Durham County Budget Retreat
Systems Thinking Exercise: Infant Mortality

"Why, despite the county's investment and focus in health and well-being for all, have we not been able to reduce the significant differences in infant mortality rates by race and ethnicity in the county?"

Resource Materials

1. **2017 Durham County Health Assessment Report,** selected pages https://www.dcopublichealth.org/home/showdocument?id=24702

2. **NC Child Report: "Giving Birth in North Carolina Is Still A Risky Business"** https://www.ncchild.org/wp-content/uploads/2018/02/FINAL-Birth-Outcomes-Brief.pdf

2017

Durham County Community Health Assessment

Public Health

DukeHealth

Partnership for a Healthy Durham
Better Together

DURHAM COUNTY NC 1881 | Public Health

Dear Durham County Residents,

We are proud to share the 2017 Durham County Community Health Assessment (CHA). Every three years, Durham County conducts a CHA to identify health related needs and assets. The completion of the assessment is a true collaborative effort among the Durham County Department of Public Health, Partnership for a Healthy Durham, Duke Health, many community partners and our residents.

The 2017 CHA covers a wide range of health issues and other factors that impact health such as jobs, education, housing, and racism. Durham County health outcomes have improved in some areas, but disparities remain by race, ethnicity and income. In order to ensure all of Durham's residents can thrive, we need to work across sectors to improve socioeconomic and environmental factors for everyone. This work needs to be intentional and address racism at the systemic level.

New to the 2017 CHA is a chapter on lesbian, gay, bisexual, transgender and queer (LGBTQ+) issues. Community members told us there was a need for this data and they were willing to take the lead in developing the content. It became apparent that local data for the LGBTQ+ population needs to be collected in order to better measure outcomes.

Based on the results of this CHA, the Partnership for a Healthy Durham will continue committees around the health priorities of Access to Care, Obesity and Chronic Illness and Substance Use/Mental Health. The Partnership will create a new Housing committee to address the top health priority of Affordable Housing. Committees will create community health improvement plans to address these issues for 2018-2021.

This means that HIV/STI will no longer be a focus area of the Partnership starting July 1, 2018. The Durham County Department of Public Health is committed to supporting the work of the committee moving forward in order to decrease HIV and STI rates.

I hope you will join us as we strive towards a Culture of Health in Durham County. Visit healthydurham.org to see how you can get involved.

Sincerely,

Gayle Harris

Gayle Harris,
Health Director, Durham County Department of Public Health

North Carolina Local Health Department Accreditation Board – Accredited Health Department 2017-2021

Human Services Building | 414 East Main Street, Durham, North Carolina 27701
(919) 560-7600 | Fax (919) 560-7652 | dconc.gov/publichealth
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DukeHealth

Duke Regional Hospital
Serving our community since 1976

Dear Durham County Residents,

Duke Regional Hospital is proud to have been a part of completing the 2017 Community Health Assessment. We are grateful to all of the collaborating partner entities and community members who worked tirelessly throughout the data collection, analysis, and feedback processes as well as in writing the document. While the assessment document contains a great deal of important data regarding the health of our community, it is the action we will take going forward as a community that is of utmost importance.

With this assessment of our strengths and our areas of need, we must continue to listen to the input of residents, increase collaborative relationships and multi-sectoral partnerships, and leverage innovation to facilitate continual health improvement in Durham County. By joining all of these forces to adequately address the factors that challenge the well-being of Durham's citizens, we will not only develop strategies and take action to improve health in Durham but also serve as an example for other communities to follow.

Our mission at Duke Regional Hospital is to care for our patients and the health of our community. We are committed to being the best community hospital and we are committed to making Durham the healthiest county in the nation.

Sincerely,

Katie B. Galbraith
President, Duke Regional Hospital

LOC 3643 North Roxboro Road
Durham, NC 27704
TEL 919.470.4000
URL dukeregional.org

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AMERICAN NURSES CREDENTIALING CENTER

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Section 3.03 *Racial and ethnic disparities*

Overview

The National Library of Medicine defines health disparities as "the variation in rates of disease occurrence and disabilities between socioeconomic and/or geographically defined population groups."[i] In this case, the groups are defined by race and ethnicity. However, not all disparities are a direct result of these factors. The major resources that allow people to have better health include education, income, occupation, and wealth (assets), with education and income levels being among the strongest predictors of health. When analyzing and discussing racial and ethnic disparities, one must consider access to these opportunities as a determinant of health outcomes. Groups that have historically been pushed to society's margins with inadequate access to key opportunities continue to be represented in the groups most heavily affected by these disparities.

Structural racism, an indirect social determinant of health, must also be considered for a complete analysis of disparities in health. Structural racism is defined as the "system in which public policies, institutional practices, cultural representations, and other norms work in various, often reinforcing ways to perpetuate racial group inequity."[ii] The United States' history of chattel slavery and Jim Crow Laws laid the foundation for many of the conditions people of color experience today. Laws that regulated voting rights, defended low quality education, and justified discriminatory housing practices have reappeared today as a lack of opportunity and increased stress that can worsen medical conditions. For example, African Americans and Hispanics are more likely than Whites to be living below the poverty level. While the poverty rate for the population as a whole was 13.5% in 2015, for African Americans it was 24.1%, Hispanics (of any race) were at 21.4%, Asian with 11.4% and Non-Hispanic whites had the lowest rate of 9.1%.[iii] People living in poorer neighborhoods have higher stress levels, less access to resources, higher rates of unhealthy behaviors, and higher rates of early death. New research also suggests a link between the effects of structural racism on cardiovascular diseases such as heart attack.[iv]

The goal of achieving health equity requires the increase of fair and just opportunities for everyone. This means improving living conditions, increasing access to resources amongst other factors that strongly influence health outcomes. While health equity and health disparities are closely related to each other, health equity is a human rights principle. Therefore, a decrease of disparities in health and equitable access to key social determinants of health are valuable means by which to measure equity.[v]

Durham County Population by Race, 2012-2016

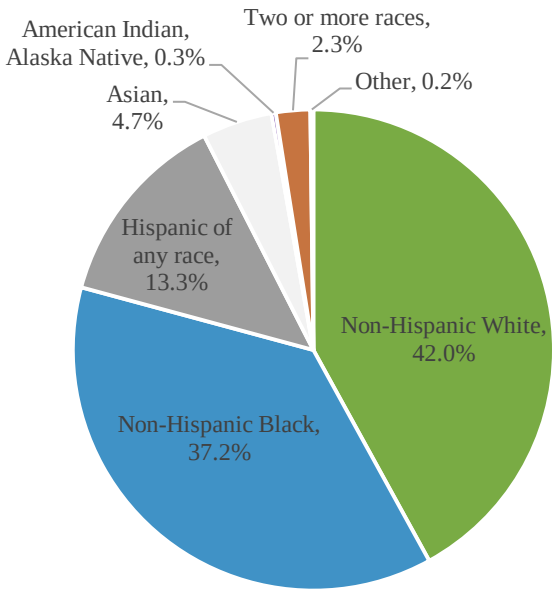

Figure 3.03(a): Durham County Population by Race, 2012-2016[vi]

Durham is a diverse county rich with ethnic and racial diversity. In fact, the *majority* of Durham is comprised of racial minorities. See *Figure 3.03a* for more information. Yet despite this diversity, ethnic and racial disparities in health exist.

Maternal-child health is often a good indicator of a population's health. Younger maternal age has been linked to many poor health outcomes for children such as low birth weight, preterm birth, and failure to complete secondary school.[vii] Racial discrimination creates an additional risk factor for marginalized groups. Poverty, trouble doing well in school, and access to alcohol and drugs heighten the risk for multiple problems for young women. Some of these problems include teenage pregnancy, substance use, and delinquent behavior. These outcomes have ripple effects as they may influence the growth and development of the unborn baby. Further downstream, these outcomes may ultimately influence life choices and opportunities.

Some of these trends in maternal-child health are observable in Durham County. The greatest disparity in birth weight is seen among Black or African American newborns in Durham. These serve as examples of disparities in health early in a life cycle that may have everlasting implications.

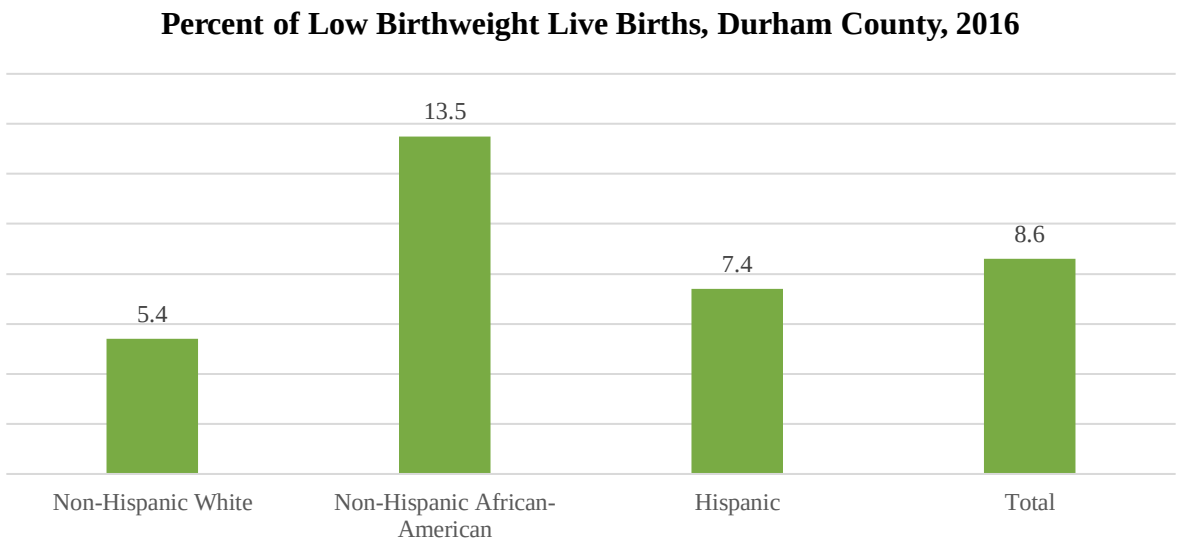

Figure 3.03(c): Percent of Low Birthweight Live Births, Durham County, 2016[viii]

The number of age-adjusted deaths per 100,000 population is higher among non-Hispanic African Americans compared to Whites, Hispanics and the overall population. (Figure 3.03d).

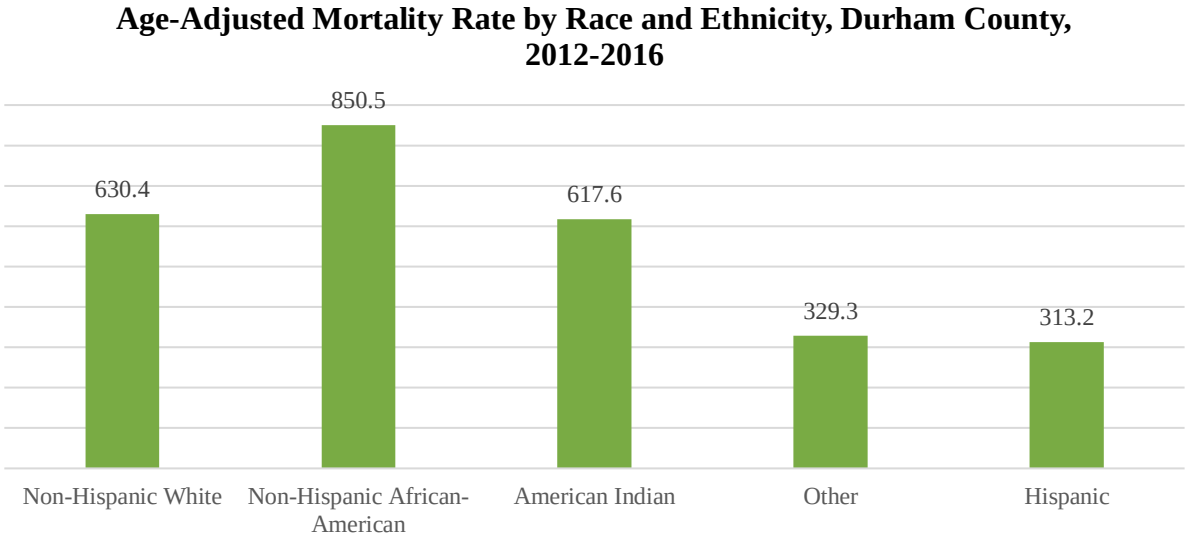

Figure 3.03(d): Age-Adjusted Mortality Rate by Race and Ethnicity, Durham County, 2012-2016[ix]

Cancer and heart disease are leading causes of death among many groups nationwide. A similar trend is seen in Durham: cancer is the leading cause of death and heart disease is the second leading cause of death among non-Hispanic Whites and non-Hispanic Blacks, while diabetes makes the top 5 list for Hispanics (Table 3.03a). Many of the top five killers of Whites in Durham are chronic diseases which evolve over time and are the result of the complex interplay between genetics, the environment, and lifestyle choices. However, for Blacks and Hispanics, the leading causes of death

are also comprised of *preventable* causes such as unintentional injury, motor vehicle accidents, and homicide (Table 3.03a).

Leading Causes of Death in Durham County among non-Hispanic White and African Americans, 2012-2016

Leading Cause of Death	Non-Hispanic White	Non- Hispanic African American
1	Diseases of the heart	Cancer
2	Cancer	Heart disease
3	Unintentional injuries	Cerebrovascular diseases
4	Cerebrovascular diseases	Nephritis
5	Chronic lower respiratory diseases	Unintentional Injuries

Table 3.03a: Leading causes of Death in Durham County among non-Hispanic White and African-Americans, 2012-2016[x]

Recommended Strategies

It is imperative that any initiative seeking to address health disparities is responsive to the historical and socioeconomic environment that has produced these outcomes. As a general principle, to be effective, public health interventions should apply a racial equity lens to targeted, critical points in the lifecycle. For Durham, targeting the two extremes of the life cycle through a racial equity lens may be helpful. Common public health initiatives to reduce smoking, drunk driving, sexually transmitted infections, obesity and environmental exposures will always be important and should also continue.

It is important to keep women and children healthy early on. Otherwise, children could be left playing "catch-up" for the rest of their lives. Additionally, working to lower the rate of unintended and/or teen pregnancies among minority women may lead to improved newborn outcomes. Centering Pregnancy is an evidence-based model for prenatal care in which pregnant women meet in groups throughout their pregnancy to receive prenatal healthcare. The Centering model has been shown to increase breastfeeding, decrease low birth weight and preterm babies, and promote well-being throughout pregnancy and beyond.[xi] This or similar models should be implemented to improve the lives of women and their children.

At the other end of the spectrum, resources aimed at causes of preventable death are particularly helpful. Education about safety and efforts aimed at reducing violence and crime, may help decrease preventable causes of death among people of color.

Improved health equity will involve the action of removing obstacles to health and increasing opportunities for everyone to be healthier, focusing especially on those who face the greatest barriers to optimal health. Including marginalized groups in identifying and addressing their health

equity goals, specific to their lived experiences and exposure to racial discrimination, will be important to this process. It is hard to capture data about the prevalence and impact of structural racism, as it is hard to quantify within traditional scientific measurements. However, moving forward, data collection about perceived racism (as this influences mental health) and overt cases of prejudice, will be necessary to reverse and eliminate racial/ ethnic health disparities. Encouraging all sectors of the Partnership for a Healthy Durham to attend sponsored anti-racism trainings by the Racial Equity Institute, lays a foundation for approaching solutions with a "racial equity lens." Interventions aimed at dismantling structural racism, which may seem unrelated to health at first glance, will improve the health and overall lives of People of Color in Durham County.

Current Initiatives & Activities

- ***Durham Connects Nurse Home Visits***
  www.durhamconnects.org/
- ***Durham County Department of Public Health***
  http://dcopublichealth.org
- ***Organizing Against Racism (OAR)***
  www.oaralliance.org/
- ***Together for Resilient Youth (TRY)***
  www.durhamtry.org/
- ***Racial Equity Institute (REI)***
  www.racialequityinstitute.org
- ***Village of Wisdom***
  www.villageofwisdom.org/

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NC Child
The Voice for North Carolina's Children

February 2018

Giving Birth in North Carolina Is Still a Risky Business

Promoting Women's Health to Improve Birth Outcomes

Whitney Tucker | *Research Director, whitney@ncchild.org*
Latoya Beatty | *2017-18 Research and Policy Fellow, latoya@ncchild.org*

Introduction

Safe pregnancies and healthy babies are inextricably tied to the pre- and post-conception health of mothers. Data show that maternal health factors are a leading contributor to birth outcomes such as fetal viability and infant mortality.[1] Unfortunately in North Carolina, barriers to affordable and consistent healthcare for women pre- and post-conception contribute to stubbornly high rates of fetal and infant death each year, despite advances in clinical care.

In 2016, NC Child published a brief outlining the potential positive benefits of expanded health care coverage on infant mortality. This brief builds upon that work, exploring the similar potential of expanded women's health insurance access and utilization to affect fetal outcomes as a result of improved maternal health.

Fetal and infant mortality occur at similar rates in North Carolina[2] and are thought to be driven by similar causes with roots in maternal well-being. Because babies born to healthy mothers are most likely to survive, health insurance that protects and promotes maternal health can move the needle on these birth outcomes. New research has shown substantial improvement in infant mortality in states that have broadened Medicaid eligibility under the Affordable Care Act. By expanding health care access and utilization for women of childbearing age, the state can influence both fetal and infant mortality simultaneously, effectively doubling the positive impact for North Carolina families.

This brief will present policy options to reach that potential and help ensure that every child in North Carolina has a strong start in life.

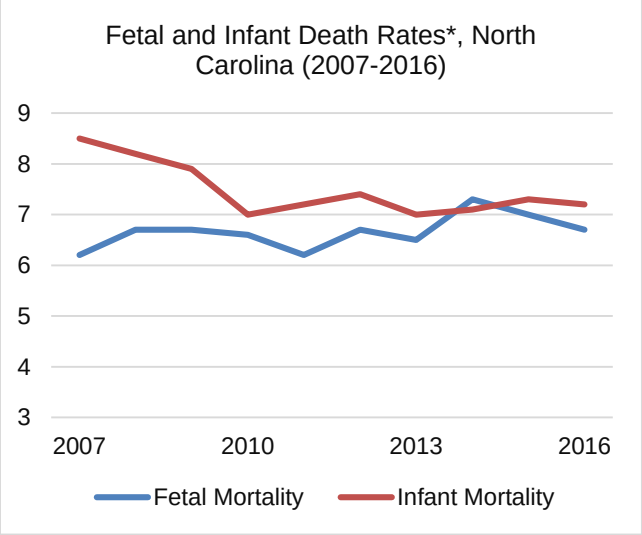
Fetal and Infant Mortality Rates Remain High in North Carolina

North Carolina lags behind other states in the reduction of infant mortality, ranking 39th in the nation in 2016.[3] While this outcome has prompted statewide work to promote infant health, less attention has been given to the related experience of fetal mortality. In 2016, nearly as many fetal deaths (818) as infant deaths (873) occurred in North Carolina, adding a new dimension to current prevention research efforts.

Fetal mortality is reported as death prior to complete expulsion or extraction from a

mother's womb and occurring at 20 or more weeks of gestation. In 2016, the fetal mortality rate was 6.7 per every 1,000 live births plus fetal deaths in North Carolina.

The Centers for Disease Control report that fetal mortality rates in the U.S. stagnated between 2006 and 2012, despite a significant decline in infant mortality during the same period. North Carolina mirrors the nation in this regard. The number of fetal deaths in the state has ranged from 753 to 895 per year over the past decade, and the fetal mortality rate fluctuated very little in the state between 2007 and 2013. The rate rose sharply between 2014 and 2015 and fell in 2016, but has yet to decline past 2007 levels despite increased statewide interest and investment in infant and maternal health.



SOURCE: NC Department of Health and Human Services State Center for Health Statistics, Division of Public Health. North Carolina Selected Vital Statistics: 2007-2016. *Infant mortality rate per 1,000 live births; fetal mortality rate per 1,000 live births + fetal deaths.

In 2016, there were 818 reported fetal deaths statewide. Counties exhibiting the highest rates of fetal death between 2012 and 2016 (see Appendix 1) were: Anson County (17.4), Washington County (15.7), and Jones County (14.9). These outcomes contrast sharply with counties exhibiting the lowest rates over the same period: Camden County (0), Ashe County (2.6), and Dare County (2.9).

In addition to geographic disparities, stark contrasts in fetal mortality persist by race and ethnicity. Between 2012 and 2016, the rate of fetal deaths for Black (non-Hispanic) mothers was more than twice the rate for Latina/Hispanic and White (non-Hispanic) mothers.

Fetal Death Rate* by Race/Ethnicity, North Carolina (2016, 2012-2016)

		2016		2012-2016
		N	Rate	Rate
Total		818	6.7	6.9
Race / Ethnicity				
	White, Non-Hispanic	357	5.3	5.2
	African American, Non-Hispanic	335	11.7	12.0
	Latino/Hispanic	88	4.8	5.4

SOURCE: NC Department of Health and Human Services State Center for Health Statistics, Division of Public Health. North Carolina Reported Pregnancies-2016. *Rate per 1,000 live births + fetal deaths.

Maternal Health Drives Birth Outcomes

Fetal and infant health is directly tied to maternal health status preconception and during the gestational period. Nearly half of the primary causes of infant mortality in North Carolina (e.g. preterm labor, congenital malformations, and complications of pregnancy, labor, and delivery) have been linked to maternal risk factors occurring prior to pregnancy.[4] Similarly, while direct causes of fetal mortality are less understood in most cases, studies have also found maternal health conditions to be leading risk factors for fetal death.[5]

In North Carolina, conditions that increase the risk of negative birth outcomes are widespread among women of childbearing age:

- More than half (58%) are overweight or obese;
- Six percent have been diagnosed with diabetes;
- More than three out of four (78%) report not consuming recommended levels of fruits and vegetables;
- Nearly 10 percent (9.8%) have asthma;
- Approximately 16 percent have been diagnosed with hypertension;
- Twelve percent report binge drinking; and
- One in five are current smokers.[6]

These risk factors are all strongly influenced by the social, economic, and environmental conditions that impact women before, during, and after pregnancy. Negative social determinants of health, such as high poverty and the experience of racial discrimination, can cause and exacerbate health conditions that lead to poor birth outcomes. These determinants are suspected to contribute to ongoing disparities in fetal and infant mortality due to their impact on maternal health behavior and access to care.[7]

Lack of Access to Health Care Increases Risk of Poor Maternal Health

Access to health care can mediate risk factors in a woman's life and help to ensure a healthy pregnancy and delivery.[8] Because many factors have the potential to influence fetal well-being, it is important for women of childbearing age to remain healthy even before becoming pregnant. Access to care is critical in achieving this goal of overall health, as early recognition of health concerns and risk behaviors can prevent severe pregnancy-related complications. **Unfortunately, one in every five women of reproductive age in North Carolina is uninsured, leaving both maternal and fetal health at high risk during a pregnancy.**

Uninsured women are less likely than their insured peers to receive treatment or counseling for a variety of pregnancy risk factors, including mental health concerns and the physical health conditions referenced earlier in this report.[9] Uninsured adults are twice as likely as their insured peers to forgo seeing a doctor when they are sick, and are less likely to receive services to help them manage chronic disease or major health conditions.[10] Lack of health care coverage has been widely associated with poor health status and decreased use of prenatal care for women. Although little research has been done on the direct link between maternal health insurance coverage status and fetal mortality, extensive studies have associated the related outcome of infant mortality to insurance coverage for expectant mothers.[11]

The primary causes of infant mortality – premature birth and low birthweight – are known to be influenced by gaps in insurance coverage and limited access to quality prenatal care. Newborns of mothers with no prenatal care are three times more likely to have a low birth weight and five times more likely to die than children born to mothers who do receive prenatal care. Access to prenatal services is particularly vital in the first trimester of pregnancy. Unfortunately in 2016, nearly one-third (31 percent) of women in North Carolina did not receive prenatal care during this critical period.[12]

Cost is a major barrier for many women despite the health risks of forgoing care. Nearly 40 percent of mothers nationally report that they delayed prenatal care because they lacked the money or insurance to cover their costs.[13]

North Carolina Can Ensure More Women Receive Health Coverage

Health insurance is a fundamental intervention to address the health causes of fetal mortality. A healthy pregnancy begins before conception, and establishing primary care during childbearing years can help women to maintain well-being, eventually leading to healthier pregnancies with fewer complications. In addition, having an established medical home can aid women in acquiring the skilled care they need during the postpartum period to regain full health and ensure the ability to meet the needs of a new baby.

Medicaid is a particularly vital source of health coverage for pregnant women that could be strengthened to improve outcomes in North Carolina. Currently, the Medicaid for Pregnant Women program is available to all pregnant women under 196 percent of the Federal Poverty Line (FPL) with guidelines including coverage for prenatal care and delivery as well as 60 days of postpartum support. Nationally, pregnancy-related services account for the largest share of the program's hospital charges.[14] In North Carolina, Medicaid covers more than half (54 percent) of all births.[15]

While Medicaid for Pregnant Women is a critical program, it is insufficient in providing all of the preconception and early pregnancy coverage women need to promote healthy pregnancies. As detailed earlier in this report, women need health insurance prior to becoming pregnant to address chronic health conditions, promote a healthy lifestyle, and mitigate risk factors.

The Affordable Care Act (ACA) passed in 2010 designated funding to allow states to expand Medicaid coverage to all adults up to 133 percent FPL ($16,146/year for a single adult in 2018). Because North Carolina has not yet expanded income eligibility for Medicaid under the ACA provisions, many women of childbearing age fall in the "coverage gap," earning too much to qualify for Medicaid and too little to afford private health insurance (see Appendix 3).

INSURANCE EXPANSION LINKED TO DECLINE IN INFANT MORTALITY

A recent analysis published in the American Journal of Public Health found that infant mortality had the greatest decline in states that expanded access to insurance coverage through Medicaid than in those that did not. The decline in the study was greatest among Black (non-Hispanic) infants, a population highly vulnerable to negative birth outcomes in North Carolina.

SOURCE: Bhatt, C. B., & Beck-Sagué, C. M. (2018). Medicaid Expansion and Infant Mortality in the United States. *American Journal of Public Health*, (0), e1-e3.

More than 20 percent of all women of reproductive age in North Carolina earn too little (<100% FPL) to afford coverage in the Marketplace, and only a small percentage qualify for Medicaid. Among all nonelderly, uninsured adult women in the state, four in every 10 (43 percent) fall in the coverage gap, with no affordable options for obtaining health insurance.[16]

RECOMMENDATION

To improve the preconception health of mothers and to address the persistent problem fetal mortality, North Carolina policymakers should take advantage of available federal funding to expand health coverage to all adults under 133 percent FPL.

North Carolina has two primary options to expand coverage: it can extend eligibility for

the traditional Medicaid program or it can create a state-specific program to provide affordable care to individuals up to 133 percent FPL. The North Carolina General Assembly is currently considering a proposal to close the coverage gap. The bill, HB662, directs the North Carolina Department of Health and Human Services (NC DHHS) to create the Carolina Cares program, which would expand care to all individuals earning less than 133 percent FPL.

The proposal currently includes work requirements for beneficiaries (with some exceptions) and a premium of two percent of household income.

Work requirements would likely prevent some future mothers from accessing medical care. While most of those who would gain coverage under the Carolina Cares proposal are already working, a work requirement would add a level of bureaucracy to the program that will act as a barrier to insurance for eligible individuals.

For potential Carolina Cares recipients who are unemployed, health problems are often the reason for their unemployment. According to a recent study of the Medicaid expansion population in Michigan, approximately 75 percent of recipients who were out of work suffered from a chronic health condition, such as cancer, asthma, or diabetes. The Carolina Cares legislation exempts “individuals determined to be medically frail,” but the definition of “medically frail” and the determination process remains unclear. Research has also shown that work requirements do not improve employment outcomes, and in some cases, can have the unintended consequence of being a barrier to employment. Medicaid expansion enrollees in Ohio and Michigan reported access to Medicaid made seeking and retaining employment easier.

Premiums would also mitigate some of the benefit of expanded coverage. Research shows that imposing premiums on very low-income populations only reduces access to coverage. Premiums cause individuals to lose health care coverage, cause delays in care, and ultimately create more costly care.

Despite these shortcomings, this legislation has potential to provide currently unavailable health care options for women of childbearing age at high risk of experiencing fetal or infant mortality.

Conclusion

Fetal and maternal health begins far ahead of conception. Women are more likely to give birth to healthy babies when they are healthy themselves, and North Carolina should not miss the current opportunity to promote safer births statewide. Racial disparities in fetal mortality rates will persist if the underlying impacts of social determinants on health care access are not addressed. Closing the Medicaid coverage gap is a promising strategy to help level the playing field for childbearing women and promote women’s health across the state. Adopting this policy has significant potential to decrease fetal mortality rates and ensure a strong start for every child in North Carolina.

Appendix 1: Fetal and Infant Death Rates* by County, North Carolina (2012-2016)

County	Fetal Death Rate	Infant Death Rate
Alamance	7.2	8.8
Alexander	5.0	6.2
Alleghany	10.3	2.1
Anson	17.4	13.7
Ashe	2.6	7.0
Avery	11.2	8.5
Beaufort	10.1	11.9
Bertie	14.4	15.8
Bladen	10.0	10.7
Brunswick	6.0	6.4
Buncombe	6.4	6.4
Burke	6.3	6.4
Cabarrus	7.8	5.7
Caldwell	5.4	8.2
Camden	0	0
Carteret	5.0	7.3
Caswell	6.8	3.9
Catawba	6.4	6.0
Chatham	4.5	10.9
Cherokee	8.0	8.1
Chowan	8.3	7.0
Clay	4.6	4.6
Cleveland	8.7	8.8
Columbus	9.7	9.4
Craven	4.4	6.9
Cumberland	8.7	9.3
Currituck	4.0	4.8
Dare	2.9	4.0
Davidson	6.4	8.1
Davie	3.6	5.1
Duplin	7.7	8.3
Durham	7.1	7.0
Edgecombe	13.0	10.3
Forsyth	6.4	8.3
Franklin	7.5	8.5
Gaston	5.5	7.8
Gates	9.1	5.5
Graham	4.6	2.3
Granville	6.8	8.2
Greene	11.3	6.7
Guilford	7.1	8.1
Halifax	9.7	10.8
Harnett	6.9	8.2
Haywood	5.9	8.4
Henderson	6.8	5.6
Hertford	7.7	19.0
Hoke	4.3	5.6
Hyde	4.3	8.6
Iredell	6.2	7.9
Jackson	5.7	7.8
Johnston	4.5	6.6
Jones	14.9	2.2
Lee	6.8	7.4
Lenoir	7.6	7.6
Lincoln	3.8	4.9
McDowell	7.8	7.0
Macon	4.6	7.0
Madison	3.9	7.9
Martin	13.8	5.8
Mecklenburg	6.8	6.2
Mitchell	8.2	1.4
Montgomery	5.1	9.6
Moore	7.3	4.8
Nash	9.9	8.6
New Hanover	4.8	4.2
Northampton	12.8	10.8
Onslow	5.5	7.2
Orange	5.6	4.8
Pamlico	11.0	13.3
Pasquotank	6.4	6.1
Pender	6.2	7.8
Perquimans	6.3	3.2
Person	13.5	7.4
Pitt	9.2	11.4
Polk	8.3	5.6
Randolph	8.9	7.6
Richmond	7.9	9.1
Robeson	9.1	10.7
Rockingham	8.6	10.0
Rowan	7.5	7.5
Rutherford	6.5	6.9
Sampson	7.8	5.9
Scotland	9.3	9.8
Stanly	7.1	7.2
Stokes	5.0	6.1
Surry	5.6	5.6
Swain	8.0	7.1
Transylvania	5.1	5.2
Tyrrell	4.7	9.4
Union	7.1	5.3
Vance	5.7	7.5
Wake	5.8	5.6
Warren	6.5	10.9
Washington	15.7	8.0
Watauga	6.1	3.9
Wayne	8.0	6.4
Wilkes	5.8	9.0
Wilson	9.2	9.5
Yadkin	5.7	7.8
Yancey	7.1	3.6

SOURCE: NC Department of Health and Human Services State Center for Health Statistics, Division of Public Health. Vital Statistics: Infant Mortality Rates, Fetal Mortality Rates. Available from http://www.schs.state.nc.us/data/vital/volume1/2016/

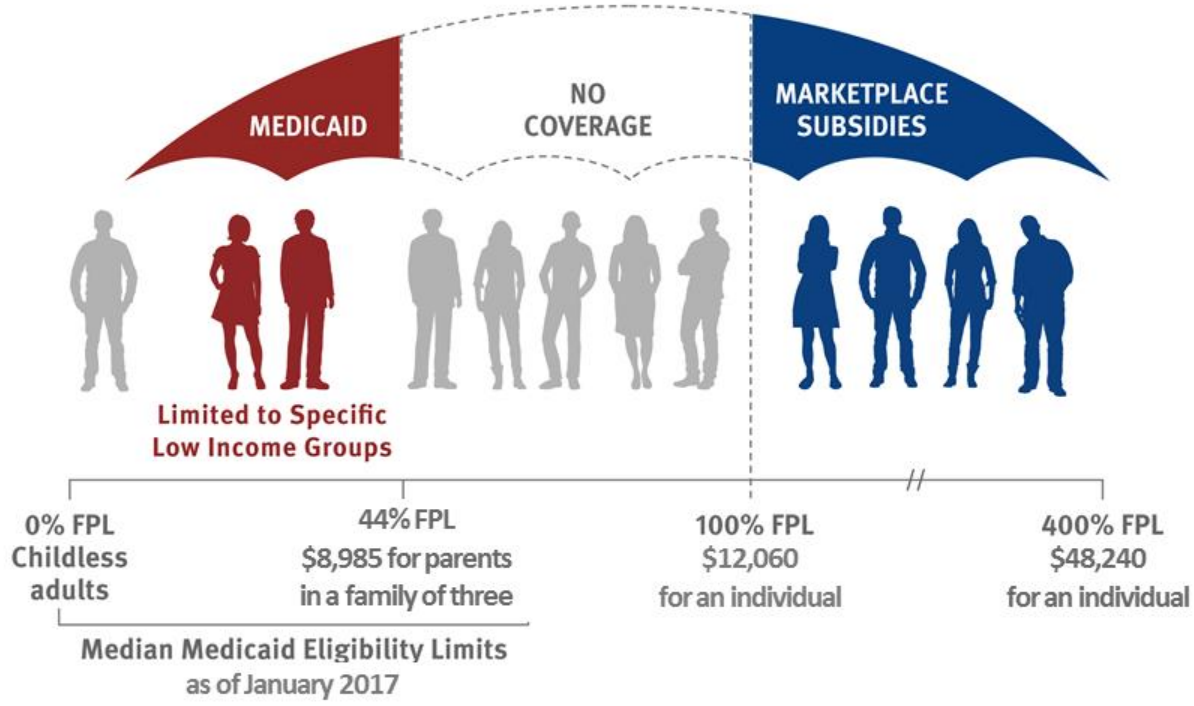
*Fetal mortality rate per 1,000 live births + fetal deaths; infant mortality rate per 1,000 live births

Appendix 2: Health Insurance Coverage by County, Women Ages 18-44, North Carolina (2016)

County	Percentage Uninsured
Alamance	24.7%
Alexander	17.7%
Alleghany	30.0%
Anson	22.5%
Ashe	24.5%
Avery	27.7%
Beaufort	18.5%
Bertie	20.7%
Bladen	27.4%
Brunswick	28.3%
Buncombe	21.7%
Burke	22.2%
Cabarrus	16.3%
Caldwell	26.7%
Camden	17.6%
Carteret	22.4%
Caswell	21.8%
Catawba	20.8%
Chatham	23.6%
Cherokee	37.9%
Chowan	28.2%
Clay	40.1%
Cleveland	22.6%
Columbus	26.6%
Craven	21.8%
Cumberland	17.8%
Currituck	19.3%
Dare	30.9%
Davidson	19.7%
Davie	19.5%
Duplin	36.9%
Durham	18.0%
Edgecombe	22.5%
Forsyth	20.5%
Franklin	22.0%
Gaston	20.9%
Gates	15.8%
Graham	31.3%
Granville	18.7%
Greene	25.2%
Guilford	19.0%
Halifax	19.1%
Harnett	19.1%
Haywood	27.3%
Henderson	23.7%
Hertford	18.9%
Hoke	20.5%
Hyde	31.8%
Iredell	21.4%
Jackson	14.9%
Johnston	22.9%
Jones	29.0%
Lee	24.7%
Lenoir	26.0%
Lincoln	21.0%
McDowell	23.6%
Macon	34.5%
Madison	14.8%
Martin	26.8%
Mecklenburg	18.8%
Mitchell	20.5%
Montgomery	29.6%
Moore	17.4%
Nash	22.9%
New Hanover	17.6%
Northampton	28.5%
Onslow	15.3%
Orange	10.4%
Pamlico	33.9%
Pasquotank	22.9%
Pender	24.8%
Perquimans	30.7%
Person	17.2%
Pitt	18.1%
Polk	25.7%
Randolph	24.5%
Richmond	24.4%
Robeson	26.6%
Rockingham	21.4%
Rowan	22.9%
Rutherford	23.4%
Sampson	28.7%
Scotland	22.6%
Stanly	22.3%
Stokes	23.4%
Surry	25.6%
Swain	31.2%
Transylvania	36.8%
Tyrrell	46.6%
Union	17.5%
Vance	22.0%
Wake	14.4%
Warren	26.7%
Washington	28.3%
Watauga	12.0%
Wayne	25.5%
Wilkes	21.0%
Wilson	25.2%
Yadkin	26.6%
Yancey	26.8%

SOURCE: United States Census Bureau, American Fact Finder, 2012-2016 American Community Survey 5-year Estimates. Available from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_B27001&prodType=table

Appendix 3: Visualizing the Health Insurance Coverage Gap



SOURCE: Garfield, R. & Damico, A. (2017). Kaiser Family Foundation. Gap in Coverage for Adults in States that Do Not Expand Medicaid under the ACA. Available at https://www.kff.org/uninsured/issue-brief/the-coverage-gap-uninsured-poor-adults-in-states-that-do-not-expand-medicaid/

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