

The State of North Carolina's Perinatal Health

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In working to improve the health of North Carolinians, a critical focus starts with our mothers and infants and their surrounding communities. North Carolina's perinatal outcomes, as evidenced by maternal morbidity and mortality, infant mortality, preterm births, and the larger context of lifelong physical and mental health of our citizens, offer areas for improvement and policy implications. In addition, the unacceptable disparities that remain despite some overall improvement in outcomes warrant full attention. This issue of the NCMJ highlights the state of perinatal health in North Carolina; the importance of a risk-appropriate perinatal system of care; the opportunities for supporting our parents, children, and families; and how we as a state and as a community can come together to improve the safety and experience of giving birth in North Carolina and beyond.

In 2017, the Centers for Disease Control and Prevention (CDC) reported that 847 of North Carolina's babies died before their first birthday, at a rate of 7.1 infant deaths per 1,000 live births [1]. This compares to the national rate of 5.8 per 1,000 [1]. Non-Hispanic Black infants were 2.4 times more likely to die than non-Hispanic White infants [2]. In recent years there have been approximately 50 maternal deaths per year in North Carolina, about half of which were directly related to pregnancy or to medical problems that were exacerbated by pregnancy [3]. Four-year aggregate pregnancy-related death ratios from 2012 to 2015 indicate the death rate for non-Hispanic Black mothers is 1.6 times greater than the rate for non-Hispanic Whites [4].

To address these health disparities and improve pregnancy outcomes, the North Carolina Division of Public Health and its many partners developed the 2016-2020 Perinatal Strategic Plan. Goal 3 of the plan is to "improve the quality of prenatal care," with one strategy being to "ensure that pregnant women and high-risk infants have access to the appropriate level of care through a well-established perinatal regional system" [5]. The North Carolina Child Fatality Task Force, under recommendation by Dr. Kathryn Menard, proposed a reassessment of North Carolina's perinatal system for risk-appropriate perinatal care inclusive of maternal and neonatal care resources and capacities. NC Session Law 2018-93 was passed, directing the North Carolina Department of Health and Human Services (NC DHHS) to assess timely and equitable access to high-quality, risk-appropriate maternal and neonatal care and

develop actionable recommendations to reduce maternal and infant mortality. The Division of Public Health partnered with the North Carolina Institute of Medicine (NCIOM) to convene a task force that represents the breadth of maternity and neonatal care stakeholders—including community advocates—to review, debate, and produce the document and recommendations included in the report, a summary of which is published in this issue of the *North Carolina Medical Journal* [6]. The NCIOM Perinatal System of Care Task Force was comprised of the experts who represent the various geographical areas and sectors of such a large, diverse state as our home of North Carolina, to develop updated system recommendations so that maternal and birth outcomes do not depend on one's geographic location, access to quality care, economic circumstances, or race or ethnicity.

In order to accomplish a quality perinatal system of care in North Carolina to improve outcomes, there must be an explicit focus on equity. Di Bona and coauthors [7] and Small and coauthors [4] dig deeper into the data behind infant and maternal mortality, including the unacceptable disparities. Not only does the Perinatal Health Strategic Plan strive to improve the health care of women and men, strengthen families and communities, and address social and economic inequities including racism, but the North Carolina Early Childhood Action Plan, released in February 2019, amplified that work with the focused goal of decreasing infant mortality disparities [8]. Due to the long and continued history of racial and social injustices, we acknowledge and affirm that equity, and explicitly racial equity, has to be central to the considerations of moving policy forward. In addition to the many stakeholders and experts engaged in this process, the voice of the woman is central to this quest and moving North Carolina toward improved maternal and infant outcomes through a perinatal system of care.

The report of the NCIOM Perinatal System of Care Task Force appears in this issue [6], in addition to related commentaries. Wimmer's commentary, "Levels of Care for Perinatal Health," explains the history, rationale, and recommendations behind the population-based approach of risk-

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appropriate levels of care, which should strive to create a comprehensive, high-quality, and universally accessible system to not only improve the health care experience of women and infants and reduce overall health care costs, but most importantly improve perinatal outcomes in North Carolina [9]. Wimmer includes the evidence-based recommendations from the American Academy of Pediatrics (AAP), the American College of Obstetrics and Gynecology (ACOG), and Society for Maternal and Fetal Medicine (SMFM), but also acknowledges the social, political, and economic considerations in the provision of health care. Another point worth highlighting from this article is that “differences in levels of care do not represent differences in quality of care” [9]. In assessing the perinatal system of care, Atkinson takes a closer look at access to care before, during, and after pregnancy, as well as maternal and infant outcomes in North Carolina, and calls out the need for patient-centered, quality care over the life course to improve disparities and birth outcomes overall [10].

To inform the perinatal landscape, Mitchell describes the CDC Levels of Care Assessment Tool (LOCATe), which takes into account the most recent AAP, ACOG, and SMFM recommendations on neonatal and maternal levels of care [11]. She shows how this tool is currently being utilized in North Carolina not as a regulatory tool but as a conversation starter with birthing facilities through utilization of perinatal and neonatal outreach coordinators.

Even with a needed update in the perinatal system of care and efforts to ensure that care is risk-appropriate, basic coverage and access to health care is critical for women to get the needed preconception, prenatal, and delivery care to drive maternal and infant health. This may include Medicaid coverage and considerations around timeliness and access. Tucker and Zachary describe how the Medicaid system is serving mothers and children, including current barriers and policy options [12]. Medicaid expansion is one policy that would benefit maternal and infant health in North Carolina by closing the coverage gap, allowing more women to get healthier before pregnancy and allowing more continuous coverage for needed care.

The goal for health care is to drive health outcomes, but we need a full realization of all its components. Specifically, perinatal health is more than routine obstetric or midwifery care—it has to include the needed subspecialty care for acute or chronic conditions, access to the recommended substance use treatment, and of course mental health and psychiatric care, as well as the ability to navigate the system without barriers. Given how common depression and anxiety are during pregnancy and the postpartum period, and the need to address mental health to improve family well-being, Kimmel calls for improved identification and treatment and describes a new North Carolina initiative to enhance the postpartum mental health system [13]. Coulson and Galvin explore the challenges faced when navigating care, including substance use disorder treatment, in Western North

Carolina and present innovative and collaborative solutions to address these issues [14]. Godwin reminds us that North Carolina has been on the forefront of perinatal substance use treatment for years, as substance use disorders are not newly emerging, however they are receiving increasing attention due to the opioid epidemic [15]. In addition, she reinforces the need for a public health approach to substance use disorders to reduce barriers to treatment and to focus on the dyad for better outcomes, as punitive measures can be detrimental to maternal and infant health.

The focus on overall well-being, including mental health, is not only critical for the mother and caregivers, but also for the infant entering this world and moving through life. We have increasing research that indicates that early experiences drive a child’s health outcomes as an adult [16-18]. The early stages of this development begin in pregnancy and are shaped by pre-pregnancy events. Therefore, we must address the perinatal system over the life course and acknowledge the contribution of multigenerational trauma by looking at the bigger picture of the dyad, the family, and the community.

The mental health of the woman is often viewed separately from the overall delivery of care, with emphasis placed on a healthy pregnancy and delivery, but mental health also impacts the infant in a multitude of ways. This issue of the NCMJ identifies mental health as an ongoing issue and explicitly reminds the reader that it should be integrated into the care that is provided to all individuals, including mothers and infants, and not as a separate component or system. Johnson and Helm’s article, “Neonatal and Early Infant Development,” focuses on the importance of lifelong outcomes related to early childhood development, including social and emotional health, especially in the infants engaged in the neonatal care system [19]. The authors provide an example of a developmentally attuned program to better support infants in the neonatal intensive care unit (NICU). They also remind us of the critical impacts of early trauma and adverse childhood experiences on physical and mental health, which are also explored in a previous NCMJ edition [20]. As we are considering the perinatal system and how we are supporting the mother’s physical and emotional well-being, especially during the vulnerable postpartum period, we should also consider how we are supporting the infant to thrive. This may be accomplished by providing interventions that impact the social and emotional health of both the mother and baby, while also strengthening the parent-child relationship.

Ries goes into more depth about home visiting specifically in her article, “Early Home Visiting to Improve Child and Family Well-being” [21]. Parenting is hard and requires support in a changing world where a “village” may no longer be an option. The article illustrates the emotional and physical benefits of providing a home visiting program, as well as the potential financial savings for the state. With more awareness of the neglected fourth trimester and the

need for overall parenting support after birth and beyond [22, 23], a family-centered, coordinated system for quality home visiting services and parenting support may provide both emotional and overall health benefits for the mother, child, and family.

The perinatal health care system has long had a focus on patient- and family-centered care. The research is clear that this approach to delivering care works and is tied to improved outcomes such as patient satisfaction, communication, health care utilization, and mortality. Patient- and family-centered care's focus on dignity and respect, information sharing, participation, and collaboration is important to the fabric of our perinatal health care system [24]. While this has been the intent, there are many missed opportunities for this focus to reach all populations. There is also a growing body of research that states that the location of the facility where a person gives birth determines cesarean section rates, mortality rates, and morbidity rates. Howell and coauthors wrote in the *American Journal of Obstetrics and Gynecology* in 2016: "Most black deliveries occur in a concentrated set of hospitals, and these hospitals have higher severe maternal morbidity rates. Targeting quality improvement efforts at these hospitals may improve care for all deliveries and disproportionately impact care for black women" [25].

In this issue of the NCMJ, Murphy discusses Centering Pregnancy and the community-based doula model in her article "The Power of Connection, Trust, and Voice: Perinatal Support through Community" [26]. The article details the story of a woman who was connected to a Centering group and community-based doula after a traumatic birth. Murphy makes it clear that the Centering Pregnancy model "reduces preterm deliveries and low birth weight babies while increasing breastfeeding rates at discharge from the hospital" especially for Black or African American women [26]. This patient-centered model can facilitate trust-building and connection between the clinicians and the women they serve.

In community-based doula programs the doulas live in the same community and share the same background as the families for whom they provide care. This model addresses a need for families to see themselves in the care delivery system, have a person who understands them during a birthing experience, and have a voice. This type of support is invaluable to families and the research shows that community-based doula programs also improve outcomes for babies and mothers and garner trust from women who may have typically had mistrust of the health care system due to its historical practices and beliefs [26-29].

As Harris and coauthors wrote in *Current Opinion in Obstetrics and Gynecology* in 2014: "Throughout the US history, the fertility and childbearing of poor women and women of color were not valued equally to those of affluent white women" [30]. While this truth is hard for most to hear, it is a needed voice as we make improvements to our health

care system, at both the direct patient care and policy levels. We must make the connection and listen to the voices of the women we are seeking to help. Monroe discusses solutions in her article, "Perinatal Disparities and Solutions" [31]. She goes into depth about the racial disparities for women and babies and the need to build partnerships between all parties involved, mandate cultural competency training for medical staff, and increase access to doulas among other things to improve care for babies and women of color in our state [31]. By creating a health care system that embeds this type of continuous correction via quality improvement, policy changes, and training, we can take needed steps to improve the mortality and morbidity rates for the most vulnerable in our system.

As is emphasized throughout this issue, it is imperative that we in North Carolina improve maternal and infant health outcomes and maintain a clear focus on equity in order to do so. We must build on the momentum provided by our partners and perinatal leaders in the state, align our efforts through our strategic plans, and come together in a multisector response to improve a comprehensive, quality, and universal perinatal system of risk-appropriate care to meet the needs of all infants and mothers, including the most vulnerable. This effort is evidenced by the work and the recommendations from the NCIOM Perinatal System of Care Task Force. Task force members worked together to ensure that the voice of the woman and family was at the center, in addition to supporting recommendations that are evidence-based and have been shown to make a difference [6]. As North Carolina enters this time of Medicaid transformation, we should maintain the vision of delivering health with an innovative, whole-person-centered health care systems approach. We must do this by addressing both medical and non-medical drivers of health and demanding equity to make the crucial investment in the well-being of North Carolina mothers, infants, and families, thus impacting generations ahead. **NCMJ**

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