

# Infant Mortality: Access and Barriers to Quality Perinatal Care in North Carolina

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**This commentary evaluates access and barriers to perinatal care in North Carolina utilizing key goals the state has identified in its strategic plans, such as expanding health care access for North Carolinians, increasing access to preconception care for women and men, improving access to prenatal care, and undoing racism.**

In response to its high infant mortality rate, North Carolina has elected to take a life course perspective [1] that addresses infant mortality through improving women's health before, during, and after pregnancy. North Carolina has developed two strategic plans—the Preconception Strategic Plan in 2008 [2], with a 2014 supplement [3], and the Perinatal Strategic Plan in 2016 [4]—to guide its state-wide efforts.

This commentary aims to examine access and barriers to quality perinatal care and offer recommendations from a quality improvement and systems perspective. Access to care is generally understood to be an individual's ability to gain entry into the health care system, usually through public or private insurance [5], but from a quality perspective the definition of access to care also includes care that is safe, effective, efficient, equitable, patient-centered, and timely [6].

## Access to Care

The Behavior Risk Factor Surveillance System (BRFSS) is a CDC standardized surveillance tool administered to men and women aged 18 and older [7]. We used the BRFSS to evaluate access to care for both women and men under the age of 65 in North Carolina and for pregnant women in 2012 through 2017.

We also used the Pregnancy Risk Assessment Monitoring System (PRAMS) to analyze access to care. PRAMS is a surveillance project of the CDC and is administered to women to understand their pregnancy-related experiences [8]. PRAMS data was examined for 2012 and 2014-2017; 2013 data was not available.

## Access by Gender

In 2012, prior to the implementation of the Affordable Care Act (ACA), a higher percentage of women (75.9%) had health insurance compared to men (73.2%) [9]. In the

years after the ACA, the gender gap decreased slightly and in 2017, women and men had about the same rate of coverage (82% versus 80%, respectively) [9].

## Access by Race

The percentage of coverage for all races under the age of 65 increased after the ACA was introduced. Between 2014 and 2017, there was an increase in health insurance coverage for Hispanics, but the number of Hispanics covered was significantly less than all racial/ethnic groups at 43.1% [7]. There was an increase in the rates of coverage for Native Americans both prior to the ACA and thereafter. In 2012, the rate of coverage for Native Americans grew from 72% in 2012 to 88% in 2017 and was comparable to that of Whites [7]. There was a slight decline for both Whites and Blacks, particularly in 2016 and 2017.

## Pregnant Women

The number of pregnant respondents from the 6-year aggregate was small (N = 210), but when compared, pregnant women (84%) had a higher rate of health coverage than non-pregnant women (78.8%) [7]. White women and Black women had comparable rates of coverage (96.3% and 95.3% respectively), but there was a significantly lower rate of coverage for women of "other" races (48.3%) [7]. Although not statistically significant, it is worth mentioning that 18.9% of pregnant women did not see a doctor because of cost compared to 23% of non-pregnant women [7].

**Recommendation.** Focused and intentional efforts to increase coverage for Hispanics and "other" racial/ethnic groups must continue. Rates of coverage for Whites and Blacks also need to be closely tracked to prevent significant declines in coverage.

## Access to Quality Perinatal Care

### Preconception Care

Preconception care helps women optimize their health

Electronically published January 6, 2020.

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by preparing them to have planned and healthy pregnancies, and thus improves the chances of infant survival. We used the BRFSS to evaluate the quality of preconception care using the BRFSS Preconception Care & Family Planning questions; however, these questions were not included in the 2012-2015 versions of North Carolina's BRFSS [7]. These questions were available in earlier and later versions, but only non-pregnant female respondents were surveyed. Pregnant females and males were excluded; although, some of the questions could apply.

In 2016, only 46.5% of the women surveyed were told by their provider the importance of being a healthy weight and 50.6% were told the risk of tobacco, alcohol, and drug use for having a healthy pregnancy [7]. For both questions, Hispanic women were told more often than White and Black women, and women aged 35-44 were told more often than younger women. Similar results were found when respondents were asked if their provider discussed ways to prepare for a healthy pregnancy. BRFSS data for these questions were not available in 2017 for comparison [7].

### **Maternal Health Conditions**

The causes of infant death are often associated with maternal health conditions and complications stemming from hypertension, diabetes, and obesity [10]. In North Carolina, maternal complications were one of the top 3 causes of death between 2013 and 2017 [9].

It is well documented in the literature that Black women are 3 to 4 times more likely to die from pregnancy-related causes than White women, representing the largest disparity in the current perinatal measures [11]. Native American/Native Alaskan women also experience elevated rates of pregnancy-related deaths [11]. A health disparity also exists in the infant mortality rate, with Hispanic and Black infant deaths being higher than for White infants [12].

To better understand the pregnancy-related deaths, Maternal Mortality Review Committees (MMRC) review collateral information to examine factors leading to pregnancy-related maternal deaths [13]. North Carolina's MMRC data from 2014 to 2015 were included in a report examining maternal pregnancy-related deaths from 9 states. The report found that an estimated 63.2% of these deaths were preventable [14].

According to the report, patient factors such as chronic disease and lack of knowledge of warning signs were the most common factors that contributed to preventable maternal deaths, followed by variations in provider practices and systems of care factors [14]. Although patient factors were leading contributors, they were most often dependent on the provider and system of care, as in the level of education the patient received about when to seek care [14].

### **Fetal and Infant Deaths**

Data on infant causes of death and contributing risk factors are available for North Carolina [9]; however, commit-

tee investigation data that is centrally collected, analyzed, and reported with the purpose of understanding the nature, cause, and preventability of infant deaths in North Carolina, similar to the work of MMRCs, were not found in our review of state reports.

In lieu of such information, and to better understand the health behaviors and care experiences of women who lost infants shortly after delivery, we analyzed PRAMS data from 2012 and 2014-2017 [8]. The number of women who lost babies (N = 80) was small, so results were interpreted with caution. The results can be useful, however, and can influence the provision of care, system changes, and policy formulation.

Mothers who lost infants were 3 times more likely to have had diabetes (10.32%) 3 months before pregnancy compared to mothers whose babies were still alive (3.02%) [8]. They were also 3 times more likely to have had high blood pressure (14.46% versus 5.54%) and were over 2 times more likely to be depressed before pregnancy (22.16% versus 10.97%) compared to mothers whose babies were still alive [8].

The majority of mothers from both groups received prenatal care as early as they wanted; however, about half (48.6%) of the mothers who lost babies had 8 or fewer prenatal visits [8]. The majority of mothers (62%) whose babies were still alive had 12 or more prenatal visits. Seventy-three percent of mothers who lost infants received prenatal care in the first trimester compared to 83.6% of mothers whose infants were alive. Women who lost infants encountered more barriers to prenatal care than women whose babies were alive, and mothers who lost infants were significantly more likely to have felt emotionally upset as a result of how they were treated based on their race compared to mothers whose infants were alive (25.6% versus 8.4%) [8].

Women who lost infants were also more likely to be insured and to be covered by Medicaid. Less women were covered after delivery for both groups, and most women from both groups had postpartum checkups. For those who lost babies, 68.3% always, often, or sometimes felt depressed at the time of their postpartum visit compared to 27.5% of women whose babies were still alive [8].

The following recommendations stem from our evaluation of access and barriers to quality perinatal care in North Carolina and align with the life course approach to improving access to health care across the lifespan, improve family and community systems, and improve health equity [1].

**Recommendation 1.** Because North Carolina's strategic plans recognize men as influencers in the health of their partners and they have been included in preconception health strategies, it is recommended that men be asked about preconception care and planning. In doing so, services sensitive to the needs of men (culturally, socioeconomically, and geographically) can be designed to increase access to quality care and potentially reduce health disparities. It is also recommended that preconception care and planning

questions are asked consistently in the BRFSS to track and trend responses over time.

**Recommendation 2.** Some states with high infant mortality rates have action-oriented formalized processes to review and report findings regarding infant deaths with the purpose of creating systemic changes and preventing future deaths. The reviews include collateral information and maternal perspectives on care experiences [15]. It is recommended that North Carolina adopt a similar review process as it works to reduce its high infant mortality rate.

**Recommendation 3.** To improve the patient care experience, improve patient safety, and reduce unwarranted variation across the perinatal care continuum, the use of evidence-based practices (EBP) is necessary. The National Quality Forum and other entities identify evidence-based quality measures on perinatal care to assist health care systems in providing quality care before, during, and after pregnancy.

The unwarranted variation in provider practice patterns should not be viewed solely as a deficiency in provider performance, but also as a system's failure for the absence of policies, procedures, standards, and accountability [14]. The use of EBP is often met with poor adherence, lack of organizational and provider capacity, and inadequate resources. Adopting an implementation science framework has been shown to increase implementation success, improve adherence to EBP, and build capacity [16, 17].

Implementation science's ability to improve treatment outcomes, improve the quality of programs, strengthen health care systems [18], and save time and money during the implementation of EBP [16] has been well documented. Implementation science facilitates these positive outcomes by iteratively monitoring and analyzing information collected in real time, helping programs anticipate implementation challenges and offering practical tools rooted in real world contexts [18].

There are emerging models and frameworks that focus on designing an implementation that is relevant to the local context [19] and that incorporates emerging approaches such as design thinking, where the system is designed with the end user in mind, including both providers and patients and using systems science that considers how parts in a complex system interact and respond to one another [20]. These types of comprehensive models and frameworks focus on the specific needs of patients, providers, and communities and have the potential to help reduce health disparities across the regions of North Carolina.

**Recommendation 4.** There is mounting evidence that racism is a contributing factor to health disparities and is associated with poor treatment [21] and poor birth outcomes [1, 11]. As research continues to grow in this area, assessment tools, frameworks, and guidance are being offered to help health care organizations understand how they can reduce health disparities and improve health equity by creating action plans to undo racism [1]. It is recommended that

health care organizations make health equity an institutional priority. They can begin by completing a self-assessment and identifying and reporting disparities, developing culturally competent and sensitive disease management programs, critically examining personal attitudes and biases of health professionals, increasing diversity at all levels of the workforce, and partnering with community organizations and leaders to improve health and equity [21].

## Conclusion

The number of North Carolinians who have access to care has increased since the implementation of the ACA. More pregnant women have access to care and are receiving care; however, unwarranted variations in care exist and care is not always patient centered, contributing to health disparities and poor birth outcomes. The state's goals and strategies of improving access to care before, during, and after pregnancy must also be met with each health care system measuring health disparities within its organization and community and establishing focused perinatal quality improvement efforts. The goal of reducing North Carolina's infant mortality rate can only be achieved when the aim is to provide high-quality, high-value health care. NCMJ

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## Acknowledgments

I would like to express my sincere appreciation to Dr. Satomi Imai, social research specialist in the Department of Public Health at East Carolina University for her assistance with the data analysis. We both would like to thank Fatma Simsek, PRAMS coordinator at the North Carolina Center for Health Statistics, for her assistance with the PRAMS dataset.

I would like to express my gratitude to Dr. Cathrine Hoyo in the Center for Human Health and the Environment at North Carolina State University and Dr. Ronny Bell in the Department of Public Health at East Carolina University for their ongoing support and mentorship.

Potential conflicts of interest. T.B.A. has no relevant conflicts of interest.

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