



Progress and Opportunities

Maternal and Child Health Equity in North Carolina



**FOUNDATION FOR HEALTH
LEADERSHIP & INNOVATION**

MOVING PEOPLE AND IDEAS INTO ACTION

North Carolina is facing a maternal and infant mortality equity crisis, and the [Foundation for Health Leadership and Innovation](#) (FHLI) is actively working to turn the conversation into action. With funding from the [HopeStar Foundation](#) and thought partnership with maternal health funders, FHLI has undertaken a landscape analysis to identify and assess current efforts to improve maternal and infant mortality rates and reduce racial disparities in North Carolina. The FHLI team reviewed statewide efforts and interviewed and surveyed community stakeholders to assess how policymakers and communities are driving action and what additional support is needed. This groundwork has informed the FHLI development of the **NC Maternal and Child Health Equity Action Network (MCHEAN)**, supported by [The Duke Endowment](#).

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National Context and Trends

Maternal Health

Maternal mortality and morbidity are significant public health concerns in the United States. Historically, maternal health trends in the US have included an overall decline in the maternal mortality rate, increased use of cesarean deliveries, and increased number of women who receive prenatal care in the first trimester. Additionally, there has been a decrease in smoking during pregnancy and an increase in the number of women who breastfeed. However, progress has stalled in the past two decades, with an increasing maternal mortality rate since 2000 ([The Commonwealth Fund, 2022](#)). According to international data, the maternal mortality rate in the US is approximately three times higher than most high-income countries' rates. Disparities in maternal health outcomes based on race and socio-economic status have persisted in the US, particularly among black and indigenous women. According to [data from the Centers for Disease Control and Prevention](#) (CDC), the maternal mortality rate for black women is nearly three times higher than that of white women. Additionally, [the CDC reports](#) that indigenous women (American Indian and Alaskan Native in CDC data) are two to three times more likely to die from pregnancy-related causes than white women. Furthermore, the COVID-19 pandemic has highlighted the need for better access to healthcare for underserved communities, as these communities have been disproportionately affected by the pandemic. Regional disparities in maternal mortality and morbidity rates exist across the United States. States in the South have some of the highest rates of maternal mortality. For example, the maternal mortality rate for 2018-2020 in Louisiana was 31.8 deaths per 100,000 live births, while the rate in California was 10.2 deaths per 100,000 live births ([CDC](#)). North Carolina's maternal mortality rate for the same period was 20.6. The overall severe maternal morbidity (SMM, unexpected life-threatening complications during labor and delivery) increased in the US from 2012-2019 ([Hirai et al., 2022](#)). There are a variety of programs and initiatives from across the US that aim to improve maternal health equity. For a list of example programs, please see Appendix I.

Infant Health

Infant health trends in the US over the past few decades have included a decline in the infant mortality rate, an increase in the number of infants born at [low birth weight](#), and an increase in the number of [preterm births](#). Additionally, there has been an increase in the number of infants who receive early and regular pediatric care, as well as an increase in vaccination rates. However, disparities in infant health outcomes based

on race and socio-economic status have persisted. From 1915 to 2017, the infant mortality rate declined dramatically, but the black/white disparity increased through 2000 ([Singh et al., 2019](#)). The highest rates of infant mortality are among non-Hispanic black infants (10.8 deaths per 1,000 live births) and American Indian or Alaska Native infants (8.4 deaths per 1,000 live births), and the lowest rates among non-Hispanic white infants (4.6 deaths per 1,000 live births) and Asian or Pacific Islander infants (3.8 deaths per 1,000 live births) ([March of Dimes, 2022](#)). Regional disparities in infant health and mortality rates exist across the United States. States in the South have some of the highest rates of infant mortality. For example, in 2021, the infant mortality rate in Mississippi was 8.3 deaths per 1,000 live births, while the rate in Massachusetts was 3.8 deaths per 1,000 live births. Additionally, states in the Midwest have some of the lowest infant mortality rates, with Minnesota having the lowest rate at 4.0 deaths per 1,000 live births (March of Dimes, 2022). Comparatively, North Carolina's rate for the same year was 6.8. While the long term rates of infant mortality are decreasing overtime, though with concerning disparities, the rate of pre-term births is increasing. The March of Dimes reported that in 2022, the US hit an all time high for preterm births. The rate of preterm births for the US is 10.5%, with a disparity ratio of 1.26 (from 2018-2020 preterm birth rates were highest for black infants (14.2%), followed by American Indian/Alaska Natives (11.6%), Hispanics (9.8%), Whites (9.2%) and Asian/Pacific Islanders (8.8%); March of Dimes 2022), and consistent regional disparities with higher rates of preterm birth in southern states. These regional disparities in health outcomes are not solely based on geography. Still, they are also influenced by a complex interplay of factors such as poverty, race/ethnicity, and access to quality healthcare. Addressing these regional disparities in maternal and infant health outcomes will require a multifaceted approach that addresses individual and systemic health determinants. There are a variety of programs and initiatives from across the US that aim to improve infant health equity. For a list of example programs, please see Appendix II.

Researchers and experts postulate that these disparities exist due to a variety of reasons, including: structural and systemic racism, implicit bias, variations in quality of care and access to care, and underlying chronic conditions ([CDC, 2022](#); [KFF, 2022](#)).

The Landscape of North Carolina Maternal and Child Health

The purpose of this landscape analysis was threefold. First, we sought to identify statewide and community efforts to improve maternal and child health equity and learn how these efforts are designed and working to improve health outcomes. Second, we assessed the progress these and other organizations are making in improving maternal and child health equity in North Carolina to determine priority opportunities for action. Third, this inquiry helped our team build relationships with the communities most intimately involved in this work and set the foundation for the collaborative, integrated network that will comprise the Maternal and Child Health Equity Action Network (MCHEAN). We began by reviewing white, gray, and peer-reviewed literature focused on North Carolina maternal and child health equity to inform our baseline understanding of the issues. To develop a broad range of on-the-ground information, we accepted several referrals for community interviews from people trusted by various communities. Also, we reached out to key informants on maternal and child health to represent the voices of direct service providers and people with lived experience. We requested interviews from a few subject matter experts, but primarily focused on community voice, as many traditional stakeholders in the maternal and child health space are represented in existing statewide reports. Additionally, we completed a qualitative survey to amplify community voice. We targeted survey recruitment for people working on the front lines of maternal and child health or people with lived experience facing inequities. We reviewed the interviews, survey results, and literature to inform the ideas presented in the following report for creating an integrated, collaborative network to address maternal and infant health inequity in North Carolina. Initiatives included in this report provide a snapshot of current efforts at the state level, within academic communities, as well as within birth worker communities and those with lived experience. As we receive ongoing feedback about the report, we will work to disseminate new information from our maternal and child health communications channels.

The *North Carolina Medical Journal* released a special issue of their journal in January 2022, at the same time as the release of this report, focused on maternal health outcomes. Check out the issue [here](#).

North Carolina Infant and Maternal Mortality

For nearly 50 years, many driven, passionate, and well-intended individuals and agencies have been working to ensure the health and well-being of mothers and infants in North Carolina. Despite the work and effort, North Carolina has the 8th highest infant mortality rate in the country ([CDC, 2022](#)) and the 8th highest maternal mortality rate ([KFF, 2020](#)). March of Dimes reports that as of 2022, our state has a preterm birth rate of 10.8%, a grade of “D,” and a disparity ratio of 1.32 with a status of “no improvement” in the change in disparity since the last review of data ([March of Dimes Infant Health Report Card](#)). Overall pregnancy-associated mortality ratios have increased by 33% in the past decade in North Carolina. According to the NC Maternal Mortality Review Committee (NCMMRC), the pregnancy-associated mortality ratio was 57.3 per 100,000 resident births in 2007 and increased to 76.2 deaths per 100,000 resident births in 2016 ([NCMMRC, 2021](#)). North Carolina also has significant maternal and infant health disparities rates and has struggled to reduce disparity ratios over time. The infant mortality rate for non-Hispanic Black women in NC is 2.4 times higher than that for non-Hispanic white women ([NCDHHS, 2019](#)). This infant mortality disparity had not changed much over several years when considering data from 2013 to 2020. According to the North Carolina State Center for Health Statistics, the 2013 infant mortality rate was 12.8 per 1,000 deaths and 12.8 in 2020, after a low of 12.2 in 2018 and a high of 13.4 in 2016. During these same years, the rate of infant deaths for non-Hispanic white women also fluctuated somewhat, but in the end has dropped from 5.1 to 4.8 deaths per 1,000 births, widening the disparity. The total number of pregnancy-related deaths in North Carolina is too small to make detailed disaggregation by race and ethnicity. However, non-Hispanic white women experienced significantly lower mortality ratios than non-Hispanic Black women from 2007 to 2016 (NCMMRC, 2021). The MMRC reported, “Pregnancy-related mortality ratios for non-Hispanic Black women declined 50 percent during this period, while disparity ratios decreased by 71 percent. However, the pregnancy-related mortality ratio for non-Hispanic Black mothers continues to be 1.8 times that of non-Hispanic white mothers.”

- Maternal mortality is a woman’s death from pregnancy or childbirth complications that occur during the pregnancy or within six weeks after the pregnancy ends ([NIH, 2021](#)).
- Infant mortality is the death of an infant before their first birthday ([CDC, 2022](#)).

History of North Carolina's Maternal and Infant Health Efforts

Historically in North Carolina, support for government and nonprofit work in maternal and child health has varied, both in the availability of funding and consistency of focus, which could be a variable in difficulty gaining traction and seeing progress. However, within the last few years, the focus on infant and maternal mortality has intensified and gained clarity. Providing a historical perspective recently, a commentary ([Pettiford, 2021](#)) in the North Carolina Institute of Medicine's Medical Journal acknowledging that North Carolina has been active in the infant and maternal space for over 40 years and thoroughly reviewed work across the state over the years. Efforts up to 2021 included:

- The statewide Perinatal Strategic Health Plan (2019);
- Perinatal and Neonatal Outreach and Education Coordinators (POETS and NOETS), which are efforts to educate a wide variety of providers on current maternal health and newborn practices;
- The creation of the Governor's Commission on the Reduction of Infant Mortality which, among other accomplishments, helped provide pre- and post-natal care in rural communities (though funding was cut in 1995); and
- The launch of several federally funded North Carolina community engagement and outreach initiatives (see Pettiford, 2021 for additional information).

The current momentum of efforts around improvements in infant and maternal health outcomes aligned with establishing the Maternal Mortality Review Committee in 2015 and the first Perinatal Health Strategic Plan (PHSP) in 2016. Methods in monitoring maternal deaths improved in North Carolina by including a pregnancy checkbox on the North Carolina death certificate in 2014 (NCMMRC, 2016). Then the initial PHSP proposed recommendations for three main areas in 2016: 1) improving health care for men and women, 2) strengthening families and communities, and 3) addressing social and economic inequities. During the timeframe of this initial strategic plan, the Perinatal System of Care Task Force convened under the partnership of NC DHHS and NCIOM to act on a study bill (SL 2018-93) signed into law in 2017 at the request of the Child Fatality Task Force. This bill directed NCDHHS to study seven key areas in infant and maternal health intersecting, particularly with pregnant women and high-risk infants having access to the appropriate level of care through a regional perinatal system (PHSP, 3E). The Perinatal System of Care Task Force met throughout 2019. It developed a report entitled "Healthy Moms, Healthy Babies: Building a Risk-Appropriate Perinatal System of Care," which brought forth a set of recommendations focused on the more clinical aspects of care improvements. The Task Force provided a report to the General Assembly and the public in the Spring of 2020 and included four domains

of recommendations: 1) inpatient care labor and delivery, preconception and prenatal care, 2) postpartum care, and 3) support for pregnant women and their families. The Healthy Moms, Healthy Babies report included 20 specific recommendations within these domains, focused on improving clinical care for women and infants and increasing accessibility of that care.

In January 2020, [Healthy North Carolina 2030](#) was published to guide the NC Division of Public Health's population health work and, ideally, help refine and increase funding for this and other initiatives and policy change. For example, the guide presents direct indicators of infant and maternal health, such as infant deaths, but also underlying and systemic indicators, such as rates of uninsured, poverty levels, and early prenatal care. Strategies to address an indicator such as increasing rates of early prenatal care include coverage of group prenatal care, childbirth education, and doula services by Prepaid Health Plans, as well as expanding public transportation. There are hopes that more transparent and easily accessible data and a focus on social drivers of health will help refine and increase funding for strategies to achieve the desired outcomes. Also in 2020, a Maternal Health Task Force was convened by the NC Institute of Medicine to build upon the Perinatal Systems of Care Task Force and provide support and alignment for the state's Perinatal Strategic Plan and Early Childhood Action plan. The focus of this Maternal Health Task Force is maternal care, maternal care quality improvement, provider education, workforce development, and patient support and education. One of the task force's initial recommendations was to expand postpartum Medicaid.

In 2021, North Carolina passed a bill extending postpartum Medicaid to mothers from 60 days after birth to a full year postpartum. The postpartum period is a critical time for maternal and infant health. With postpartum Medicaid coverage, new mothers will be more likely to receive care for complications related to childbirth, such as postpartum depression, and chronic conditions, such as hypertension or diabetes. The outcomes of extending Medicaid coverage for postpartum women have been positive. Studies have shown that extending Medicaid coverage for postpartum women is associated with improved access to care, improved health outcomes, and reduced healthcare costs ([Gordon et al., 2021](#)). In North Carolina, beneficiaries should notify their caseworker at their local Department of Social Services (DSS) when they become pregnant, have a change in due date, and when their pregnancy ends to confirm their postpartum coverage. Prepaid Health Plans (PHPs) in North Carolina's Medicaid managed care program play an important role by using performance measures to assess maternal and infant health outcomes and providing various value-based options to providers to promote high-quality care.

The NC Maternal Mortality Review Committee released a report in 2021 analyzing the committee's first few years of data. The report highlighted mortality trends in the state, as mentioned in the above sections of this report, and also provided

recommendations for patients, families, providers, communities, and systems, with an emphasis on recommendations for providers, including adherence to clinical guidelines and protocols, coordination and communication between providers, education and training, and patient screening and follow-up. In the Spring of 2022, to streamline recommendations, the decision was made to fold in these recommendations and include them in the new 2022-2026 North Carolina Perinatal Health Strategic Plan (PHSP).

Released in August 2022, the new PHSP emphasizes the role structural racism plays in the outcomes of mothers and babies of color and sets three well-rounded, bold goals: 1) addressing economic and social inequities; 2) strengthening families and communities; and 3) improving health care for all people of reproductive age. The authors of the PHSP also called for transparency in data, especially related to racial and ethnic populations, and suggested four overarching goals that reflect some of the primary data points of particular concern: 1) eliminating the black/white disparity in infant mortality; 2) eliminating the black/white disparity in severe maternal morbidity; 3) decreasing the percentage of preterm births for all racial groups; and 4) increasing insurance rates to 90% or above for all racial groups. The plan highlights other data indicators by race/ethnicity for each of the subpoints in the goals. In recognition of the various areas of work in the perinatal health space, the plan also emphasizes a desire to “...find alignment and collaboration opportunities with other initiatives occurring in the state.” Based on conversations with some of the leaders of this plan during our interview process, it is clear that it is meant to be more of a living document evaluated and updated annually. Recognizing how wide-reaching maternal and infant health is in various systems, they will continue to invite participation and feedback from all systems that impact these outcomes. For example, transportation is routinely referenced as impacting health outcomes, as is safe housing and the impact of employment on families, and it would be ideal if they were at the planning table. There are plans to evaluate the progress made on these recommendations, which will be monitored by the data and evaluation workgroup, “The PHSP Data and Evaluation Workgroup developed the monitoring plan over several months with input from public health experts across the state. The workgroup will update these measurements annually on the PHSP website” (PHSP, 2022). Based on recent conversations with individuals leading the PHSP, this report intends to bring those indicators and recommendations back to the community. The hope is that communities will determine which areas are most pertinent to them and know best how to begin to tackle those issues. Additional support is likely needed to help implement community-based solutions.

The [North Carolina State Health Improvement Plan](#) (SHIP) was also released in 2022. The SHIP addresses many health outcomes, including prenatal care and infant mortality, in indicators 18 and 20, to ensure that all birthing people in the state experience healthy pregnancies and birth outcomes. By 2030, the hope is that 80% of

North Carolina birthing persons will have received early prenatal care, compared to the baseline rate of 73.9% in 2018, and to reduce the disparity between races in this care received. While the PHSP is relevant for any maternal and infant health workforce member, system, and community, the SHIP is distributed to a broad audience with a focus on local public health officials, members of the General Assembly, and community-based organizations. This report has set the goals for public health for the next decade and states that the Division of Public Health will be responsible for public reporting through its website and updating this progress annually. Individual health departments are also encouraged to adopt the objectives from the SHIP into Community Health Needs Assessments and Community Health Improvement Plans. Other state efforts, such as the [Early Childhood Action Plan](#) (ECAP, 2019), though not solely focused on this topic, acknowledge the importance of infant health with sub-target goals to decrease the Black-white gap in infant mortality with the use of disaggregated data by race and ethnicity.

North Carolina Innovations

There are many current efforts at the state level that have worked to serve and support maternal and infant health. For example, the Department of Health and Human Services Division of Public Health is deeply rooted in improving infant and maternal health, offering services under its Women, Infant, and Community Wellness Section. Through this department, local health departments are tasked with providing prenatal and other services to under-insured or uninsured women and children, such as those listed on the Women, Infant, and Community Wellness [website](#). However, the funding for this work has not increased with inflation (Pettiford, 2021). Kids Count reports that 8.6% of women who gave birth in North Carolina in 2019 had very late or no prenatal care ([Kids Count](#)).

Many nonprofits and professional associations are collaborating to serve mothers and their babies, such as the [Perinatal Quality Collaborative of North Carolina](#), the [North Carolina Perinatal Association](#), the NC Perinatal Region IV Provider Support Network, NC Child, and Action NC. The Perinatal Quality Collaborative of NC, a membership organization with a variety of organizations, agencies, and individuals committed to “...making North Carolina the best place to give birth and be born”, met in August 2022 and asked members to vote on initiatives for development and action plans in 2023-2024. Members voted on the following three initiatives: 1) care of the late preterm infant, 2) sepsis in obstetrical care, and 3) cardiac conditions in obstetrical care. A call to action and recruitment for action team members for the first two initiatives can be found on their website, inviting maternal and infant health providers of multiple types (e.g., academics, patients or family members, and public health officials) to join the

work over the next two years. Teams from three leading academic institutions, Duke, ECU, and UNC, will oversee the work on the third cardiac care initiative. This group offers other initiatives focused on areas such as the implementation of screening and treating substance use and mental health needs in pregnant mothers and education around this topic at an annual perinatal substance exposure summit. Similar to the hope of bringing the recommendations back to community members from the statewide reports, this group also seems to emphasize the importance of the role of local leaders, “We are here to make North Carolina the best place to give birth and be born. We happen to do this via easy-to-execute, low-tech, increasingly minimal data-intensive processes that require local leaders to believe they exist to make their hospital the best place to give birth and be born” (PQCNC, 2013).

The North Carolina Perinatal Association, formed in 1985, aims to improve perinatal health for childbearing families throughout the state by providing continuing education for perinatal providers across North Carolina and increasing awareness of advocacy issues related to maternal and neonatal health. This Association offers continuing education opportunities as well as online trainings and resources, such as numbers to call for providers needing referral services for help with substance use and mental health needs (NC Matters). With a more regional lens, the North Carolina Perinatal Region IV Provider Support Network is a HRSA grant-funded effort focused on reducing the rates of maternal and neonatal morbidity and mortality for Region IV (Counties of Alamance, Caswell, Chatham, Durham, Franklin, Granville, Johnston, Lee, Orange, Person, Vance, Wake, and Warren). Consisting of a network between obstetrics, family medicine, and pediatric champions working together with perinatal nurse champions, this support network employs a variety of strategies, such as dissemination of the latest guidelines, providing education and trainings to local staff, to help Region IV providers deliver risk-appropriate levels of maternal and neonatal care.

In addition to convening specific task forces and reporting bodies to work on policy and other needed changes, trainings and gatherings of community members and providers are happening across the state to support maternal and child health equity. For example, there was a North Carolina [doula summit](#) in October 2022, for which the primary purpose was to collectively develop a shared understanding of essential information about the profession that can be shared with payors, providers, and communities. The day was designed to reach consensus on key competencies, the scope of practice, core services, and training needs.” Doulas as birth workers, when included as part of an interprofessional birth care team, have been shown to improve outcomes for mothers and their babies significantly. Demonstrated improvements include reduced cesarean rates, increased breastfeeding rates, decreased postpartum depression rates, improved birth weights, and reduced rates of complication (Falconi et al., 2022; Fortier & Godwin, 2015; Gruber, Cupito, & Dobson, 2013; Thurston et al., 2019). Improvements have been noted, in particular, in Medicaid participants (Falconi

et al., 2022; Thurston et al., 2019) as several states, for example, California, Florida, and New Jersey, across the United States have turned to this evidence to support Medicaid reimbursement for this birth service. As of this publication, North Carolina Medicaid has yet to join the ranks of states reimbursing for doula services.

A **Doula** is a “trained professional who provides continuous physical, emotional and informational support to their client before, during and shortly after childbirth to help them achieve the healthiest, most satisfying experience possible” ([DONA](#)).

Community-Based Doulas “provide culturally sensitive pregnancy and childbirth education, early linkage to health care, and other services like labor coaching, breastfeeding support, and parenting education... [they] are often of and from the same communities as their clients and considered peers who bridge language and cultural barriers to pregnancy care and education” ([HealthConnectOne](#)).

There has also been increased importance in discussions, research, and clinical care around the importance of social determinants of health and taking the view upstream in caring for families even before a pregnancy occurs. For example, NC Child emphasizes ensuring women’s health pre-conception by advocating for parents and caregivers to have access to affordable healthcare coverage and preventive care. Additionally, acknowledging the disparities in infant mortality rates and other health inequities, NC Child partnered with the NC Division of Public Health and the Office of Minority Health and Health Disparities to release an updated North Carolina Health Equity Impact Assessment (HEIA). This assessment tool is designed to bring changes back to the community level. The hope is in other statewide initiatives by providing a framework to community programs that help evaluate programs that reduce health disparities. This tool and the framework employed require a high degree of data and community involvement. The HEIA encourages a wide variety of stakeholders to apply four specific steps that ask questions to improve health disparities. The HEIA has been in practice in communities, specifically local health departments (LHD), across the state since 2016 as the evaluation component of a statewide effort that has been offer to communities, [NC Improving Community Outcomes for Maternal Health Initiative](#) (ICO4MCH). As directed by the General Assembly, local health departments apply for competitive grants to improve birth outcomes, reduce infant mortality, or improve child health ages 0-5 with specific evidence-based strategies to choose from for each goal. LHDs have been funded as recently as 2021-2022 in two-year cycles; however, they have reported difficulty implementing the evidence-based programs and the overall

initiative during the pandemic due to limited and overly taxed staff, as well as the short-term funding provided of two years and have requested an extension to three years of funding.

The NC Early Childhood Foundation is an organization thinking about maternal and infant health from an upstream approach. For example, the effort entitled Family Forward is focused on the workplace and advances family-friendly practices that benefit the health and well-being of children and their families, improving North Carolina's workplaces and economy. Most recently, Family Forward issued a [certification program](#) through which employers can proactively assure employees and potential employees of their commitment to various family-friendly policies. North Carolina has no shortage of individuals and groups wanting to improve outcomes for mothers and infants and significantly reduce racial disparities. This landscape analysis only scratches the surface of the research and frontline work.

[MAAME](#) (Mobilizing African American Mothers through Empowerment), [SistasCaring4Sistas](#), [Village Sis Doula](#), and the [Alliance of Black Doulas for Black Mamas](#) are examples of providers and nonprofits doing amazing work with a specific focus on the experience and outcomes of black and brown mothers and their babies. In the western part of the state, [Mothering Asheville](#) serves as a "...collaborative community-centered health movement focused on eliminating inequities in infant mortality in Buncombe County." A cross-sector initiative, Mothering Asheville partners with a wide range of agencies, including SistasCaring4Sistas, MAHEC, Asheville-Buncombe Institute for Parity Achievement, and Pisgah Legal Services. Additionally, the evidence-based program, [Centering Pregnancy](#), is offered in several locations throughout the state. Locations such as MAHEC, the UNC Department of Obstetrics and Gynecology, Durham Public Health, and Guilford County Public Health offer this program that emphasizes community through group prenatal care, which is referenced by the American College of Obstetrics and Gynecology as being "...useful in addressing disparities in perinatal outcomes such as preterm birth among black women" (ACOG Committee Opinion 731, 2018). The program emphasizes visits that offer significantly more time with a provider and in the company of other expectant mothers. Participants are empowered to actively participate by taking their blood pressure, checking their weight, and engaging in facilitated discussions around various timely health-related topics.

Academic institutions have also made a noticeable impact on infant and maternal health. The University of North Carolina-Chapel Hill (UNC), North Carolina State University (NCSU), UNC-Charlotte, Elon University, North Carolina Agricultural and Technical State University (North Carolina A&T), and UNC-Pembroke have all contributed through faculty as well as student work. Many researchers at these institutions are focusing their work on different variables in the existing, as well as the emerging, workforce.

A group of researchers partnered through UNC-Chapel Hill School of Medicine and North Carolina A&T received American Heart Association funding to work together on improving outcomes for mothers of color. This multi-disciplinary and cross-institutional project team will “...assess gaps in current practice, create [a] curriculum to address them, and implement the curriculum across a network of hospital and community providers.” The [BELIEVE \(Building Equitable Linkages with Interprofessional Education Valuing Everyone\)](#) curriculum will be delivered virtually and in person, including pre-licensure work with disciplines such as medicine, nursing, lactation, doula, social work, and nutrition. The researchers will evaluate the impact of the curriculum through simulated patient interactions.

In Spring 2021, the UNC School of Medicine, Mountain Area Health Education (MAHEC), and community partners received a Patient-Centered Outcomes Research Institute (PCORI) grant to lead the [Accountability for Care through Undoing Racism and Equity for Moms](#) (ACURE4Moms) study. This study is focused on “...decreasing institutional racism and bias in health care and improving community-based social supports during pregnancy.” One intervention being explored is a “disparities dashboard” that will highlight differences in outcomes in participating clinics by racial category and encourage clinics to find ways to improve these outcomes.

Other research projects are working directly within the communities being served. For example, qualitative research teams out of the [HER Lab](#) at Elon University have been studying the experiences of the Latinx population in Alamance County, as well as the experiences of Middle Eastern and North African birthing persons. [UNC Pembroke](#), with one of the worst infant mortality rates in North Carolina in Pembroke County, is working to strengthen the perinatal service system by providing case management services for females up to 18 months post-delivery, as well as health focused community psychoeducation classes, while also maintaining linkages with other local and state Title V perinatal services.

A significant hub of maternal and child work is happening at the UNC Gillings School of Global Public Health and Schools of Social Work and Medicine. For example, the [UNC Collaborative for Maternal and Infant Health](#) is housed within the UNC School of Medicine Pediatrics, Obstetrics and Gynecology. Within this Collaborative are several efforts directed towards both patients and providers, including the [Safe Sleep NC](#) program, New MomHealth.Com, 17P-Risk reduction for recurring preterm birth, Before and Beyond, and You Quit, Two Quit. The UNC School of Medicine and the UNC Gillings School of Global Public Health are also part of a sizeable HRSA-funded project, the [Maternal Health Learning and Innovation Center](#), a national hub connecting maternal health learners with practitioners and communities.

North Carolina students are also doing impressive work. One example of student-led work was represented by a joint effort between UNC-Chapel Hill and NCSU through a project entitled “Illuminating SPARCS (Systems, Paradigms, and Restorative Community Solutions) for Maternal Health Equity in North Carolina.” This collaborative project evaluated the spectrum of care pregnant and postpartum women experience, the root causes of health inequities in maternal mortality, and potential systemic solutions. The students advanced their project to the prestigious [Map the System Global Finals](#) held by Oxford University in June 2022. Recommendations from this project are addressed and included in the opportunities sections below.

Community Voice

While data and indicators at the state level are essential to track moving the needle on maternal and child health equity, much of the work to move the needle will occur in communities. Local communities are the ones who feel the pain most intimately when they lose loved ones in likely preventable situations such as not having readily available care by maternal health providers due to the closure of rural hospitals (Sullivan et al., 2020). Communities are doing their best to address the availability of care that is also acceptable and representative of the communities themselves. Still, they are often doing it at great sacrifice and with concern for sustainability. We must include prominent space for the voices of the communities of mothers and infants of color because it is their lives and experiences that these efforts directly impact. These voices also include a variety of those working in the perinatal space.

To develop a broad range of on-the-ground information, we accepted several referrals for interviews from people trusted by various communities. Also, we reached out to key informants on maternal and child health to represent the voices of direct service providers and people with lived experience. We requested interviews from a few subject matter experts, but primarily focused on community voice, as many traditional stakeholders in the maternal and child health space are represented in existing statewide reports. We requested 18 interviews and completed 13 sessions with 17 people, 70% of whom were BIPOC. We used three questions to frame our interviews: 1) What work are you, and your team and community, doing in the state to improve maternal and child health equity?, 2) What progress has been made in our state to advance maternal and child health equity?, and 3) What opportunities would make the most significant difference right now in improving maternal and child health equity? Additionally, we completed a qualitative survey to amplify community voice. We targeted survey recruitment for people working on the front lines of maternal and child health or people with lived experience facing inequities. We received narrative survey responses from 26 people with lived experience navigating maternal and child health equity.

Interview Participants (N=17)	Survey Participants (N=26)
<ul style="list-style-type: none"> • Doula from Western NC • Doula from Triangle Region of NC (2) • Doula from Triad Region of NC • NCDHHS Women, Infant, and Community Wellness Section staff members (2) • Nurse Midwife from Triangle Region • Leading Maternal Health Researcher from Central NC • NC March of Dimes Leader • NC Maternal Health MATTERS team member • Ob/GYN Provider • Family physician from Triangle Region • Local Health Department staff • UNC/NCSU Maternal Health Equity Research Team (4) <p>70% BIPOC; Additional interviews were requested but were unable to be scheduled due to time and scheduling constraints.</p>	<ul style="list-style-type: none"> • Breastfeeding support worker • Community health worker • Advocacy convener • FQHC administrator from Western NC • Health educator • Health equity advocate • Maternal/Infant health researcher • Mother and advocate • Mother, advocate, and maternal health professional • Mother, advocate, and faculty • Mother, postpartum doula, & advocate from Western NC • Mother and advocate • Nurse • Nursing provider in NC • Parent advocate, mother with experience from Guilford County • Perinatal Nurse Champion working for equitable best practice in Eastern NC • Private practice IBCLC in Eastern NC • Public health professional • Public health worker in Eastern NC • Researcher (health behavior/health equity/ reproductive health) • WHNP in Western NC • Woman of Color with Lived Experience • Woman of Color with Lived Experience; MPH - Maternal and Child Health • Woman of color <p>Survey participants were asked to share how they would like to be identified in the report.</p>

The interview sessions were instrumental in helping our team identify much of the work highlighted in the above landscape review, especially stand-out programs and initiatives from around the state. The interviews had synergy around a few key points:

- Achieving maternal and child health equity will require medical and non-medical support from payors.
- “The core outcomes we would want to see for maternal and child equity lie in the community.” We need to start there by engaging the community’s strength and helping build infrastructure.
- There is concern about people in this work continuing to work in silos and duplicating efforts.
- Request to include the community in a participatory fashion throughout all levels of maternal and child health equity work.
- Several key systems are missing from conversations and work about maternal and child health equity: housing, food, and transportation. These partners need to be integrated into the work for it to progress.
- Women of color did not create these disparities and inequities, yet they are the ones who continue to suffer.

Our survey process was qualitative, and we targeted recruitment to people with lived experience with maternal and child health equity or who worked on the front lines of maternal and child health. When asked, “If you are someone with lived experience navigating inequities related to maternal and child health, what would you like to share about your story or experience?” the following stories were shared:

- **Treating Black women’s pain:** “Black women have struggled with being seen by their doctors, especially during and after childbirth. Doctors don’t listen to Black women when unusual pain is expressed. Doctors dismiss patients wishes and preferences. Doctors are also quicker to do unnecessary, unplanned C-Sections on Black women.”
- **Concerns with being treated by students and residents without sufficient training and supervisory support:**
 - “I asked not to have a resident or student to administer my epidural; my requests were ignored. A complication ensued and a team of providers had to then scramble to prevent harm. My assigned RN was very vocal about my wishes when she saw the student enter and she was also ignored and told it didn’t matter. One side of my body was limp...I was offered a steak dinner. Horrible!”

- “The medical residents who were assigned to my care dismissed my post-delivery complaints. I was not treated with basic dignity, respect, and care deserved as a new mother.”
- **Lack of labor and delivery services in rural areas:** “The lack of L&D services at my local hospital (Blue Ridge Regional), as well as the illegal status of CPMs* [Certified Professional Midwife] in NC (prohibiting them from practicing medicine) meant I had to be transported by helicopter to Asheville when I had a postpartum hemorrhage after a beautiful homebirth of my 3rd child. It turned out that I never needed a blood transfusion, only a bag of fluids. The first 24 hours of my baby’s life were unnecessarily chaotic and scary.” *In North Carolina, only Certified Nurse Midwives (CNM) can practice in the state legally with a license.
- **Need for more women of color in OB/GYN, midwife, and doula roles:** “In 1999, I sought prenatal care from a midwifery practice (in Chapel Hill). At the time, it was the only one available in the area and I really wanted a more natural experience. The entire staff was White. My partner came with me to a few of my appointments, but we both felt that they made him feel unwanted. The practitioner would only talk and look directly at me and never included him, so he stopped coming. During my 6th month of pregnancy, I knew that something wasn’t right and asked to be seen. They gaslit me and told me I was fine and didn’t need to come in. But, I knew my body and tried telling them. The next day, I ended up at Duke and was admitted. I immediately left that midwifery practice and continued my pregnancy with Duke in Durham and had an excellent experience with an all-Black OB-GYN team (Harris and Smith). I am glad more women of color have become midwives and doulas and there are other options for WOC now. In this way, I think it has improved.”

Survey participants were also asked to share projects and efforts that they have heard about or received services from that are improving maternal and child health in their communities. Several participants shared that there are more educational opportunities for parents available in their communities. Several communities were highlighted as being innovative and impactful: Guilford, Mitchel, and Yancey counties, as well as the northeastern region of NC. One participant highlighted Guilford County and shared “YWCA is working with the community to provide a space to empower women as well as eliminate racism by working with community builder groups, sharing in advocacy efforts as well as administering programs like our High Point Doula Project, the Healthy Beginnings Program as well as Parents as Teachers, with a focus on adolescent and immigrant families.” Other respondents shared that there seems to be momentum, but it is difficult to see changes at the local level of impact:

- “There is so much research out there that points to the system needing to work to identify its role in the inequities women and families of color experience, however, I don’t see it happening.”
- “There are many large-scale projects in place, but this must filter down to the

smaller areas, and there must be champions for this work. “

- “Like most rural areas, our experience is that we’re on our own in determining and implementing solutions. We have formed a collaborative to address the impact of Mission’s closure of our local L&D [labor and delivery] on our mothers and babies. The report detailing that impact is on our website - blueridgechildren.org. We’ve recently hosted a community summit to create buy-in on strategies to better protect our birth outcomes and are now in the process of writing a HRSA grant.”

There were mixed sentiments about the state’s maternal and child health equity progress. Ten respondents reported that they either did not know of any progress or thought there was no progress with maternal and child health equity. One person said, “I haven’t seen progress in maternal and child health access in rural NC.” Others shared there have been more conversations and awareness about equity: “I feel like people are finally “talking” about equity, diversity, and racism. We have spent too long avoiding the topic, and look where it has gotten us. Our maternal death rates and IM [infant mortality] rates are way too high.” Another participant said, “I have seen more people address their biases and take action to correct them. More individuals are holding others accountable and speaking up for themselves.” When asked about ideas for how maternal and child health equity could be improved in communities, participants requested the following:

- More BIPOC women OB/GYNs, nurse practitioners, pediatricians, midwives, and doulas in the workforce.
- Better access to healthcare services overall, especially quality services.
- More communication and collaboration between health providers and advocates supporting mothers and children.
- More reimbursement support for community health workers and doulas.

Upon beginning the interview process, our team identified a synergy among maternal and child health advocates and professionals about the critical work of doulas. The work of doulas has been highlighted at the state and national level, especially regarding those serving primarily black and brown birthing persons and their babies. Community doulas, or community-based birth-workers, who serve communities of color, often care for their patients out of great sacrifice for themselves and their families. The evidence for improved outcomes when doulas are incorporated into a patient’s perinatal experience is robust (Falconi et al., 2022; Fortier & Godwin, 2015; Gruber, Cupito, & Dobson, 2013; Thurston et al., 2019). However, in North Carolina, these doulas must charge out of pocket for work that is currently an un-reimbursable service, and many maintain barely-livable fees to keep their services accessible to their communities. [North Carolina March of Dimes](#) assumed a leadership role early in making doula services and training accessible to people of diverse socio-economic backgrounds. The organization’s 2018 position statement on doulas stated, “Studies indicate that

women who stand to benefit the most from doula care have the least access to it – both financially and culturally.” A way to increase access would be to reimburse doula costs, as has been done in other states, such as New Jersey. However, if North Carolina moves towards reimbursement for doula services, the voices of doulas of color must be included in the policy structuring process. In the meantime, the North Carolina March of Dimes is working in the community by offering implicit bias training to healthcare providers and is working to build a bridge between communities and providers, with funding from Blue Cross and Blue Shield. The organization is working to form better allyship for mothers and their babies by bringing together community doulas and community leaders alongside providers.

Below are some key takeaways from the interviews with doulas. One survey participant also shared this regarding doula support, “I think expanding doulas support is a great step towards reproductive justice.”

- There is a desire for the health system to understand and value how much doulas are saving the hospital system compared to what they can be reimbursed.
- Doulas truly work for families, but funders and health partners seem to only invest in and recognize institutions, which pressures doula organizations to formalize and restricts some of the advocacy and freedom doulas need to be able to care for families.
- It is easy for doulas to become burned out because they invest so much emotional energy into other families while unable to support their own families financially.
- If primarily white doula organizations set the standards for care for doula reimbursement, that would negatively impact black and brown doulas who do not have the same training access.

The highlights are largely focused on maternal care, not on maternal and child equity at large. As the MCHEAN work gets underway, broader highlights or reflections will be added to understand the array of opportunities for action to improve rates and reduce racial disparities.

The inclusion of community is not a new idea for public health strategies. North Carolina is continuing to explore and understand the balance of how to bring statewide data and policies into communities and how to provide adequate infrastructure for communities to implement programs that will aid in solving their identified areas of concern. One example of this inclusion can be found in the PHSP (2022) workgroup entitled “Village to Village, “ previously known as Community and Consumer Engagement. This group of individuals will be essential in providing feedback for the strategies and activities in the PHSP. In the world of infant and maternal health, community includes direct care providers, but even within the community of providers there are those that are licensed or certified and with and without hospital access, rights, and privileges. The process of determining the path for doula

reimbursement is one example of the need to involve the voices of that provider community. For example, when considering standards or competencies required for doulas, those competencies should reflect the needs of the communities they aim to serve, including those unique to communities of color. But that is just one example of one community, and many others are across the state. To move the big statewide needle of progress, once and for all, in the right direction, North Carolina must continue to disseminate information and help provide the community's infrastructure.

Landscape Summary

One purpose of this report was to begin synthesizing the variety of statewide efforts and offer a satellite view of the work being done to funders and MCHEAN members. It has been noted several times in interviews with experts in the field that synthesizing this work for North Carolina would be challenging. This challenge is a positive sign in that it means that there is much to pull together. Our interviews and surveys confirmed that much of the work happening around the state with maternal and child health is happening in siloes, though some remarkable examples of cross-system collaboration exist. The people we interviewed shared that it would be impossible to know everything around the state regarding maternal and child health equity efforts, but they, and we, take that as a good sign that there is a lot of movement overall. With our upcoming work with the Maternal and Child Health Equity Action Network, the network members will examine how best to utilize this information and stories to inform the Network's plans for implementing change. As momentum builds across the state, with the offering of several bodies of recommendations and guidelines to follow to improve these maternal and infant health outcomes, it is a lot of information. While there is some overlap and alignment with the various recommendations, and it may feel unwieldy at times, there is also an opportunity for communities to identify what they can implement and what additional resources they need. Regardless of the level of change, from community to statewide systems-level change, the voices of those serving communities of color and the lived experiences of mothers and infants of color should be elevated in the process.

Opportunities

Policy

During the interview process, there was an emphasis from key stakeholders on how increasing accessibility to doula services would move the needle on maternal and, indirectly, infant health outcomes. Additionally, there was advocacy from stakeholders to provide reimbursement for prenatal group visits, which are being provided in various communities as part of [special initiatives and pilot programs](#), and to increase the reimbursement for prenatal and maternity providers overall to support the quality of care. Policy experts, such as the Network for Public Health Law, advocate for improving maternal and child health quality by asking insurers to cover beneficial services such as doulas, lactation consultants, safe sleep programs, and programs addressing underlying determinants of health.

Prenatal group visits are prenatal care where a group of expectant mothers receives care from a healthcare provider in a group setting rather than in individual appointments. These visits typically involve a combination of education, support, and medical care. During prenatal group visits, expectant mothers will receive education on prenatal care, nutrition, and labor and delivery. They may also be provided with support and guidance on various aspects of pregnancy and parenting. The healthcare provider will also provide medical care, such as monitoring the pregnancy and the baby's development, as well as providing prenatal care services, such as blood pressure monitoring, prenatal testing, and prescribing prenatal vitamins. Prenatal group visits are typically led by a healthcare provider, such as an obstetrician, nurse-midwife, or nurse practitioner. They may include other healthcare professionals, such as dietitians or lactation consultants. Group visits may occur at a clinic, hospital, or community center, usually scheduled regularly throughout pregnancy, usually every four weeks. Prenatal group visits have been shown to have several benefits for both expectant mothers and babies, such as improved pregnancy outcomes, increased patient satisfaction, and improved continuity of care. They also provide an opportunity for expectant mothers to connect with others going through similar experiences, which can benefit emotional well-being and promote a sense of community and support.

[CenteringPregnancy](#) is an evidence-based model for group prenatal care.

States actively reimbursing doula services on Medicaid plans:	States in the process of implementing Medicaid doula benefits (signed into law)
<ul style="list-style-type: none"> • California • District of Columbia • Florida • Maryland • Minnesota • Michigan • New Jersey • Nevada • Oregon • Rhode Island • Virginia 	<ul style="list-style-type: none"> • Connecticut • Illinois • Massachusetts • Ohio • Pennsylvania

(National Health Law Program: [Doula Medicaid Project](#), 2022; other states may have similar programs or initiatives in place, or may be considering implementing such policies)

The Network for Public Health Law recently published its [pathways to equity in birth outcomes](#) that, if pursued in North Carolina, could have a significant impact. These recommendations are in part echoed by North Carolina’s Perinatal Health Strategic Plan and State Health Improvement Plan. One pathway is to expand access to care before, during, and after pregnancy, ensuring health coverage for all low-income women. While North Carolina has extended Medicaid coverage to the full year postpartum, this stops short of the full recommendation. North Carolina remains in a shrinking group of states that has not expanded Medicaid, which is one of the recommendations from the Prenatal to 3 Policy Impact Center that would positively impact preterm births and infant mortality.

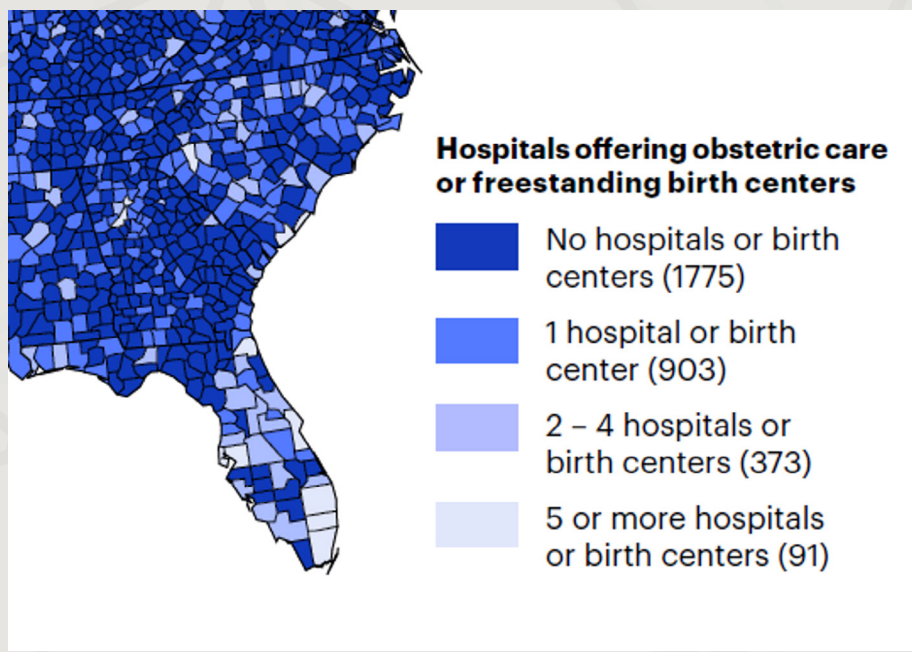
The Network for Public Health Law also recommends increasing the access, reimbursement, and use of effective methods of contraception by allowing a broad range of health professionals to provide contraception and requiring health insurers in the state to cover the full range of FDA-approved contraceptive methods. Our contacts at NCDHHS shared that a new law was enacted in February of 2022 to allow pharmacists to dispense contraception in NC, in the form of patches or birth control, without a prescription. However, there needs to be more awareness about this in

communities. The Prenatal to 3 Policy Impact Center also references two additional strategies that are evidence-based that would positively impact preterm births and infant mortality that do not seem as highlighted in North Carolina efforts. The first is expanding the state minimum wage to an average of \$10; the other is state earned income tax credit of at least 10% of the federal credit, which would build on the federal credit. It seems clear that we cannot deny that the financial support of families has a definite impact on their health and well-being.

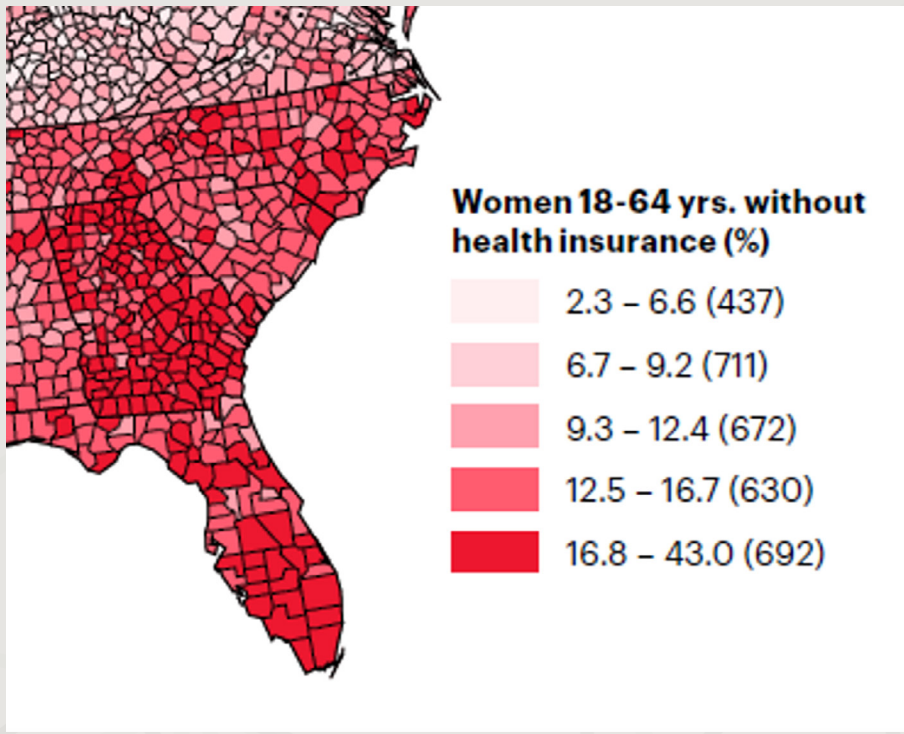
Workforce

Mapping included in the recent March of Dimes report shows that there is a significant change in the workforce needed to improve maternal health care in our state. Although the work needed is statewide, the maps show this availability of providers is most urgent in rural areas.

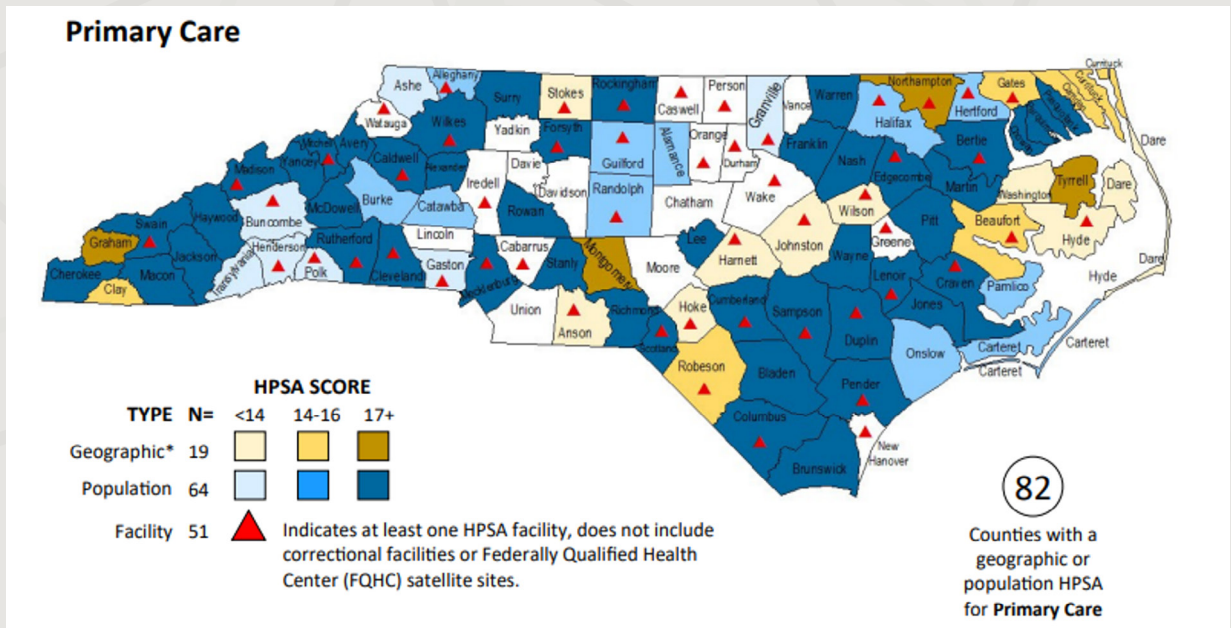
As previously noted, expanding and sustaining the birthing and child health workforce will be critical, especially with the rural landscape of North Carolina and the shortage of OB/GYN and child health providers in rural areas.



Source: US. Health Resources and Services Administration (HRSA), Area Health Resources Files, 2021; American Association of Birth Centers, 2022.



Source: US. Health Resources and Services Administration (HRSA), Area Health Resources Files, 2019.



Source: [NCDHHS](#)

Workforce development initiatives are essential in addressing maternal and infant health equity. As we consider the variety of levels of intervention, we want to uplift the opportunities for systems change that came from the joint UNC-NCSU SPARCS (Systems, Paradigms, and Restorative Community Solutions) for Maternal Health Equity in North Carolina project (Behnam-asl, Fatima, Kim, Mahtani, & Thomas, 2022). The SPARCS researchers highlighted the need to diversify the workforce by improving pathways to medical education. This echoes a point mentioned in the PHSP (2022) of increasing the number of medical school graduates identifying as Black, American Indian, or Hispanic. While this recommendation will likely take several years to see the results, educational systems could begin considering changes.

Ongoing workforce development initiatives can improve access to culturally responsive and competent care, increase the diversity of the healthcare workforce, and develop the skills and knowledge of healthcare providers to meet the specific needs of underserved communities. The Network for Public Health Law posits strengthening the education and training of health professionals that provide maternal health services, including (but not limited to) requiring training on bias, anti-racism, and culturally sensitive care as part of continuing education for licensure. This provider education can be seen in several previously mentioned North Carolina efforts.

Health Systems

Health systems play a critical role in improving maternal and infant health by providing comprehensive, high-quality care to women before, during, and after pregnancy, as well as to infants. With the closures of critical access hospitals in the state and reduced access in rural areas to maternal care, health systems can help build partnerships and networks with community-based organizations and stakeholders to support the needs of rural communities through telehealth and other resources. Health systems have a critical role in providing access to care and addressing disparities. Health systems can ensure that women and infants have access to the care they need by providing services such as prenatal care, childbirth care, postpartum care, and pediatric care. This includes providing care for women at high risk for maternal complications and infants at high risk for health problems. These systems should provide culturally and linguistically appropriate care and services and work with communities to eliminate barriers to care for marginalized and underserved populations. As an example, Duke University Health System has five strategies in their [clinical enterprise strategic plan](#), including “Eliminate Health Disparities - Develop high-impact internal and community-focused interventions that eliminate structural barriers to health equity and social justice.” This strategic goal will address the lifespan, including maternal and child health, and will engage communities on implementation, performance measures, and data collection.

The SPARCS research team mentioned previously also called for creating an innovative initiative to implement a statewide Birthing Person Navigation Program. The idea of this Navigation Program would be to build upon the reach of current WIC programs to create an integrated hub where families can get many needs met in one place. While this Navigation Program may not be something that can be created immediately, the PHSP (2022) also calls for collecting data on the usage of NCCARE 360 in making referrals that have been accepted by patients, which may begin to paint a picture of service gaps that are identified and how frequently those gaps are closed. Perhaps with improved knowledge of what is needed and how the systems are used, improvements could be made in the referral process, at the very least. The SPARCS analysis affirmed FHLI's next steps in developing the Maternal and Child Health Equity Action Network (MCHEAN) by identifying the need for a statewide coalition for equity. We believe FHLI's MCHEAN will help fulfill this need and serve other equity coalitions that develop from this comprehensive systems mapping project.

Finally, strengthen the coordination of and collaboration in maternal health services to advance equity, and involve women of color in maternal health policy design, implementation, budgeting, review processes, and funding perinatal collaboratives and state plans with community participation. While several groups across the state are working to include those with lived experience and to work closer within community, for example the Village to Village workgroup in the PHSP (2022), it would be beneficial for all groups to evaluate if those voices are brought in early enough in the planning and creation process or simply on the service delivery/feedback end of the process.

Funding

With so many points of possible intervention, where to provide support can feel daunting. In our interview sessions, we were told that it is a difficult question to consider- where to invest for change, given that it is “no way to know all that is going on in the state with maternal and child health.” However, we believe that one of the best places to consider starting is at the community level. During our landscape analysis process, we were told that “the community will know best” and that funders should “get the money to communities or to intermediaries who support the communities.” A survey respondent shared, “[I am] seeing more funding opportunities available from the government, but the funding rarely makes it to smaller agencies working directly with clients in the communities. Usually, the funding goes to the bigger hospitals and facilities, which is a problem for clients that feel more comfortable receiving assistance from their local community organizations.” A stakeholder in our review process of this report shared an observation that some funders seem resistant to fund “unknown” partners, and traditional grant processes do not match the capacity,

operations, and structure of the homegrown, grassroots, minority-led organizations that should be supported in this space.

In an interview, stakeholders said they need funders to have a more active role in the advocacy space. They suggested that funders evaluate their ability to support advocacy work and find the right partners to match. Across our landscape process, funders were viewed as highly influential, and there was a wish for funders to use their funding, especially their influence in the advocacy space. One suggestion to do this was to find community coalitions and workgroups to build their infrastructure to help the community group scale their work, expand partnerships, and apply for federal funds. Braided funding approaches were endorsed as an approach. Funders can also consider aligning their maternal health initiatives with the *White House Blueprint for Addressing the Maternal Health Crisis (2022)* which will help grantee organizations position their work to benefit from federal, state, and local funding opportunities.

Our analysis pointed to three areas of opportunity for funders. First, **funding in local health departments** has not kept pace with inflation and limited the services and resources they can offer to underinsured and uninsured women. While the *Improving Community Outcomes in Maternal Health* work has benefited some communities, the impact of the pandemic on these already taxed LHDs cannot be underestimated in terms of loss of staff in numbers and morale. Those LHDS who have applied and received specific funding from the General Assembly have indeed requested an extension of three years of funding rather than two, which would provide more time for action and less time devoted to the re-application for funding which can occupy a great amount of time and energy of an already limited staff. These programs have employed an assessment tool ([NC Health Equity Impact Assessment Tool](#)) designed to reduce health disparities as a lens to look at their local maternal and infant health outcomes. More counties in North Carolina deserve the chance to do the same. Additional funding for these departments would amplify current services and resources and allow additional flexibility to host new services, such as group prenatal classes. These new services would be a tremendous resource for underserved communities.

1. Sponsor a series of prenatal and lactation classes in LHDs.
2. Directly support existing perinatal resources and programs offered with evidence-based programs by LHDs to expand and augment access for the community.
3. Support grassroots and grassroots advocacy to expand maternal and infant health program funding for LHDs.

Ranked in terms of complexity, accessibility, and feasibility.

Second, recently, one recommendation discussed with greater intensity and frequency involves **reimbursement for doula services**. While other birth workers are in the arena as well, this effort seems to be bubbling to the top based on the evidence and the success experienced in other states. Furthering efforts and energy to keep the momentum going around this structural reimbursement change and ensuring that diverse voices are at the table when decisions are being made about the requirements for doula reimbursement will be critical. We must recognize that even within the doula community, there seems to be an imbalance in who has access to specialized training, what information is shared in those trainings, and whose stories are being told. Additional funding can help offset that imbalance and create a more equitable policy development process.

1. If funding for doula programs is on the horizon, invest in training grassroots community organizations of doulas of color to ensure their credentialing for reimbursement if desired.
2. Invest in capacity-building for doula organizations to manage the administrative burden of contracting for and managing reimbursement of services.
3. Support funding for doula programs to pilot reimbursement models to complete cost studies that will advance legislation and/or can be brought to payors for contracts.

Ranked in terms of complexity, accessibility, and feasibility.

Lastly, **support for transparency around data collection and evaluation** would be helpful. Efforts to improve data are being made within the Perinatal Strategic Health Plan and were also a recommendation from the SPARCS team: “utilize data to track and monitor trends, inform intervention, improve data quality, and create linked data sets and systems.” The recommendation from SPARCS aligns with the overall push towards data transparency and the need for prioritizing community trust: “Combating mistrust and distrust through accountability via meaningful data collection.” The SPARCS team suggests “holding facilities accountable for measures that translate to profits for shareholders but do not translate to better outcomes for communities.” We also heard during our interview sessions that there is a need to support more localized data, which would be more meaningful to communities. For example, producing more data disaggregation for maternal and child health metrics by zip code rather than by counties. However, providers and communities need to understand how best to collect and disseminate data to help them understand racial disparities and track progress in improving inequities. Private funders have a prime opportunity to boost the efforts in this work.

The following are potential areas that would benefit from support:

1. Support a community-driven coalition to identify key data points for maternal and child health equity and empower the coalition to determine data collection and data use.
2. Campaign for awareness for public review and use of the data through social media and community outreach.
3. Support the development of a public-facing, easy-to-use maternal and child health equity portal.

Ranked in terms of complexity, accessibility, and feasibility.

Additional examples of programs that could be funded to support North Carolina maternal and child health equity include:

- Recruitment and retention of healthcare providers from underrepresented communities: Funding programs that target the recruitment, retention, and mentoring of healthcare providers from underrepresented communities, such as Black, Indigenous, and People of color (BIPOC), those from low-income backgrounds, and those from rural areas. This can be done through scholarships, loan repayment programs, and mentorship programs that help to attract and retain healthcare providers from these communities.
- Cultural competency training: Funding programs that provide ongoing training and education on cultural humility and sensitivity for all healthcare providers. This can include training on providing culturally responsive care, understanding implicit biases, and addressing language barriers.
- Community Health Worker training and certification: Funding programs providing training and certification for community health workers (CHWs) and support staff to work in the maternal and child health space.
- Telehealth training: Funding programs that train healthcare providers on how to use telehealth technologies to deliver care remotely, especially in rural and underserved areas.
- Interdisciplinary training: Funding programs that provide interdisciplinary training for healthcare professionals and support staff, such as nurse practitioners, physician assistants, social workers, and doulas, to work together to provide comprehensive care for mothers and infants.

Next Steps

This landscape analysis and the relationships cultivated throughout the process have informed the launch of **Maternal and Child Health Equity Action Network (MCHEAN)**, a network to understand infant and maternal health disparities in NC by listening to NC practitioners and people with lived experience of those disparities. This Duke Endowment-funded initiative aims to improve the capacity of existing maternal and infant efforts and address the need for collective and immediate action. Participants in MCHEAN will partner to co-design action to improve maternal and child health equity in NC by developing three policy and advocacy plans. They will be able to use this report in any way that supports their efforts, and we plan on further investigating any of the work or proposed action plans at the request of the MCHEAN.

For FHLI, elevating community voice involves identifying key leaders and trusted messengers, catalyzing diverse stakeholders in meaningful engagement, and addressing deeply rooted community challenges by empowering all traditional and non-traditional stakeholders to participate. We are recruiting approximately 40 participants from across the state, with at least 25% of participants having lived experience interfacing with maternal and child health equity issues. We will provide incentives for community participation and for those with lived experience who cannot participate in the Network as part of their work, to ensure that community voice is represented and heard. We plan to achieve the following outcomes as next steps in this project:

1. Elevate community voice and provide resources to drive maternal and child health equity through the formation of an equity and action-focused Network with community representation to improve maternal and child health outcomes in NC.
2. Improve knowledge of challenges and operationalize opportunities for maternal and child health equity in North Carolina by developing a community-informed report on the mapping and linking of maternal and child health equity efforts in North Carolina.
3. Prime North Carolina to improve maternal and child health equity by producing and publicizing at least three action plans to achieve opportunities in partnerships, program development, and policy reform. Each action plan should be ready for implementation by the end of June 2023.

Call to Action

If we were to design a roadmap to improving maternal and child health outcomes in North Carolina, based on the stories and information we learned from this landscape analysis and our organization’s mission to “advance collaborative, equity-centered, and community-driven solutions to improve the overall health and well-being of all North Carolinians,” we would propose actions that:

- Improve access to health care,
- Improve the diversity and cultural competency of the healthcare workforce,
- Invest in community-based programs for
 - Delivering health care,
 - Addressing social determinants of health, and
 - Involve communities in data monitoring and evaluation
- Provide support for doula services, and
- Implement paid family leave policies.

If we are to improve maternal and infant health in North Carolina and especially if we are to decrease the health disparities in this area, we must remain proactive and vigilant in ensuring the voices of those working in BIPOC communities are a part of the grassroots efforts and the re-structuring of these parts of the healthcare system. We call on all stakeholders, advocates, and lawmakers to take action to improve maternal and infant health in North Carolina. By working together, we can ensure that all women and children have the opportunity for healthy and prosperous lives. Collaboration will be a key driver for improving maternal and child health equity. By working together, various stakeholders can share resources, knowledge, and expertise to address the complex factors contributing to maternal and child health disparities. One important aspect of collaboration is the involvement of community-based organizations and advocates. These groups have unique insights into the needs and experiences of the communities they serve and can play a critical role in identifying and addressing health disparities. By partnering with these groups, healthcare providers and policymakers can better understand the social determinants of health and develop more effective strategies to improve maternal and child health outcomes. Another important aspect of collaboration is the engagement of multiple sectors. Improving maternal and child health requires a holistic approach that addresses healthcare and social and economic factors such as education, housing, and transportation. A comprehensive and coordinated approach can be developed by bringing together stakeholders from different sectors, such as healthcare, education, and housing. By aligning policies and programs across different levels of government, a more seamless and consistent

approach to addressing maternal and child health disparities can be achieved. One of the most powerful messages we heard that we want to uplift from the community is from a doula of color who said, **“No one is telling our story”** regarding the experience of maternal and infant inequities in communities of color and the support that is needed. Our ask to our partners and funders is to tune in and listen to the stories of BIPOC women and children and join us in elevating community voices to help inform how we engage in system transformation to address health equity and reduce maternal and infant mortality rates in our state.

APPENDIX I

Resources

[Blue Cross, Blue Shield: Racial and Ethnic Disparities in Maternal Health \(Sept. 2022\)](#)

[Nurture New Jersey](#)

[Birth Equity Catalyst Project](#)

[Improving Maternal Health Outcomes: State Policy Actions and Opportunities](#)

[PCORI: ACURE4Moms Study](#)

[State Medicaid Approaches to Doula Service Benefits](#)

[Virginia Invests in Doulas to Improve Maternal Health Outcomes](#)

[View Each State's Efforts to Extend Medicaid Postpartum Coverage](#)

[States Advance New and Enhanced Policies to Improve Blue CroCare for Pregnant and Postpartum People with SUD and Mental Health Conditions](#)

[BeSmart Family Medicaid](#)

[Male Contraceptive initiative](#)

[BabyLove Plus Fatherhood Program](#)

[Foundation for Health Leadership & Innovation](#)

Appendix II

There are a variety of specific innovative programs that aim to improve maternal health equity, some examples include:

Program	Outcomes
<p>CenteringPregnancy: This is a group prenatal care model that incorporates patient-centered care, group education, and peer support. It has been found to improve birth outcomes, reduce preterm births, and increase breastfeeding rates.</p>	<p>This program has been found to improve birth outcomes, such as reducing preterm births, increasing breastfeeding rates and increasing patient satisfaction with care. It's also been reported that the program improves health literacy, self-care, and maternal-child health outcomes.</p>
<p>Text4Baby: This is a free, national mobile health service that provides information and support to pregnant women and new mothers via text messages. It helps to improve access to care and maternal health education.</p>	<p>This program has been found to improve access to care and maternal health education. It has been reported that the program increases knowledge about maternal and child health, improves birth outcomes, and increases use of preventive services among pregnant women and new mothers.</p>
<p>The Sistersong Women of Color Reproductive Justice Collective: This is a community-based organization that works to improve maternal health equity by addressing the social determinants of health, such as poverty, discrimination, and other structural factors, in the lives of women of color.</p>	<p>This program has been found to improve maternal health equity by addressing the social determinants of health, such as poverty, discrimination, and other structural factors, in the lives of women of color. It's reported that the program provides support and education to women of color to improve maternal health outcomes.</p>
<p>The Black Mamas Matter Alliance: This is a national organization that works to improve maternal health equity by advancing policy and systems changes that address the social determinants of health that affect Black mamas and their families.</p>	<p>This program has been found to improve maternal health equity by advancing policy and systems changes that address the social determinants of health that affect Black mamas and their families. It's reported that the program promotes policies and systems that help to reduce maternal mortality and morbidity among Black women and their families.</p>
<p>The National Perinatal Task Force: This is a national organization that works to improve maternal health equity by providing education and training, developing standards of care, and promoting the use of evidence-based practices in maternal health care.</p>	<p>This program has been found to improve maternal health equity by providing education and training, developing standards of care, and promoting the use of evidence-based practices in maternal health care. It's reported that the program improves maternal and newborn health care outcomes, as well as reduces disparities and promotes quality and safety in maternal health care.</p>

These are just a few examples of specific innovative programs that aim to improve maternal health equity, there are many more initiatives that can be implemented. It's important to note that the effectiveness of these programs can vary depending on how they are implemented and the resources that are made available to support them. It's important to note that the outcomes of these programs can vary depending on how they are implemented and the resources that are made available to support them. Additionally, these programs focus on different aspects of maternal health and have different goals, therefore, their outcomes might be specific to their focus. The reported outcomes are based on the available research and studies on these programs, but it's important to further evaluate them for their effectiveness and generalizability in other contexts.

Appendix III

There are a variety of specific innovative programs that aim to improve infant health equity, some examples include:

Program	Outcomes
<p>The Nurse-Family Partnership: This program is a home visiting program that pairs low-income, first-time mothers with registered nurses. The nurses provide education, support, and resources to the mothers and families to improve maternal and child health outcomes.</p>	<p>This program has been found to improve maternal and child health outcomes, such as reducing the incidence of child abuse and neglect, increasing birth spacing, and improving child development.</p>
<p>The Maternal, Infant, and Early Childhood Home Visiting Program: This program is a federal grant program that provides funding to states to support home visiting programs for families with young children. The programs provide education, support, and resources to families to improve maternal and child health outcomes.</p>	<p>This program has been found to improve maternal and child health outcomes, such as reducing child abuse and neglect, improving child development, and increasing birth spacing.</p>
<p>The Baby-Friendly Hospital Initiative: This program is a global program that aims to improve infant health by promoting breastfeeding and providing support for breastfeeding mothers. The program certifies hospitals that meet certain standards for breastfeeding support.</p>	<p>This program has been found to increase breastfeeding rates and improve infant health outcomes, such as reducing the incidence of infectious diseases, allergies, and obesity.</p>
<p>The Early Head Start Program: This program is a federal program that provides comprehensive child development services to low-income families with children under the age of 3. It aims to improve infant health by providing education, support, and resources to families to improve maternal and child health outcomes.</p>	<p>This program has been found to improve maternal and child health outcomes, such as reducing child abuse and neglect, improving child development, and increasing birth spacing.</p>