the successes and challenges of expanding accessibility of doula services in other states and discuss their hopes and concerns regarding Medicaid reimbursement of doula services in NC.[141] Click here to view the full Landscape Analysis and Summit Report.

[132] Okwandu, I. C., Anderson, M., Postlethwaite, D., Shirazi, A., & Torrente, S. (2022). Racial and Ethnic Disparities in Cesarean Delivery and Indications Among Nulliparous, Term, Singleton, Vertex Women. *Journal of racial and ethnic health disparities, 9*(4), 1161–1171. https://doi.org/10.1007/s40615-021-01057-w

[133] *Cesarean Section Deliveries | Division of Public Health.* (n.d.). Retrieved August 13, 2025, from www.dph.ncdhhs.gov/programs/title-v-maternal-and-child-health-block-grant/nc-maternal-and-infant-health-data-dashboard/cesarean-section-deliveries

[134] CDC. (2023, September 29). *Mistreatment during maternity care.* Centers for Disease Control and Prevention. https://www.cdc.gov/vitalsigns/respectful-maternity-care/index.html

[135] Shuler, T. O. (2023). Promoting Shared Decision-making in Maternal Health Care. *North Carolina Medical Journal, 84*(1). https://doi.org/10.18043/001c.67779

[136] *Perspectives of Doulas of Color on their Role in Alleviating Racial Disparities in Birth Outcomes: A Qualitative Study - Kathawa - 2022 - Journal of Midwifery & Women's Health - Wiley Online Library.* (n.d.). Retrieved August 13, 2025, from https://onlinelibrary.wiley.com/doi/abs/10.1111/jmwh.13305

[137] Sobczak, A., Taylor, L., Solomon, S., Ho, J., Kemper, S., Phillips, B., Jacobson, K., Castellano, C., Ring, A., Castellano, B., & Jacobs, R. J. (2023). The Effect of Doulas on Maternal and Birth Outcomes: A Scoping Review. *Cureus,* 15(5), e39451. https://doi.org/10.7759/cureus.39451

[138] National Health Law Program. (2023). Doula Medicaid project. https://healthlaw.org/doulamedicaidproject/

[139] NCDHHS. (2025). Programs and services. https://medicaid.ncdhhs.gov/providers/programs-and-services

[140] Women, Infant and Community Wellness Section. (2023). Doulas in North Carolina: a landscape analysis and summit report. NCDHHS. https://wicws.dph.ncdhhs.gov/docs/WICWS-DoulaReport.pdf

[141] It should be noted that while NC Medicaid does not reimburse for doula services directly, many of NC Medicaid's MCOs cover doula services in some capacity.

Coverage of Vaginal Birth After Cesarean (VBAC) Codes

Some mothers who previously delivered via C-section may desire to pursue a vaginal delivery for their next pregnancy. This is called a vaginal birth after cesarean or VBAC. Having a history of a previous cesarean delivery can increase the risk for certain adverse birth outcomes, such as excessive blood loss and uterine rupture, however, every woman is different and their individual prenatal history must be considered before a decision for a VBAC is made.[142] For those women who do attempt a vaginal birth after previous cesarean, more than 60-80% have a successful VBAC and their births are associated with better maternal health outcomes.[143] Because of these high success rates and the lower risk of complications associated with vaginal delivery, it is crucial that providers are properly reimbursed for VBAC services.

After a thorough review in 2023, it was discovered that NC Medicaid was not reimbursing for VBAC billing codes. To resolve this issue, NC Medicaid added six VBAC codes to their fee schedule for providers to file for reimbursement. To learn more, please view the updated the 1E-5 Obstetrical Services Policy.

Birth Defects Prevalence

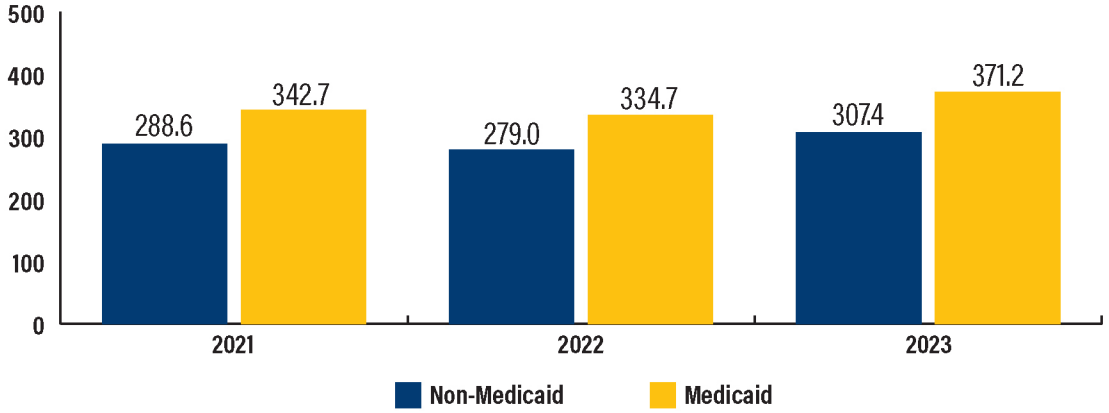
Birth defects, also referred to as congenital anomalies, are issues with a baby's development that begin during pregnancy. They are common occurrences, as one in 33 infants are born with a birth defect in the United States each year.[144] However, birth defects are a critical public health concern in the United States, as one out of five infant deaths are caused by birth defects. Birth defects are caused by a multitude of factors such as genetics, maternal illness, environmental influences and smoking during pregnancy.[144] Most birth defects begin developing within the first three months of gestation, emphasizing the importance of first trimester prenatal care.[145]

Birth defects are usually classified as structural (cleft palate), functional (nervous system, immune system, or metabolic disorders) or chemical (fetal alcohol syndrome or caused by medication) complications that cause physical or mental disability or impairment.[146] In North Carolina, the most common birth defects are heart defects, spine/brain defects or defects of the lip and roof of the mouth which make up approximately 40% of all serious birth defects in the state.[145]

While only data for 2021 through 2023 are shown in Figure 19, NC Medicaid beneficiaries have historically experienced higher rates of birth defects compared to the non-Medicaid population across all regions of the state.[147] Among NC Medicaid beneficiaries, the highest prevalence of birth defects occurs in the Northeastern and Southeastern regions of North Carolina. Birth defects have multiple potential causes including genetic, environmental and maternal health factors, with smoking being one potential risk factor. The higher prevalence of birth defects among NC Medicaid beneficiaries aligns with the population's higher rates of smoking before and during pregnancy.

[142] *Vaginal Birth After Cesarean Delivery.* (n.d.). Retrieved August 14, 2025, from https://www.acog.org/clinical/clinical-guidance/practice-bulletin/articles/2019/02/vaginal-birth-after-cesarean-delivery
[143] Habak, P. J., Khaparde, G., & Vadakekut, E. S. (2025). Vaginal Birth After Cesarean Delivery. *In StatPearls.* StatPearls Publishing. http://www.ncbi.nlm.nih.gov/books/NBK507844/
[144] *Birth defects and your baby.* (n.d.). [Health Topic]. Retrieved August 14, 2025, from https://www.marchofdimes.org/find-support/topics/planning-baby/birth-defects-and-your-baby
[145] *NCDHHS: DPH: NC SCHS: Birth Defects Monitoring Program: Questions and Answers.* (n.d.). https://schs.dph.ncdhhs.gov/units/bdmp/qanda.htm
[146] CDC. (2024, November 19). *Specific Birth Defects and Other Health Conditions.* Birth Defects. https://www.cdc.gov/birth-defects/about/types.html
[147] In North Carolina, birth defects are tracked through the North Carolina Birth Defects Monitoring Program (NCBDMP), a statewide, population-based system that tracks trends in birth defects. Due to the complexity of confirming cases of birth defects, 2023 and 2024 birth defects data are not yet available.

Figure 19: North Carolina Birth Defects Prevalence per 10,000 Births, Stratified by Maternal Medicaid Status (2021-2023)*



*As of February 2026, 2023 data is the most recent birth defects data published on the dashboard.

Critical Congenital Heart Defects Prevalence

Critical Congenital Heart Defects (CCHDs), the most common type of birth defect, occur when infants are born with complications of their heart structure due to improper development in the womb. CCHDs occur in approximately two out of every 1,000 live births and can sometimes be undetectable at the time of delivery.[148] Without early detection and intervention, infants with CCHDs are at a high risk of morbidity or mortality within the first weeks or months of life.[148] If detected early enough, CCHDs often require a catheter or surgical intervention within the first year of life.[149]

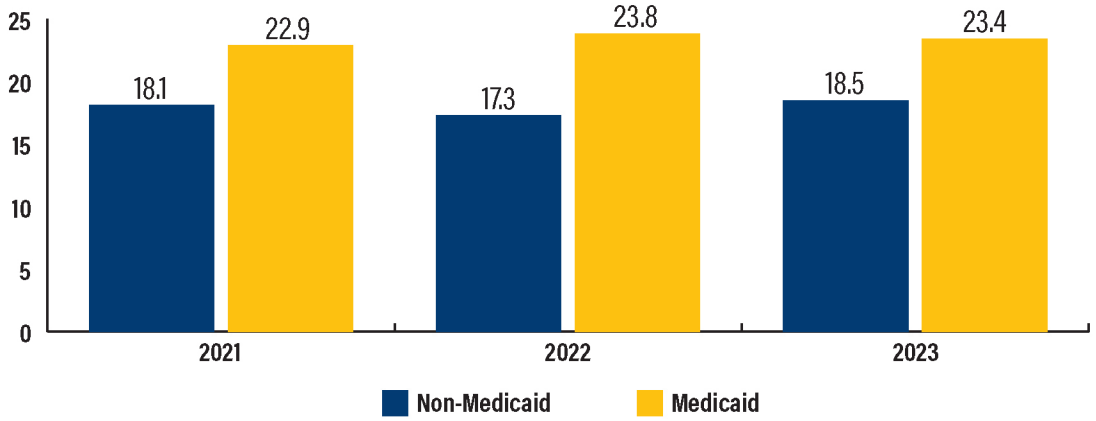
Aside from genetic susceptibility, maternal risk factors that impact fetal heart development include having rubella (German Measles), diabetes, taking certain medications, and drinking alcohol or smoking during pregnancy.[150] Some of the most impactful preventive measures for reducing CCHDs include receiving routine prenatal care, taking a prenatal multivitamin with folic acid, not drinking or smoking, receiving the rubella vaccination and controlling blood sugar or other chronic health conditions.

Screening and diagnosis of CCHDs occur both during pregnancy and after the infant is born. During the antenatal period, CCHDs can be detected at the second trimester "anatomy" ultrasound that is recommended for all pregnant individuals at 18-22 weeks of gestation. If abnormalities are detected, an ultrasound of the heart can be done to evaluate fetal heart development.[151] Despite the ability to detect CCHDs during pregnancy, almost half of CCHDs are missed by prenatal ultrasounds.[152] Several studies found that women with Medicaid, those with a lower economic status and those that live in rural areas are at an increased risk of their infant's CCHD being missed at the second-semester ultrasound or during the antenatal period.[153, 154]

As seen in Figure 20, from 2021 through 2023, the prevalence of CCHDs per 10,000 births was higher among those enrolled in Medicaid compared to those who were not.[155] One factor contributing to these higher rates could be the higher rates of smoking among the NC Medicaid population (see the *Smoking During Pregnancy* section on page 26). However, it is important to note that like many health conditions, CCHD can be caused by a variety of intersecting genetic, physiological, environmental and other external factors.

[148] Glidewell, J. (2019). Actions in Support of Newborn Screening for Critical Congenital Heart Disease — United States, 2011–2018. *MMWR. Morbidity and Mortality Weekly Report, 68.* https://doi.org/10.15585/mmwr.mm6805a3
[149] *Congenital heart defects in children—Symptoms and causes.* (n.d.). Mayo Clinic. Retrieved February 25, 2026, from https://www.mayoclinic.org/diseases-conditions/congenital-heart-defects-children/symptoms-causes/syc-20350074
[150] March of Dimes. (2021). Reducing the risk for congenital heart defects. https://www.marchofdimes.org/find-support/blog/reducing-risk-congenital-heart-defects
[151] *Fetal Echocardiogram Test.* (2023). Www.Heart.Org. https://www.heart.org/en/health-topics/congenital-heart-defects/symptoms--diagnosis-of-congenital-heart-defects/fetal-echocardiogram-test
[152] *Utilizing Fetal Heart Ultrasound for Congenital Heart Disease.* Empowered Women's Health. Retrieved August 14, 2025, from https://www.volusonclub.net/empowered-womens-health/utilizing-fetal-heart-ultrasound-for-congenital-heart-disease/
[153] Woo, J. L., Gandhi, R., Laternser, C., Iyengar, T., Yee, L. M., Grobman, W. A., Davis, M. M., Patel, A., & Johnson, J. T. (2025). Second-Trimester Ultrasound Receipt Mediates the Relationship Between Public Insurance and Prenatal Diagnosis of a Congenital Heart Defect. *Prenatal Diagnosis, 45*(7), 886–895. https://doi.org/10.1002/pd.6675
[154] Krishnan, Anita et al. Fetal Heart Society (2021). Impact of Socioeconomic Status, Race and Ethnicity, and Geography on Prenatal Detection of Hypoplastic Left Heart Syndrome and Transposition of the Great Arteries. *Circulation, 143*(21), 2049–2060. https://doi.org/10.1161/CIRCULATIONAHA.120.053062
[155] *Critical Congenital Heart Defects Rates | Division of Public Health.* (n.d.). Retrieved August 20, 2025, from https://www.dph.ncdhhs.gov/programs/title-v-maternal-and-child-health-block-grant/nc-maternal-and-infant-health-data-dashboard/critical-congenital-heart-defects-rates

Figure 20: North Carolina Critical Congenital Heart Defects Prevalence per 10,000 births, Stratified by Maternal Medicaid Status (2021-2023)



*As of February 2026, 2023 data is the most recent critical congenital heart defects data published on the dashboard.

Low Birthweight

An infant is considered low birth weight (LBW) if they are born weighing less than 2,500 grams (5 pounds 8 ounces). Low birthweight is highly correlated with pre-term birth and plays a large role in driving infant mortality rates, as LBW infants have a significantly higher risk of health complications.[156] Although many infants born with LBW have positive health outcomes, some LBW infants face increased chances of adverse outcomes such as respiratory problems, infection or brain bleeding.[157] Throughout the life span, being born LBW can also lead to an increased risk of developing diabetes, heart disease, high blood pressure, and intellectual or developmental disabilities.[157]

Low birthweight rates are also a key indicator of access to and utilization of prenatal care services. Infants born to mothers who do not receive any prenatal care are three times more likely to be born LBW.[158] There is a similar increased risk of LBW among mothers who do not receive timely prenatal care or receive fewer prenatal visits than recommended.[159]

Although rates of LBW are increasing across the entire United States, states in the Southeast region have some of the highest rates of LBW babies in the nation.[160] While having a LBW infant can be a result of certain medical conditions, LBW can be a product of compounding factors such as low maternal income, inadequate nutrition due to food deserts and inadequate access to healthcare services, emphasizing the potential increased risk for those enrolled in Medicaid.[161]

As seen in Figure 21, NC Medicaid beneficiaries experienced a reduction in rates of LBW infants from 2021 to 2024. Even with this improvement, the rate of LBW births is substantially higher for NC Medicaid beneficiaries compared to the non-Medicaid population. As mentioned in other sections of this report, these findings are not necessarily surprising given the unique social determinants of health that more heavily impact the NC Medicaid population.

[156] Committee to Study the Prevention of Low Birthweight; Division of Health Promotion and Disease Prevention; Institute of Medicine. Preventing Low Birthweight. Washington (DC): National Academies Press (US); 1985 Jan 1. SUMMARY AND RECOMMENDATIONS. Available from: https://www.ncbi.nlm.nih.gov/books/NBK214456/

[157] March of Dimes. (2021). Low birthweight. https://www.marchofdimes.org/find-support/topics/birth/low-birthweight

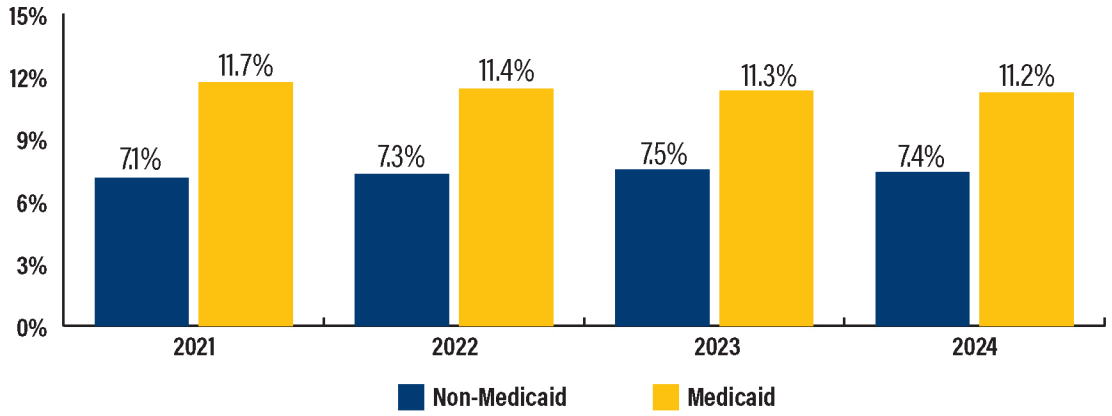
[158] Novoa, C. (2020). *Ensuring healthy births through prenatal support.* https://www.americanprogress.org/article/ensuring-healthy-births-prenatal-support/

[159] Chekole, F. A., Tesfu, A. A., Beyene, F. Y., & Balcha, W. F. (2025). The effect of antenatal care on low birth weight and neonatal mortality: protocol for umbrella review of meta-analysis. *Journal of Health, Population, and Nutrition, 44,* 146. https://doi.org/10.1186/s41043-025-00904-4

[160] Centers for Disease Control and Prevention. (2022). Stats of the states - low birthweight births. ttps://www.cdc.gov/nchs/state-stats/births/low-birthweight.html

[161] Ney, J. (2024). *Mapping america's birthweight crisis.* Time. https://time.com/6965173/americas-birthweight-crisis/

Figure 21: North Carolina Low Birth Weight, Stratified by Maternal Medicaid Status (2021-2024)



NC Medicaid's Modified LBW Measure

In addition to the *Low Birth Weight* indicator in the NC Maternal and Infant Data Dashboard, NC Medicaid tracks rates of low birth weight using the Centers for Medicare & Medicaid Services (CMS) Live Births Weighing Less Than 2,500 Grams (LBW-CH) quality measure. Similar to the dashboard indicator, this measure uses state vital records (birth certificates) to determine rates of low birth weight. To understand the impacts of NC Medicaid's transition to NC Medicaid Managed Care on rates of low birth weight, NC Medicaid created a modified LBW measure to calculate rates of LBW at the health plan level. While these measures are very similar, the modified measure allows NC Medicaid to compare performance across plans, providing greater insights into which beneficiaries are experiencing the highest rates of LBW.

Preterm Birth

Preterm birth occurs when an infant is born before 37 completed weeks of gestation. Preterm birth is a leading cause of infant mortality and can cause long-term health complications, especially among vulnerable or marginalized populations.[162] Alarmingly, rates of preterm birth increased by 12% in the United States from 2014 to 2022, with approximately one out of every ten infants in the United States being born prematurely in 2022.[163, 164]

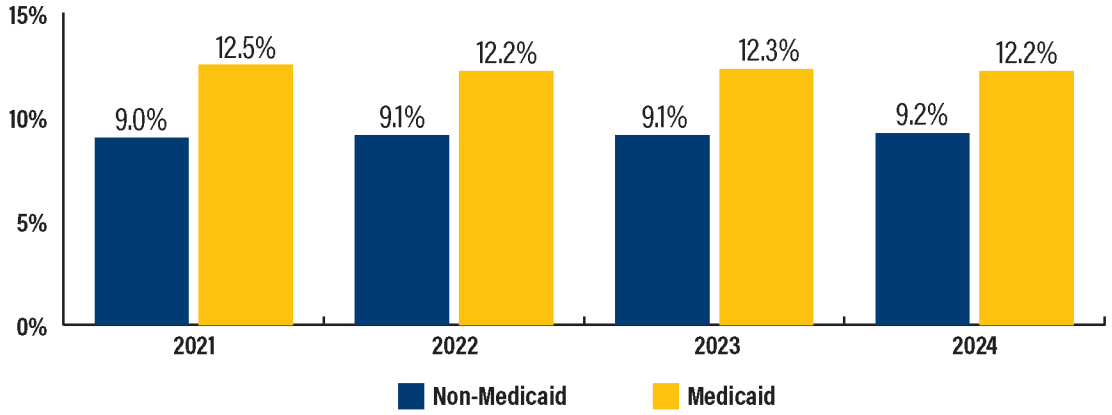
A wide range of factors can increase the likelihood of preterm birth, including a history of previous preterm deliveries and pregnancy complications such as hypertension or gestational diabetes.[151] Additional risk factors include tobacco use during pregnancy, being under age 17 or over age 35, being classified as underweight or overweight during pregnancy, having a family history of preterm birth or short intervals between pregnancies.[165]

Although medical advancements have improved mortality associated with preterm delivery, infants born preterm are commonly low birth weight and have higher risks of disability or developmental delays.[166] In addition to health impacts, preterm birth poses a significant financial burden on families and health systems. In North Carolina, the average cost of a single preterm birth is estimated at $64,000 after accounting for increased medical care, special education services and lost productivity.[167]

[162] Centers for Disease Control and Prevention. (2024). *Infant mortality.* https://www.cdc.gov/maternal-infant-health/infant-mortality/index.html
[163] *National Vital Statistics Reports Volume 73, Number 1 January 31, 2024.* (n.d.). Retrieved August 15, 2025, from https://www.cdc.gov/nchs/data/nvsr/nvsr73/nvsr73-01.pdf
[164] CDC. (2025, February 24). *Preterm Birth.* Maternal Infant Health. https://www.cdc.gov/maternal-infant-health/preterm-birth/index.html
[165] *Preterm labor and preterm birth: Are you at risk?* (n.d.). [Health Topic]. https://www.marchofdimes.org/find-support/topics/birth/preterm-labor-and-preterm-birth-are-you-risk
[166] World Health Organization. (n.d.) Preterm and low birth weight infants. https://www.who.int/teams/maternal-newborn-child-adolescent-health-and-ageing/newborn-health/preterm-and-low-birth-weight#:~:text=Preterm%20infants%20are%20born%20at,such%20as%20obesity%20and%20diabetes.
[167] March of Dimes. (n.d.). A profile of prematurity in North Carolina. https://www.marchofdimes.org/peristats/reports/north-carolina/prematurity-profile

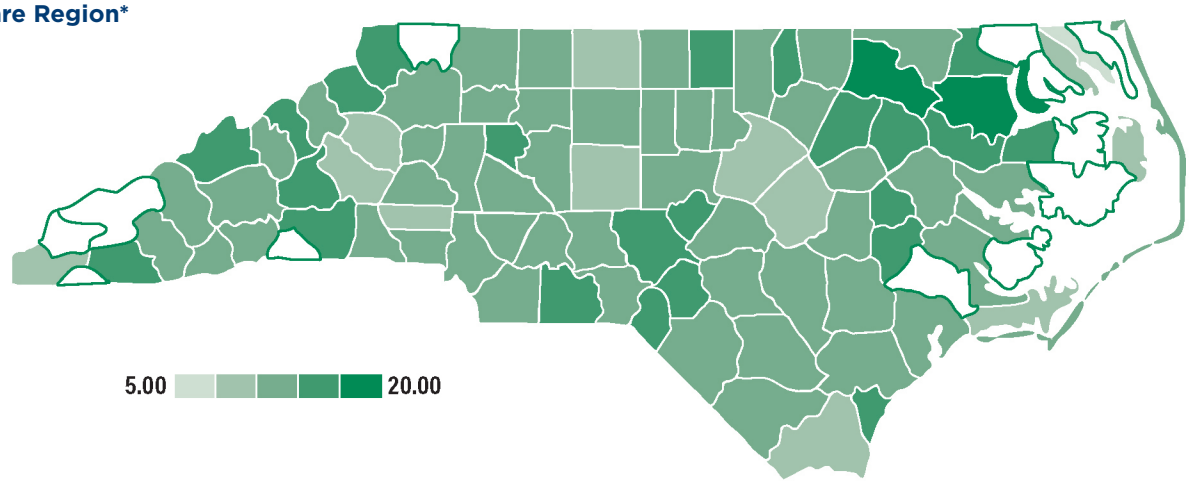
As seen in Figure 22, the overall rate of preterm births decreased for Medicaid beneficiaries from 2021-2024. Despite this, there are still significantly higher rates of preterm birth among Medicaid beneficiaries. Similar to NC Medicaid's rates of low birth weight, these higher preterm rates among NC Medicaid beneficiaries are not necessarily surprising given the complex nature of the Medicaid population and the factors that impact risk of preterm birth.

Figure 22: North Carolina Preterm Birth, Stratified by Maternal Medicaid Status (2021-2024)



While overall rates of preterm birth are high across the state, stratifying by perinatal care region highlights that the Southeastern (11.3%), Eastern (11.5%) and Western (11.1%) regions have a higher density of counties with higher rates of preterm birth compared to the Northwestern (10.8%), Southwestern (10.2%) and Northeastern (9.9%) regions (see Figure 23). When comparing rates of preterm birth between the Medicaid and non-Medicaid populations, rates of preterm birth among Medicaid beneficiaries are higher across all six regions, but the Eastern region of the state experiences the most substantial differences. For example, in 2024, beneficiaries living in the Eastern region experienced a preterm birth rate of 13.4% compared to only 9.5% among the non-Medicaid population. These findings highlight a need for targeted interventions in certain parts of the state, and among Medicaid beneficiaries specifically.

Figure 23: 2024 North Carolina Medicaid County-Level Rates of Preterm Birth, Stratified by Perinatal Care Region*



*The following counties had unstable rates and were therefore suppressed: Alleghany, Avery, Camden, Chowan, Clay, Gates, Graham, Hyde, Jones, Mitchell, Perquimans, Polk, Tyrrell, Watauga, Yancey

North Carolina Perinatal Health Strategic Plan (PHSP) and the Perinatal Health Equity Collective (PHEC)

The 2022-2026 North Carolina Perinatal Health Strategic Plan (PHSP) is a statewide guide created to improve the health of mothers, infants and all people of reproductive age across North Carolina. The PHSP has three primary goals: address economic and social inequities; strengthen families and communities; and improve healthcare for all people of childbearing age. Each goal has four corresponding points with a set of strategies that outline how to execute the work that will positively impact maternal and infant health. The PHSP uses four overarching indicators to assess maternal and infant health. While working toward achieving these indicators, the Department set 2026 targets:

1. Decrease the Black/White disparity ratio in infant mortality from 2.5 to 1.9;
2. Decrease the Black/White disparity ratio in severe maternal morbidity (excluding transfusions) from 1.9 to 1.7;
3. Decrease the percentage of preterm births from 10.7% to 7.3% or less for all racial/ethnic groups; and
4. Increase health insurance rates from 87.3% to 90% or above for all racial/ethnic groups.

To implement the PHSP and assess progress, the Department appointed a Perinatal Health Equity Collective (PHEC) to provide oversight and guidance on the PHSP, assess progress and oversee updates to the PHSP. The PHEC is comprised of individuals with lived experience, state and local government officials, community-based organizations, nonprofits, universities and other partners. This group convenes bimonthly and has five work groups that meet regularly.

Perinatal Quality Collaborative of North Carolina (PQCNC)

The Perinatal Quality Collaborative of North Carolina (PQCNC) is North Carolina's statewide perinatal quality collaborative. PQCNC has been conducting perinatal quality improvement initiatives since 2009, including newborn projects that impact delivery services and NICUs, leading NCDHHS and the American College of Obstetrics and Gynecology's Alliance for Innovations in Maternal Health and maternal-child initiatives in hospitals and clinics across the state.

PQCNC is continuously updating and adapting programming. Previous initiatives include efforts aimed at reducing central line-associated bloodstream infections, eliminating early elective deliveries, reducing the rate of primary cesarean deliveries, preventing and providing care for infant hypoglycemia, antibiotic stewardship, lessening the impact of opioid use on mothers and babies, and early detection and care for obstetric hemorrhage. While there is no mandate for hospitals to participate, PQCNC conducts projects in 40-60 hospitals across North Carolina and enrolls roughly 50-70% of mothers receiving care and babies being born in North Carolina annually.

PQCNC's mission is to make North Carolina the best place to give birth and to be born. In 2025, PQCNC engaged in two projects, *Cardiac Care in Obstetrics and Care of the Late Preterm Infant 2.0. Cardiac Care in Obstetrics* created regional teams that will use a cardiac screening tool, created by PQCNC, to improve the timely evaluation and care of pregnant mothers with cardiac conditions. As of summer 2025, 44 hospital teams were enrolled. *Care of the Late Preterm Infant 2.0* focused on spreading best practices for infants born between 34 and 37 weeks gestation. While it may seem that these infants are similar in size and weight to full-term infants, they are still preterm and should have very different care pathways. On average, there are 10,000 late preterm births in North Carolina each year. PQCNC aims to support breast feeding, observing

preterm infants for at least 48 hours before discharge, obtaining follow-up care within 48 hours post discharge, reducing readmissions within 30 days following discharge and ensuring that a third syphilis screening is performed on all mothers at the time of delivery.

In 2024, PQCNC completed *Sepsis in Obstetrics and Care of the Late Preterm Infant 1.0. Sepsis in Obstetrics* included introducing an obstetric sepsis screening tool to be incorporated in routine obstetric care. A critical component of this tool was the recognition of changes in vital signs (heart rate and blood pressure) which occur during pregnancy. The program resulted in a dramatic uptake of the screening tool, development of an escalation of care protocol and monitoring of the timely administration of antibiotics. *Sepsis in Obstetrics* also emphasized educating parents for early warning signs of sepsis and introduced patient-friendly materials regarding sepsis warning signs and a process to monitor implementing the education. In *Care of the Late Preterm Infant 1.0*, PQCNC observed a dramatic reduction in discharges less than 48 hours, an increase in follow up appointments 48 hours post-birth, a decrease in the rate of infant syphilis results that were not available at the time of discharge and a sustained or increased rate of breastfeeding for both Black and White mothers with late preterm births.

Infant Death Rate

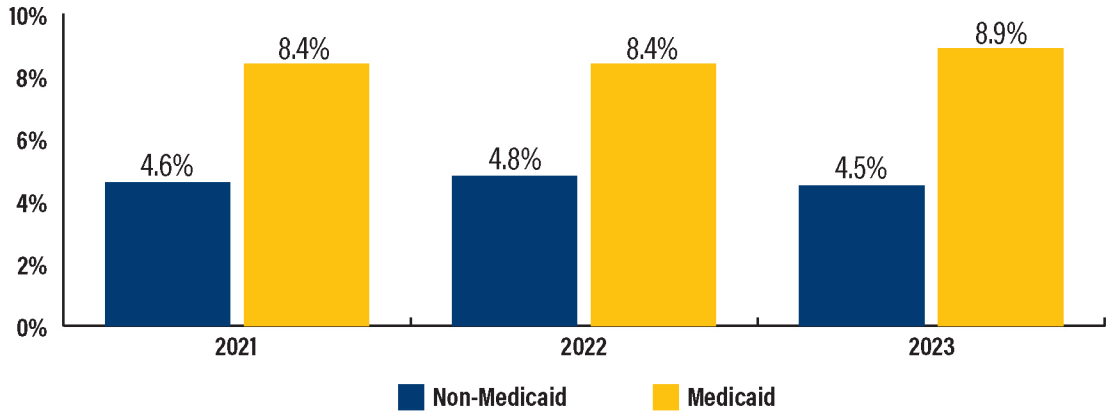
According to the World Health Organization (WHO), infant deaths are indicative of the underlying health of a population.[168] Infant mortality remains a critical public health concern in North Carolina, as the state has the 10th highest infant mortality rate in the country.[169] In fact, infant deaths (under age 1) accounted for 58% of all child deaths in North Carolina in 2023, translating to roughly 6.9 deaths per 1,000 live births.[169] This number exceeds the state's Healthy North Carolina 2030 target goal of 6.0 deaths and has remained relatively stagnant with no significant changes since 2010.[170] The most common causes of infant death in North Carolina include complications related to preterm birth and low birth weight and birth defects. In 2022, 53.7% of infant deaths in NC were also related to unsafe sleeping conditions.[171]

Infant mortality rates include any death before 1 year of age; however, most infant deaths in North Carolina occur within the first four months of life.[171] This highlights the importance of providing resources, education and accessible support to parents and caregivers who are navigating the challenges of newborn care.

In North Carolina, regions of the state that experience higher rates of poverty and lower rates of education, like Western and Eastern North Carolina, experience higher rates of infant death.[169] As indicated in Figure 24, this trend is similar for those enrolled in Medicaid, as the statewide infant death rate among NC Medicaid beneficiaries was almost twice the rate of the non-Medicaid population from 2021-2022. There are also significant racial disparities, with infant mortality rate reaching 13.6% for non-Hispanic Black individuals compared to only 4.5% for non-Hispanic White individuals in 2023.[22] Ensuring that all women have access to adequate preconception and prenatal care and education are critical steps in decreasing the number of infant deaths and reducing disparities in North Carolina.

[168] World Health Organization. (n.d.). *Infant mortality rate (between birth and 11 months per 1000 live births).* https://www.who.int/data/gho/indicator-metadata-registry/imr-details/1
[169] North Carolina Child Fatality Task Force. (2025). *Annual Report to the Governor and General Assembly.* https://webservices.ncleg.gov/ViewDocSiteFile/94479
[170] North Carolina Institute of Medicine. (2020). *Healthy North Carolina 2030.* https://nciom.org/healthy-north-carolina-2030/
[171] North Carolina Medical Examiner. (2022). North Carolina Office of the Chief Medical Examiner Spotlight on Infant Death Report. https://www.ocme.dhhs.nc.gov/annreport/docs/SpotlightInfantDeath2022_Version3-Final-031424.pdf

Figure 24: North Carolina Infant Death Rate, Stratified by Maternal Medicaid Status (2021-2023)*



*As of February 2026, 2023 data is the most recent infant death data available on the dashboard.

Reducing Infant Mortality in Communities (RIMC) Program

Since fiscal year 2016, the North Carolina General Assembly has allocated Maternal and Child Health Block Grant funding to the Reducing Infant Mortality in Communities (RIMC) program. Through a request for application (RFA) process, this program provides funding for local health departments (LHDs) with high infant mortality rates to implement evidence-based strategies that are proven to lower infant mortality rates. LHDs who are selected to receive funding must select two out of five evidence-based strategies (EBSs) to implement in their communities: Breastfeeding Support Services, Centering Pregnancy, Doula Services, Infant Safe Sleep Services and Preconception and Interconception Health Services with Diabetes Management Services or Weight Management Services. These EBSs are all considered an effective means to improve birth outcomes through addressing pregnancy intendedness, preterm birth, and/or infant death. From June 2023 to May 2024, the EBSs provided services to almost 10,800 patients, education to almost 1,500 patients and trained almost 60 staff. To learn more about RIMC, please click here.

Improving Community Outcomes for Maternal and Infant Health (ICO4MCH)

The Improving Community Outcomes for Maternal and Child Health (ICO4MCH) Program was established in 2015 to achieve three aims: improve birth outcomes, reduce infant mortality and improve health among children ages 0 to 5. Through ICO4MCH, the North Carolina General Assembly appropriates funds to the Division of Public Health (DPH) who awards LHDs funds to implement evidence-based strategies (EBS) and achieve these aims. LHDs must meet certain criteria to apply for ICO4MCH funding. As of August 2025, five LHDs are funded to implement ICO4MCH across nine counties. Funds are currently awarded for a three-year period.

Counties selected to participate in ICO4MCH are required to address all three program aims by choosing one of the pre-selected evidence-based/evidence-informed strategies for each aim. Table 5 outlines the program aims and corresponding evidence-based strategies that the LHDs can choose from.

Table 5: ICO4MCH Program Aims and Evidence-Based Strategies

Program Aims	Evidence Based Strategies
A. Improved Birth Outcomes	Reproductive Life Planning (RLP)
	Improving Preconception and Interconception Health
B. Reduced Infant Mortality	10 Successful Steps for Breastfeeding, with a specific focus on Step 3 and Step 10
	Tobacco Cessation and Prevention
C. Improved Health Status of Children Ages 0-5	Positive Parenting Program (Triple P)
	Family Connects Newborn Home Visiting

Because infant mortality and improved birth outcomes are complex health issues that are impacted by the social determinants of health, it is challenging to determine the specific impact of these evidence-based programs alone within each county. The Department will continue to monitor the program's effectiveness and impacts.

ACURE4Moms Study

ACURE4Moms (Accountability for Care through Undoing Racism and Equity for Moms) is a randomized control trial aiming to improve maternal health outcomes, satisfaction and communication for Black mothers. The study is led by a team of clinicians, community-based doulas and researchers from across North Carolina, as well as a diverse stakeholder advisory board.

The study began in April 2022 and will conclude in 2027, with 39 participating practices across the state. The 39 practices were randomly assigned to one of the four arms outlined in Table 6.

Table 6: ACURE4Moms Study Components

Arm	Element	Description
Control Arm	Standard Care Management	Patients continue to receive the normal care provided by their obstetric practice.
Data Arm	Data Interventions-Only	Practice receives an early warning system to alert the practice of patients who meet certain criteria that may make them higher risk, as well as a data dashboard stratified by race.
Doula Arm	Community-Based Doula Support-Only	Practices are partnered with local doulas to share patient care responsibilities and support patients at risk for low birthweight deliveries.
Data + Doula Arm	Data Interventions + Doula Support	Practices in this arm receive the benefits listed in both the data and doula arms of the study.

ACURE4Moms aims to compare the proportion of Black women who deliver a low birthweight baby, evaluate the number of emergency department visits and hospitalizations during pregnancy and up to one year after delivery, and explore trends in self-reported racism during pregnancy and up to four months after delivery between the different study arms. Researchers hope that comparing outcomes between these different arms will allow them to better understand the most effective practice-based interventions for improving health outcomes and experiences for Black mothers. To learn more about ACURE4Moms, please click here.

Postpartum

The period following delivery (also referred to as postpartum) is especially important in shaping the health and wellbeing of mothers and their infants. While generally defined as the 12 weeks following delivery, postpartum changes can occur for months after delivery.[172] This period is essential in setting women, infants and their families up for long-term success. The following section covers breastfeeding and mental health in the postpartum period.[173]

Nurse-Family Partnership (NFP)

Nurse-Family Partnership (NFP) is a nationwide evidence-based, community health program that works to positively impact and transform the lives of first-time moms and their babies through a home visiting model. By connecting families with specially educated and equipped home-visiting nurses, NFP provides support for first-time parents from early pregnancy through a child's second birthday. NFP is free of charge and offers services to families facing significant adversity and systemic and socioeconomic barriers to health and wellbeing, with the goal of helping families achieve long-term success and economic self-sufficiency.[174] To date, NFP has served 385,000 families across 40 states.

For over 45 years, NFP has collected data on the impacts of the program, and the findings are astounding. Nationwide, mothers enrolled in NFP had 35% fewer cases of pregnancy-induced hypertension, 18% fewer preterm births, a 79% reduction in preterm delivery among women who smoke cigarettes and a 31% reduction in very closely spaced (<6 months) pregnancies. Similarly, children whose families were enrolled in the program experienced a 48% reduction in child abuse and neglect, 67% less behavioral and intellectual problems in children at age 6 and 56% fewer emergency room visits for accidents and poisonings through age 21.[175] In addition to improving health outcomes for some of the most vulnerable populations, every dollar invested in NFP saves $5.70 in future costs for high-risk families.

Established in 2000, North Carolina NFP has served over 11,800 families and is currently active in 31 counties across the state. NC NFP has also seen improved outcomes among participating families, with 88% of babies born full term, 86% of mothers initiating breastfeeding, 85% of babies receiving their immunizations by 24 months and 57% of clients ages 18 or older being employed within 24 months of delivery.

To learn more about NC NFP, please click here.

[172] *Optimizing Postpartum Care.* (n.d.). https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2018/05/optimizing-postpartum-care
[173] Cleveland Clinic. (2024). The postpartum period. https://my.clevelandclinic.org/health/articles/postpartum
[174] Nurse-Family Partnership. (2023). *Nurse-Family Partnership Overview.* https://changent.org/wp-content/uploads/2024/09/Nurse-Family-Partnership-Program-Overview.pdf

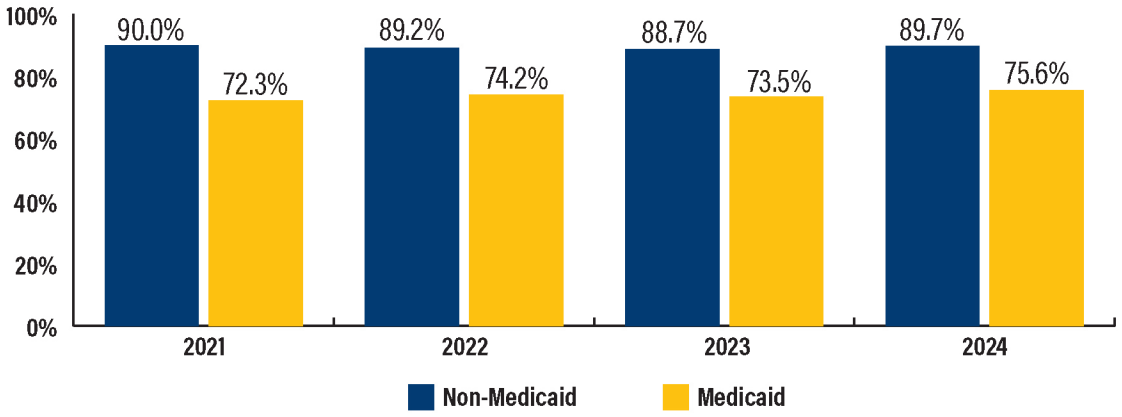
Breastfeeding at Delivery Discharge

Breastfeeding is a crucial tool to bolster infant and maternal health outcomes. Breastfeeding and the exchange of antibodies from mother to infant protects infants against some short-term (ear infections or stomach bugs) and long-term (asthma, obesity, sudden infant death syndrome and Type 1 diabetes) illnesses and diseases.[176] Additionally, breastfeeding improves the health of the mother; decreasing the risk of Type 2 diabetes, high blood pressure and breast and ovarian cancer.

The timing of breastfeeding initiation plays an important role in predicting breastfeeding engagement and long-term success. The WHO and United Nations Children's Fund (UNICEF) emphasize that it is crucial to initiate breastfeeding within the first hour after delivery to prevent infant infection, decrease newborn mortality, facilitate emotional bonding between mother and infant, and stimulate breast milk production.[177, 178] Stimulating milk production is imperative, as breast milk produced over the first few days postpartum (also called colostrum) has unique nutritional benefit to the infant; fortifying its immune system.

As seen in Figure 25, while the majority of NC Medicaid beneficiaries have historically initiated breastfeeding by the time of being discharged from labor and delivery, this rate has remained lower than individuals not enrolled in Medicaid.

Figure 25: North Carolina Breastfeeding at Delivery Discharge, Stratified by Maternal Medicaid Status (2021-2024)



There are many factors that may impact breastfeeding initiation. These factors include having difficulty getting the infant to latch, stigma surrounding breastfeeding, lack of comfortability with getting support from medical personnel and an overall lack of desire to breastfeed.[179, 180] Thus, it is imperative breastfeeding support be tailored to each individual. To eliminate barriers to breastfeeding, NC Medicaid covers multiple breastfeeding supports including lactation services.[181] In addition to the services directly covered by Medicaid, many of NC Medicaid's MCOs offer breast pumps as a value-added service or benefit.[51]

[175] Nurse-Family Partnership. (2022). *Maternal and Child Health Outcomes.* https://changent.org/wp-content/uploads/2024/09/NFP-Maternal-and-Child-Health-Outcomes-1.pdf
[176] Centers for Disease Control and Prevention (CDC). (2025). Breastfeeding Benefits Both Baby and Mom. https://www.cdc.gov/breastfeeding/features/breastfeeding-benefits.html#:~:text=Breastfeeding%20can%20help%20protect%20babies,ear%20infections%20and%20stomach%20bugs.
[177] World Health Organization. (n.d.). MCA Early initiation of breastfeeding (%). https://www.who.int/data/gho/indicator-metadata-registry/imr-details/7046
[178] UNICEF. (2018b). Breastfeeding a mother's gift, for every child. https://www.unicef.org/media/48046/file/UNICEF_Breastfeeding_A_Mothers_Gift_for_Every_Child.pdf
[179] Office of the Surgeon General (US); Centers for Disease Control and Prevention (US); Office on Women's Health (US). The Surgeon General's Call to Action to Support Breastfeeding. Rockville (MD): Office of the Surgeon General (US); 2011. Barriers to Breastfeeding in the United States. https://www.ncbi.nlm.nih.gov/books/NBK52688/
[180] Gatling, V. (2025). *Breastfeeding problems and the role of lactation consultants.* Brown University Health. https://www.brownhealth.org/be-well/breastfeeding-problems-and-role-lactation-consultants
[181] NCDHHS. (2022). Medicaid breastfeeding support. https://www.ncdhhs.gov/medicaid-breastfeeding-support/download?attachment

Carolina Global Breastfeeding Institute

The Carolina Global Breastfeeding Institute (CGBI), housed within the Department of Maternal, Child and Family Health at the University of North Carolina Gillings School of Global Public Health, is dedicated to breastfeeding/lactation promotion, support and research. CGBI's mission is to advance evidence-based lactation practices both locally and globally through comprehensive education and training, technical assistance, research and advocacy. By translating research into practice, the institute collaborates with healthcare professionals, early childhood educators, public health leaders and institutions to improve implementation practices and promote policies and resources that support breastfeeding/lactating families.

Among its key initiatives is supporting optimal maternity practices. ENRICH Carolinas provided technical assistance to hospitals and communities across North and South Carolina engaged in efforts to increase the number of maternity care practices that are supportive of breastfeeding through Baby-Friendly designation or state-level recognition programs. From its inception in 2017 through its conclusion in 2024, ENRICH Carolinas positively impacted an estimated 57,000 births annually across 28 counties. Another key initiative is the Mary Rose Tully Training Initiative, the first Commission on Accreditation of Allied Health Education Programs (CAAHEP) accredited Pathway 2 lactation consultant program in the U.S. Through this initiative, students are prepared to take the International Board Certified Lactation Consultant exam to become certified to provide evidence-based lactation care and support breastfeeding/lactating women and infants.

Through its multifaceted programs and partnerships, CGBI plays a vital role in shaping equitable breastfeeding/lactation support and improving maternal and child health outcomes across communities in the state of North Carolina and beyond. Click here to learn more!

Postpartum Contraception

Healthy birth spacing is important for both maternal and infant well-being. Clinical guidelines recommend waiting at least six months — ideally 18 months — between pregnancies to reduce risks of adverse outcomes. Short pregnancy intervals are associated with higher rates of maternal and infant mortality, preterm birth and low birth weight. Despite these risks, one in three women in the United States become pregnant again before reaching the recommended 18-month interval. Unintended pregnancies are a major contributor to short pregnancy intervals, as more than half (55%) of short-interval pregnancies are found to be unintended. Research suggests that short pregnancy intervals related to unintended pregnancies are more common among Medicaid beneficiaries.

The most impactful way to improve birth spacing is through using effective contraception. Access to long-acting, reversible contraceptive methods (LARCs) such as the intra-uterine device (IUD) or the arm implant can be especially impactful in reducing unplanned pregnancies and providing optimal birth spacing, as they can be provided immediately after labor and delivery or four to six weeks postpartum. To assess access to contraceptive care among beneficiaries, NC Medicaid uses *Contraceptive Care — All Women (CCW)* and *Contraceptive Care — Postpartum (CCP) Women*, quality measures stewarded by the Health and Human Services Office of Population Affairs. While CCW assess the percentage of women ages 15 to 44 who were 1) provided a most

effective or moderately effective method of contraception (injectables, oral pills, etc.) or were 2) provided a LARC, CCP calculates women's access to contraceptive services following delivery. More specifically, CCP assesses the rate of women ages 15 to 44 who had a live birth and were 1) provided a most effective or moderately effective method of contraception within three and 60 days of delivery or were 2) provided a LARC within three and 60 days of delivery. These measures provide the Department with crucial information about beneficiaries' access to contraceptive services, supporting beneficiaries in their decisions to prevent unintended pregnancy and promote longer intervals between pregnancies.

NC WIC

As one component of its services, the North Carolina Special Supplemental Nutrition Program for Women, Infants and Children (NC WIC) provides vital breastfeeding support services to families across the state, helping parents meet their feeding goals through education, skilled counseling and access to essential tools. NC WIC participants benefit from a range of services, including breastfeeding peer counselors, lactation experts, breastfeeding aids and strong partnerships with hospitals and community organizations.

NC WIC serves about 260,000 women, infants and children each month in North Carolina, helping families who are at nutritional risk and meet income guidelines. In 2023, 47% of infants born in North Carolina participated in the NC WIC Program.[182]

In 2022, NC WIC launched a United States Department of Agriculture (USDA) structured, tiered breastfeeding training curriculum—a statewide initiative designed to ensure all WIC staff receive consistent, role-specific education in lactation support. This investment in workforce development has been a key driver in improving breastfeeding outcomes for WIC participants. Learn more about the curriculum here.

NC WIC also supports breastfeeding by offering enhanced food packages. Families who partially breastfeed (providing both breast milk and formula) receive additional foods, while those who exclusively breastfeed receive the full breastfeeding package which provides the highest level of food benefits with no formula. In federal fiscal year 2021, 26.8% of infants received a breastfeeding package and 12.7% received the fully breastfeeding package. By FFY 2024, those numbers increased to 37.8% and 15.8%, respectively. The most recent data from April 2025 shows continued progress, with 42% of infants receiving a breastfeeding package and 17.7% receiving the fully breastfeeding package.

Of those families served by NC WIC, 86% are also enrolled in Medicaid, underscoring the value of coordination across programs. These gains reflect the impact of a well-trained WIC workforce and a statewide commitment to supporting maternal and infant health through accessible, evidence-based care. Click here to learn more about NC WIC.

[182] National WIC Association. (2023). The state of WIC: building a bridge to a healthier future. https://media.nwica.org/2023%20state%20of%20wic%20report.pdf

Family Connects

Family Connects is designed to support whole-person, integrated health for all families of newborns at a moment of life-changing transition. The Family Connects nurse home visiting model was developed in 2008 through a partnership between the Duke University Center for Child & Family Policy, the Durham County Department of Public Health and the non-profit Center for Child & Family Health. In 2022, the non-profit Family Connects International was formed to oversee model implementation across the country. Currently, Family Connects serves five counties in North Carolina: Cumberland, Durham, Guilford, Hoke and Robeson, with the goal of ensuring that every family across the state can receive a Family Connects visit.

Family Connects nurses are trained to carefully assess newborns and mothers and to discuss concrete next steps to address opportunities and concerns, including seeking immediate medical care when necessary. They work together with families and build from identified strengths to connect them to community resources that meet their needs and preferences. Family Connects nurses also keep the whole family in mind, recommending appropriate mental health services or medical care for other family members as needed — including follow-up care to make sure families' needs are met.

In 2024, more than 4,000 North Carolina families received a Family Connects visit, with three out of four families referred for additional support services. Some visits also required urgent medical care like a trip to the emergency room or a follow-up with their doctor. This earlier detection of complications demonstrates the importance of the care model, as more than half of maternal deaths nationwide occur in the postpartum period.[183]

NC Medicaid reimburses one home visit by a registered nurse for newborn care and assessment, which serves as a gateway to sustainability and expansion of services, as 37% of North Carolina families offered a Family Connects visit were Medicaid eligible. Nurses can help beneficiaries navigate the healthcare system, access medical care and address social determinants of health. However, low reimbursement rates have limited community partners from getting involved. Additionally, NC Medicaid limits qualifying provider types to Federally Qualified Health Centers, local health departments and Rural Health Clinics, which presents a barrier for other types of community partners to bring Family Connects to their communities. Click here to learn more about Family Connects.

AppHealthCare's Mother-Baby Home Visiting Program

The Mother-Baby Home Visiting program is a vital resource for all families with newborns in Watauga, Ashe and Avery counties, with plans to expand into Alleghany County. AppHealthCare, the local health department serving Alleghany, Ashe and Watauga Counties, designed the program to provide personalized support and guidance during the crucial early weeks of parenthood. Under the Mother-Baby Home Visiting program, families receive a comprehensive nurse home visit within the first three weeks following delivery. During this visit, experienced nurses assess both the mother and newborn, taking the newborn's weight and vitals and screening the mother for postpartum anxiety and depression. Considering each family's unique needs, nurses provide tailored resources and referrals to help families navigate the challenges of new parenthood, including information about local childcare and tips for

[183] Centers for Disease Control and Prevention (CDC). (2024). *Pregnancy-Related Deaths: Data From Maternal Mortality Review Committees in 36 U.S. States, 2017–2019.* https://www.cdc.gov/maternal-mortality/php/data-research/mmrc/?CDC_AAref_Val=https://www.cdc.gov/maternal-mortality/php/data-research/mmrc-2017-2019.html

feeding and safe sleep. To ensure families successfully connect with community resources, AppHealthCare offers follow-up communication and extra visits as needed. This additional support reinforces the program's commitment to the health and happiness of both mother and baby, and dedication to fostering a nurturing environment for new families. By providing skilled guidance and support, AppHealthCare aims to empower parents and promote healthy development of their newborns. Click here to learn more.

Maternal Mental and Behavioral Health[184]

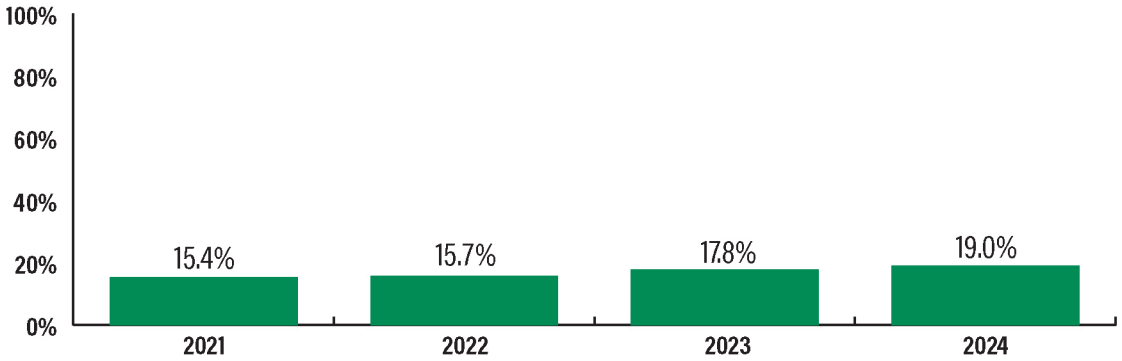
Mental health challenges are common during the perinatal and postpartum periods. In the United States, up to 20% of pregnant/postpartum women are impacted by maternal mental health disorders and almost 40% of individuals who gave birth report mental health as a top postpartum complication.[185] While anxiety and depression are the most common perinatal mental health challenges, there are an array of conditions that may affect pregnant and postpartum women, ranging from mild to more severe.[186] Commonly referred to as the "baby blues," between 50 to 80% of new mothers experience mood swings, anxiety, crying spells, difficulty sleeping and intense emotions following delivery.[187] The baby blues is considered to be one of the more mild perinatal mental health conditions and can last for up to two weeks, often coinciding with the heightened time of adjustment to a new infant.[187] While baby blues is common, many pregnant and postpartum women experience more severe mental health challenges. In the United States, up to roughly 40% of women experience depression during the postpartum period, 8% experience obsessive compulsive disorder (OCD) during the prenatal period and 17% experience OCD in the postpartum period, 20.1% of women experience a bipolar-spectrum mood episode (depressed, hypomanic/manic, mixed episodes) at some point during the perinatal period and postpartum psychosis occurs in one out of every 1,000 deliveries.[187, 188] As the most severe form of maternal mental illness, postpartum psychosis increases the risk of suicide and is associated with a 4% infanticide rate.[188] While perinatal mental health conditions can develop at any point during pregnancy, they are one of the most common postpartum complications, which is why the *Maternal Mental and Behavioral Health* section has been included in the postpartum portion of the report.

Perinatal Mental Health Conditions in North Carolina

In North Carolina, overall rates of perinatal mental health conditions (PMHCs) have steadily increased since 2020. While the NC Maternal and Infant Health Data Dashboard does not include a *Maternal Medicaid Status* stratum for the PMHCs indicator, it reports the percentage of births in North Carolina in which the mother had one or more mental health conditions recorded in the maternal delivery hospitalization record. As seen in Figure 26, the rate of PMHCs in North Carolina has steadily increased since 2021. This trend aligns with national findings showing increasing rates of postpartum depression and maternal anxiety disorders.[188]

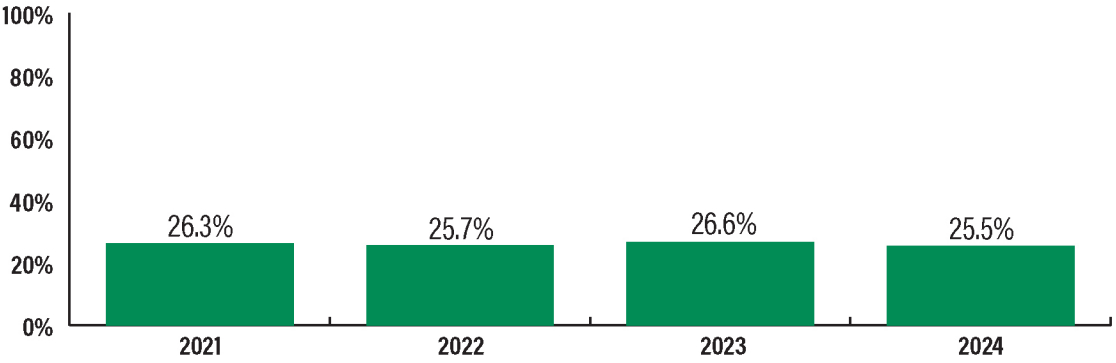
[184] For the purposes of this report, the terms "mental health" and "behavioral health" are used interchangeably.
[185] Association of American Medical Colleges (AAMC). (n.d.). *Maternal Mental Health*. https://www.aamc.org/about-us/mission-areas/health-care/maternal-mental-health#:~:text=Mental%20health%20conditions%20are%20the,the%20top%20postnatal%20complication4
[186] Policy Center for Maternal Mental Health. (n.d.). *About maternal mental health disorders*. https://policycentermmh.org/mmh-disorders/
[187] MGH Center for Women's Mental Health. (n.d.). *Postpartum Psychiatric Disorders*. https://womensmentalhealth.org/specialty-clinics/postpartum-psychiatric-disorders-2/
[188] Policy Center for Maternal Mental Health. (2025, May). Maternal Mental Health[Fact Sheet]. https://policycentermmh.org/maternal-mental-health-fact-sheet/

Figure 26: North Carolina Perinatal Mental Health Conditions (2021-2024)



When stratified by perinatal care region, it becomes clear that rates of PMHCs are substantially higher in the Western region of the state. As seen in Figure 27, rates of PMHCs have hovered around 26% since 2021. For certain years, rates in the Western region of the state surpass the statewide rate by more than 10%.

Figure 27: North Carolina Perinatal Mental Health Conditions, Stratified by Western Perinatal Care Region (2021-2024)



While these rates are impacted by a multitude of factors, the rurality of the Western region plays a significant role in these rates. With 13 of the region's 15 counties classified as rural, individuals in the Western region may face unique barriers in trying to access care.[69] Individuals living in rural regions are less likely to have adequate access to behavioral and mental healthcare, and are more likely to be uninsured and to experience stressors like financial instability and isolation.[189] This context and these factors should be considered when creating interventions to decrease the rate of perinatal mental health conditions across North Carolina.

North Carolina PRAMS

The Pregnancy Risk Assessment Monitoring System (PRAMS) is one of the largest perinatal surveillance projects in the country. Conducted by the CDC's Division of Reproductive Health and state health departments, PRAMS is an annual survey distributed in each state that allows state officials and researchers to identify high-risk populations, assess changes in health outcomes and statuses, and monitor state progress toward maternal and infant health goals.[190] As of May 2024, 46 states participated in PRAMS and 81% of all live births in the United States were captured in PRAMS data.[191] Unfortunately, North Carolina is one of four states that did not participate. Starting in 2025, the CDC paused the PRAMS surveillance projects.

[189] Mental Health America. (n.d.). Rural Mental Health Crisis. https://mhanational.org/resources/rural-mental-health-crisis/
[190] Centers for Disease Control and Prevention (CDC). (2024). *About PRAMS.* https://www.cdc.gov/prams/about/index.html
[191] Centers for Disease Control and Prevention (CDC). (2024). *Participating PRAMS sites.* https://www.cdc.gov/prams/php/participating-states/index.html

Without PRAMS data, North Carolina is lacking critical self-reported data across a variety of maternal and infant health indicators. This self-reported survey data was one of the state's only methods of assessing postpartum mental health prevalence, treatment and outcomes. Because North Carolina has not participated in PRAMS since 2020, this report references findings from a study published in the North Carolina Medical Journal that assessed perinatal behavioral health trends among NC Medicaid beneficiaries.

Maternal Behavioral Health in North Carolina

The most recent version of the North Carolina Maternal Mortality Review Report found mental health conditions to be the leading cause of pregnancy-related deaths, comprising roughly one-third of all maternal deaths in North Carolina.[29] In an effort to better understand the prevalence of behavioral health conditions among the perinatal NC Medicaid beneficiary population from 2017-2022, one study used Medicaid billing data to determine the prevalence of behavioral health diagnoses and behavioral health treatment.[192] The study found that approximately one-quarter of NC Medicaid beneficiaries in the perinatal period had a behavioral health diagnosis between 2017 and 2022. This rate is slightly higher than the national average of 20%.[193] Among NC Medicaid beneficiaries in the perinatal period, the two most common diagnoses were anxiety and obsessive-compulsive disorders (12.2%) and depressive disorders (11.5%).

Despite efforts to improve rates of perinatal mental health conditions among the NC Medicaid population, the percentage of NC Medicaid beneficiaries with a behavioral health diagnosis increased from 23.1% in 2017 to 26.8% in 2022. While this is some of the most comprehensive data available for North Carolina, it is important to keep in mind that roughly 75% of women with a maternal mental health condition go untreated, highlighting the possibility that the rates presented in this study are actually much higher.[193] This emphasizes the importance of routine perinatal mental and behavioral health screenings.

Expanding Coverage of Postpartum Depression Screening

In hopes of identifying new mothers who may need additional care to address postpartum depression, NC Medicaid expanded the number of postpartum depression screenings for which providers can be reimbursed. Beginning in 2023, NC Medicaid providers may now be reimbursed for four postpartum depression screenings that took place in the first year following birth or until a beneficiary's eligibility ends. This updated number of screenings also aligns with Health Check Guidelines, a document produced by NC Medicaid that outlines how early preventative screenings should be delivered by those providing care to pediatric populations.[194] The Health Check Guidelines emphasize that screening a mother or caregiver for postpartum depression is a critical component of providing pediatric care, as the health of the mother directly impacts the development and wellbeing of the child.[194]

The American Academy of Pediatrics recommends screening for postpartum depression at the infant's one-, two-, four- and six-month pediatrician visits, emphasizing that those who screen positive should be referred to the appropriate resources for support and treatment.[194] The recent expansion of billable postpartum depression screenings by NC Medicaid was therefore a significant step in ensuring that postpartum depression is identified and addressed at various points throughout the postpartum period. In addition to administering postpartum depression screenings at infant care appointments, it should be noted that many women may be screened not only by their obstetric provider at their postpartum appointments, but subsequently, at their family planning or primary care provider appointments up to a year after delivery. To learn more, please view the updated the 1E-5 Obstetrical Services Policy.

[192] French, A., Jones, K. A., Davis, N. O., Burns, K., Shuler, T. O., Davis, A., Maslow, G., & Kimmel, M. (2024). *Behavioral Health Trends among perinatal North Carolina Medicaid beneficiaries: Published in North Carolina Medical Journal.* North Carolina Medical Journal. https://ncmedicaljournal.com/article/123264-behavioral-health-trends-among-perinatal-north-carolina-medicaid-beneficiaries

[193] MMHLA. (2025). Maternal Mental Health Overview. https://static1.squarespace.com/static/637b72cb2e3c555fa412eaf0/t/66cdafb417396938445082a0/1724755892680/Maternal+Mental+Health+Overview+Fact+Sheet+-+MMHLA+-+Nov+2023.pdf

[194] NC Medicaid. (2025). *Health Check Program Guide.* https://medicaid.ncdhhs.gov/documents/medicaid/epsdt/health-check-program-guide/open

North Carolina March of Dimes – Improving Maternal Mental Health

To help improve maternal mental health throughout North Carolina, NC March of Dimes launched a statewide Maternal Mental Health Coalition in collaboration with Postpartum Support International, a non-profit dedicated to supporting women with perinatal mood and anxiety disorders.[195] Together, this coalition drafted proposed legislation to expand the perinatal mental health workforce and built a membership of 120 individuals who represent diverse organizations and sectors from across the state.

Another effort to improve maternal mental health included grant funding specifically targeted for Western North Carolina. Using this funding, NC March of Dimes distributed over 100 maternal mental health resource guides to providers and stakeholders across 10 counties, developed and shared in-person and e-learning educational resources about maternal mental health and educated 87 providers on maternal mental health best practices. To learn more about NC March of Dimes, please see page 11 of this report or click here.

NC MATTERS

The North Carolina Maternal Mental Health: Making Access to Treatment, Evaluation, Resources and Screening Better (NC MATTERS) program aims to decrease barriers to screening and treatment for maternal mental health and substance use disorders. NC MATTERS supports health care professionals (e.g., obstetricians, pediatricians, family physicians, midwives, home visitors, psychiatrists) in meeting the needs of their patients by increasing their capacity through advanced training and support. Partnering with the University of North Carolina at Chapel Hill and Duke University, NC MATTERS aims to make screenings, treatment, evaluation and resources for depression and related behavioral health disorders more accessible in North Carolina. Core program components include a perinatal psychiatry access line with resources and referral, consultation, one-time assessment services, training and technical assistance, and quality improvement. Click here to learn more about NC MATTERS!

NC Maternal Health Innovation Program and the I Gave Birth Initiative

The North Carolina (NC) Maternal Health Innovation (MHI) Program, part of the state's Maternal Mortality Review Committee's (MMRC) recommendations, is designed to maintain and improve state-level maternal health initiatives. These initiatives focus on improving access to care during the prenatal and postpartum periods, enhancing state maternal health data capacity and implementing innovative interventions to improve outcomes for populations disproportionately impacted by maternal mortality and severe maternal morbidity. One statewide MHI activity that aligns with an MMRC recommendation is the "I Gave Birth" Initiative, a hospital-based program aimed at improving postpartum health outcomes and decreasing rates of maternal morbidity and mortality.

[195] Postpartum Support International. (n.d.). About us. https://postpartum.net/about-psi/#:~:text=Postpartum%20Support%20International%20(PSI)%20was,to%20support%20perinatal%20mental%20health.

The initial pilot of the program, which provides postpartum patients with a bracelet that says "I Gave Birth" to wear for up to ten weeks following delivery, was launched at ECU Health in 2021. Following a successful pilot program at ECU Health, the "I Gave Birth" initiative is being replicated in other hospitals across NC.[196]

The bracelet serves as a physical reminder for new mothers to pay attention to their bodies and remain alert for potential complications including fever, chest pain, headaches, bleeding, depression and more.[197] In addition to helping providers identify patients who may have recently given birth, the initiative also includes education for postpartum nurses, emergency department providers and staff and first responders about post-birth warning signs. Click here to learn more about the initiative!

[196] Noble, J., Harper, K. D., Mitchell, K., & McClain, E. K. (2023). "I gave birth"—an initiative to improve postpartum care. *North Carolina Medical Journal, 84*(1). https://doi.org/10.18043/001c.67788
[197] UNC Health. (2024). UNC rex's 'I gave birth' initiative to prevent post-birth problems. https://www.rexhealth.com/rh/about/news-media/2023/unc-rexs-i-gave-birth-initiative-to-prevent-post-birth-problems/

Moving Forward

The North Carolina Maternal and Infant Health Data Dashboard is an invaluable tool for understanding maternal and infant health outcomes across the state. With the addition of the *Maternal Medicaid Status* stratum, the dashboard can continue to not only track and assess outcomes among the NC Medicaid population but also highlight disparities and opportunities for improvement.

This report aims to highlight the dashboard's capabilities, displaying key differences between Medicaid beneficiaries and their counterparts from 2021-2024. Some of the largest disparities highlighted in this report include smoking prior to/during pregnancy, first trimester prenatal care (particularly in the Northeastern and Southeastern regions of the state), and maternal hypertension. Further analysis of racial and rural disparities among Medicaid beneficiaries will be critical for guiding future efforts.

With so many promising programs and interventions working to improve maternal health across the state, North Carolina is in a unique position to support mothers and their infants. For more vulnerable populations, like those served by NC Medicaid, these programs and services are crucial in driving change and improving health outcomes. NC Medicaid, providers and partners must continue to foster cross-collaborative relationships focused on providing high-quality maternal healthcare that aims to reduce disparities, improve performance on the indicators included in this report and better the health of North Carolinians.

Appendix

Appendix A: Internal and External Programs Highlighted in the Report

Program Name	Description	Link
Pregnancy Management Program (PMP)	The Pregnancy Management Program (PMP) (formerly Pregnancy Medical Home - PMH) is a care program with a set of mandatory standards and clinical initiatives aimed at improving the quality of pregnancy care, improving maternal and infant outcomes and reducing health care costs in North Carolina.	Link
Care Management for High-Risk Pregnancies (CMHRP)	The Care Management for High-Risk Pregnancies (CMHRP) program is the primary vehicle for delivering care management to pregnant women who may be at risk for adverse birth outcomes in North Carolina. A key feature of the program is the standardized Pregnancy Risk Screening tool used by obstetric providers to help identify Medicaid recipients at risk for adverse birth outcomes and refer them to the CMHRP program.	Link
Nurture NC	Nurture North Carolina (Nurture NC) is a statewide, multi-sector initiative designed to improve maternal and infant health outcomes and reduce maternal health disparities across North Carolina. The initiative identifies strategic ways to prioritize maternal and infant health through evidence-based policy recommendations, cross-sector collaboration and coordinated advocacy.	Link
Thriving Hearts	Thriving Hearts aims to implement programs through local health departments (LHDs) that cultivate conditions for mothers and birthing people to thrive. A collaboration with LHDs in 10 counties across central North Carolina, Thriving Hearts is dedicated to decreasing the number of people with hypertensive disorders of pregnancy by providing support and connection at the individual-, healthcare provider- and community-level.	Link
The North Carolina Perinatal and Maternal Substance Abuse and CASAWORKS for Families Initiatives	The North Carolina Perinatal and Maternal Substance Abuse and CASAWORKS for Families initiatives provide specialized treatment programs designed to serve pregnant and parenting women who have substance use disorders. Operated through a network of licensed providers across the state, these initiatives provide a trauma-informed, comprehensive continuum of care that supports both maternal recovery and child wellbeing.	Link
North Carolina Perinatal Substance Use Disorder Network	The North Carolina Perinatal Substance Use Disorder Network consists of six perinatal substance use disorder programs that have partnered together to harness their shared expertise, aiming to address the impacts of stigma on the care provided to patients.	Link
ACURE4Moms	ACURE4Moms is a randomized controlled trial that aims to improve maternal health outcomes, satisfaction and communication, particularly for Black moms.	Link
North Carolina Supplemental Nutrition Program for Women, Infants, and Children (NC WIC)	As one component of its services, the North Carolina Special Supplemental Nutrition Program for Women, Infants, and Children (NC WIC) provides vital breastfeeding support services to families across the state, helping parents meet their feeding goals through education, skilled counseling and access to essential tools.	Link

Perinatal Quality Collaborative of North Carolina (PQCNC)	The Perinatal Quality Collaborative of North Carolina (PQCNC) is North Carolina's statewide perinatal quality collaborative. PQCNC has been conducting perinatal quality improvement initiatives since 2009, including newborn projects that impact delivery services and NICUs, leading NCDHHS and the American College of Obstetrics and Gynecology's Alliance for Innovations in Maternal Health, and maternal-child initiatives in hospitals and clinics across the state.	Link
NC Maternal Health Innovation Program and the I Gave Birth Initiative	The North Carolina (NC) Maternal Health Innovation (MHI) Program, part of the state's Maternal Mortality Review Committee's (MMRC) recommendations, is designed to maintain and improve state level maternal health initiatives. One statewide MHI activity that aligns with an MMRC recommendation is the "I Gave Birth" Initiative, a hospital-based program aimed at improving postpartum health outcomes and decreasing rates of maternal morbidity and mortality.	Link
Making Access to Treatment, Evaluation, Resources and Screening Better (NC MATTERS)	The North Carolina Maternal Mental Health: Making Access to Treatment, Evaluation, Resources and Screening Better (NC MATTERS) program aims to decrease barriers to screening and treatment for maternal mental health and substance use disorders by increasing provider capacity through advanced training and support.	Link
Carolina Global Breastfeeding Institute (CGBI)	The Carolina Global Breastfeeding Institute (CGBI) is dedicated to breastfeeding/lactation promotion, support and research. CGBI's mission is to advance evidence-based lactation practices both locally and globally through comprehensive education and training, technical assistance, research and advocacy.	Link
Family Connects	Using a nurse home visiting model, Family Connects is designed to support whole-person, integrated health for all families of newborns at a moment of life-changing transition. Currently, Family Connects serves five counties in North Carolina: Cumberland, Durham, Guilford, Hoke and Robeson, with the goal of ensuring that every family across the state can receive a Family Connects visit.	Link
Nurse-Family Partnership (NFP)	Nurse-Family Partnership (NFP) is a nationwide evidence-based, community health program that works to positively impact and transform the lives of first-time moms and their babies through a home visiting model. By connecting families with specially educated and equipped home-visiting nurses, NFP provides support for first-time parents from early pregnancy through a child's second birthday.	Link
Improving Community Outcomes for Maternal and Child Health (ICO4MCH)	The Improving Community Outcomes for Maternal and Child Health (ICO4MCH) Program was established in 2015 to achieve three aims: improve birth outcomes, reduce infant mortality, and improve health among children ages zero to five. Through ICO4MCH, the North Carolina General Assembly appropriates funds to the Division of Public Health (DPH) who awards LHDs funds to implement evidence-based strategies (EBS) and achieve these aims.	N/A
Reducing Infant Mortality in Communities (RIMC)	Since fiscal year 2016, the North Carolina General Assembly has allocated Maternal and Child Health Block Grant funding to the Reducing Infant Mortality in Communities (RIMC) program. Through a request for application (RFA) process, this program provides funding for local health departments (LHDs) with high infant mortality rates to implement evidence-based strategies that are proven to lower infant mortality rates.	Link
NC March of Dimes	For over 85 years, March of Dimes has been working to fund research, provide programs and education and lead advocacy efforts to improve maternal and infant health equity and outcomes across the United States. In North Carolina, March of Dimes is a leader in promoting the health of mothers and their infants, leading efforts to improve maternal and child health across the state.	Link

AppHealthCare Mother-Baby Home Visiting Program	The Mother-Baby Home Visiting program is a vital resource for all families with newborns in Watauga, Ashe and Avery counties, with plans to expand into Alleghany County. AppHealthCare designed the program to provide personalized support and guidance during the crucial early weeks of parenthood. Under the Mother-Baby Home Visiting program, families receive a comprehensive nurse home visit within the first three weeks following delivery.	Link
A Guided Journey Program – Mecklenburg County	In 2021, Mecklenburg County launched *'A Guided Journey'* as part of the county's priority funding to address health disparities. Using the Community Health Worker (CHW) model, *A Guided Journey* links low-income pregnant individuals and those up to 90 days postpartum to prenatal and postpartum care.	Link

NC DEPARTMENT OF
HEALTH AND HUMAN SERVICES
Division of Health Benefits

https://medicaid.ncdhhs.gov • NCDHHS is an equal opportunity employer and provider. • 5/2026