Maternal and Child Health: Health Focus Area 5

Excerpted from Component A of *The Rhode Island State Health Improvement Plan*

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Maternal Child Health: Health Focus Area 5

Definition

Maternal and Child Health (MCH) is an umbrella term that covers a range of topics concerning the well-being of mothers, children, and their families. This *Health Assessment Report* focuses on a few selected measures, organized by the subcategories of pregnant mothers, infants, and children.

The metrics in this *Health Assessment Report* were selected based on priorities identified in other MCH-related state reports including: The *Maternal and Child Health (MCH) Title V Plan*; the *Children's Cabinet Strategic Plan*; and the *Rhode Island Department of Health (RIDOH) Infant Mortality Work Plan*. When possible, data that were already analyzed for those reports are reflected in this Report.

Pregnant Mothers

This sub-section takes an initial look at the health of pregnant mothers by examining rates of unintended pregnancy, teen births, delayed prenatal care, and pregnant women lacking dental care.

Definitions

Unintended Pregnancy

Unintended pregnancies are defined as pregnancies that are either mistimed or unwanted at the time of conception. Mistimed pregnancies are when the pregnancy occurred earlier than it was intended. Unwanted pregnancies are when the parents did not desire children or additional children.[1] Data on unintended pregnancy comes from the Pregnancy Risk Assessment Monitoring System (PRAMS) survey qustion which asks: "When you got pregnant with your baby, were you trying to get pregnant?"[2] Unintended pregnancies can serve as an indicator of the fertility of a population and the level of a community's unmet contraceptive and family planning resources.

Teen Births

Teen births are defined as births to women who are younger than age 20. Data on teen births come from Rhode Island birth records noting the mother's age at the time of the birth of her baby. Whether teen births are intended or not, they often create a negative ripple effect, impacting the health, economic stability, and educational attainment of both parents and their children. Babies born to teenagers are more likely to struggle academically, be incarcerated, and become teen parents themselves.[3]

Delayed Prenatal Care

When a birth is unintended or unexpected, pregnant mothers are less likely to initiate the prenatal care they need, in some cases because they are unaware of the pregnancy in its early stages. Data on delayed prenatal care come from Rhode Island birth records. After the birth of their babies, all Rhode Island mothers are asked: "how many weeks pregnant they were when they first received prenatal care".[4] Delayed prenatal care is technically defined as any time a pregnant woman starts receiving pregnancy-related care in her second or third trimester or not at all.

Early prenatal care allows health professionals to screen for and provide the healthy supports pregnant women may need including nutritional advice, mental health counseling, smoking cessation, and help leaving violent domestic situations. Prenatal care in the first trimester is also particularly important for pregnant mothers with chronic diseases who might require additional monitoring or treatment. Babies who received delayed prenatal care are at greater risk for a range of poor health outcomes, including low birth weight and death within the first year of life. [5]

Lack of Prenatal Dental Care

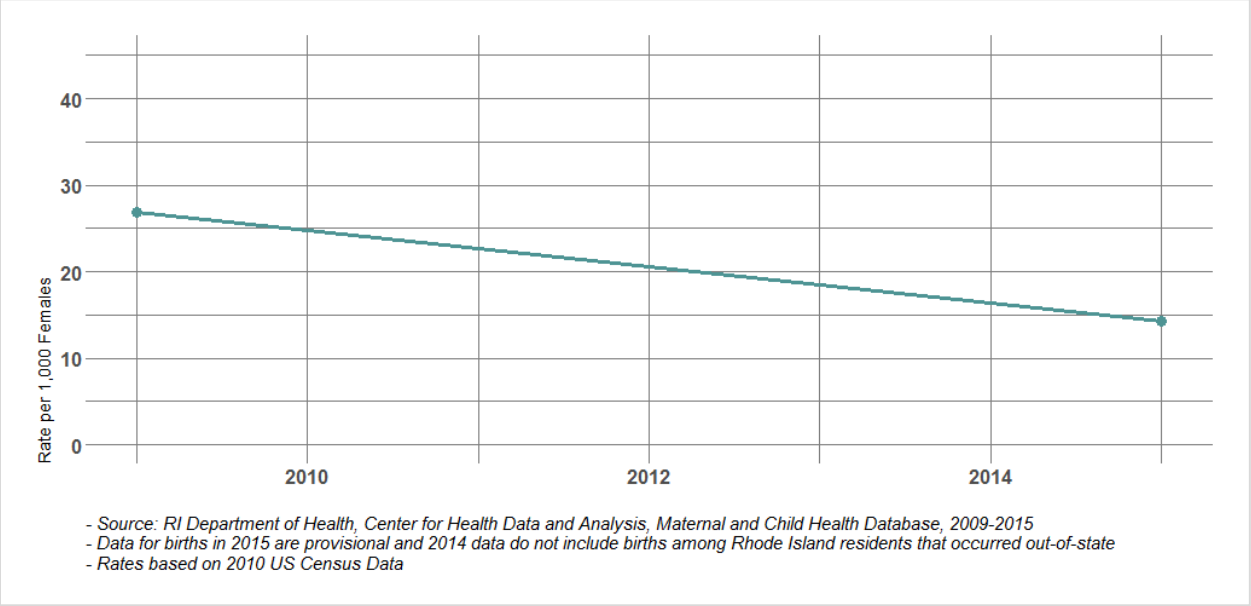
Dental care is also especially important for pregnant women. Changes in a woman's hormones and immune system during pregnancy lead to greater risk of oral health problems. Half of women develop gingivitis during pregnancy, which can lead to more serious health problems. That is why the American Academy of Pediatric Dentistry recommends that all women receive a dental exam during pregnancy.[6] Lack of prenatal dental care comes from responses to several PRAMS survey qustions about the care of pregnant women's teeth during pregnancy including the yes or no responses to: "I went to a dentist or dental clinic about a problem" and "A dental or other healthcare worker talked with me about how to care for my teeth and gums. I had my teeth cleaned by a dentist or dental hygienist."

Prevalence across the Life Span

According to PRAMS data, in 2014, 40.0% of Rhode Island pregnancies were unintended. That rate is lower than the *Healthy People 2020* target rate of 44% (described as a target of 56% *intended* pregnancies).[7] Rates of unintended pregnancies in Rhode Island have been lower than the *Healthy People 2020* target since 2002, when the state first started collecting PRAMS data. In 2011, Rhode Island had the 13th lowest rate of unintended pregnancies in the country. [8]

According to Rhode Island birth records, in 2015, the rate of teen births was 14.3 per 1,000 female adolescents. In keeping with national trends, rates of teen births s in Rhode Island have decreased in recent years, from a rate of 26.9 per 1,000 female adolescents in 2009 to 14.3 per 1,000 female adolescents in 2015.[9] Figure 1 below illustrates the steady decrease in teen births in the past six years.

Figure 1: Rhode Island Teen Birth Rates, 2009 – 2015.



In contrast to teen birth rates, the rate of unintended pregnancies in Rhode Island has remained stable. Since 2004, the rate of unintended pregnancies has hovered around 40%.[10]

Between 2011 and 2015, the overall rate of delayed prenatal care to all pregnant women was 13.5%.[11] These rates vary by whether a mother's pregnancy was intended or not. Between 2009 and 2011, 22% of Rhode Island mothers with unintended pregnancies had delayed or no prenatal care, while only 7.9% mothers with intended pregnancies delayed or skipped prenatal care.[12]

RIDOH analysis of PRAMS data from 2014 found that only 57.8% of women went to a dentist or a dental clinic during their pregnancy.[13] Since then, the state has initiated a series of programs and outreach efforts aimed at increasing dental visits during pregnancy. The State aims to increase the rate of prenatal dental care to 67% by 2020.[14]

At-Risk Populations and Disparities

While the overall rates of teen births in Rhode Island are low, rates are much higher among Rhode Island's minority and urban communities.[15]

- Hispanic/Latina teen birth rates are three times the rate of White teenagers.
- Black/African American teen birth rates are two times the rate of White teenagers.
- The rate of births by teenage mothers in the city of Central Falls is more than triple the state's overall rate.
- The other core cities of Pawtucket, Providence, and Woonsocket also have high rates of teen births.

Race/ethnicity, age, and education were statistically significantly associated with rates of unintended pregnancy. As teen births and unintended pregnancy are closely linked with delayed prenatal care, the populations that are most at-risk for missing healthcare services in the first trimester and/or skipping a visit to the dentists fit a similar profile. Pregnant women who are younger, less educated, lower income, and live in urban areas have higher rates of missing the healthcare services they need during pregnancy.[16]

Maternal and Child Health Spotlight: Infants Born at Highest Risk

Toxic stress associated with poverty, family chaos, maternal depression, and other adverse experiences can have long-term consequences on a baby's healthy development. That is why RIDOH and Rhode Island KIDS COUNT use data to identify "Infants Born at Highest Risk."

These infants are defined as babies who are born to mothers who are low-income, single, do not have a high school diploma, or are younger than age 20.

In 2015, 45% of the babies born in Rhode Island and a majority of the babies born in the core cities of Central Falls, Pawtucket, Providence, and Woonsocket had at least one of these key risk factors. The table below illustrates the presence of these risk factors among mothers in the core cities and in the state overall.

Table 1: Births by Key Maternal Risk Factors, by Four Core Cities and Rhode Island, 2015.

City	Births	% To Mothers without HSD/GED*	% To Single Mothers	% To Mothers Younger than 20	% To Mothers with All Three Risk Factors
Central Falls	300	35	70	12	7
Pawtucket	916	16	60	6	3
Providence	2,471	21	59	8	4
Woonsocket	500	17	64	8	4
RI	10,418	11	45	5	2

*Source: Rhode Island Department of Health, KIDSNET Database, 2015. * High school diploma or graduate equivalency degree*

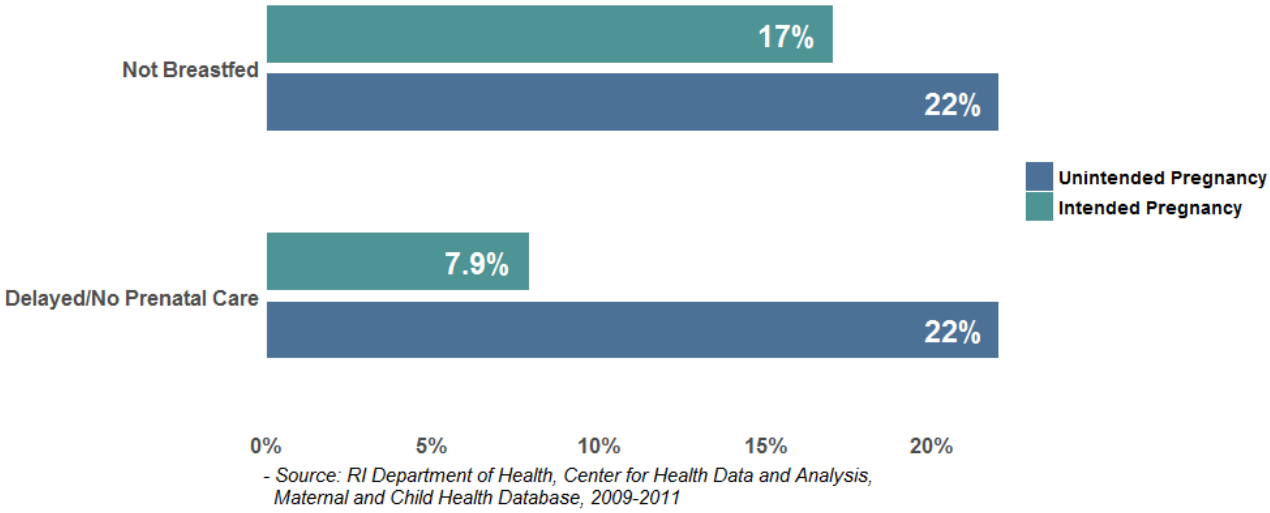
A mother's income level, marital status, educational level, and age play a key role in whether her baby lives in poverty and faces developmental challenges as it grows older.[120] In particular, children are more likely to struggle in school and experience health issues if their mothers have less education.[121] In Rhode Island, between 2011 and 2015, infant mortality rates were higher among mothers with a high school degree or less (6.8 per 1,000 births) when compared to mothers with more education (4.6 per 1,000 births).[122]

Co-Morbidities

Unintended Pregnancies

Unintended pregnancies raise the risk of a range of potential health problems for mothers and their babies. When babies are mistimed or unwanted, mothers are less likely to be physically and emotionally prepared for childbirth.[21] Unintended pregnancies are also associated with a range of risk behaviors including delayed or no prenatal care, smoking during pregnancy, and skipping prenatal vitamins. Unwanted or mistimed births also raise the risk of longer term social, economic and health issues for mothers and their babies.[22]

Figure 2: Comorbidities among Intended and Unintended Pregnancies, 2009-2011



- Source: RI Department of Health, Center for Health Data and Analysis, Maternal and Child Health Database, 2009-2011

Infants

This section examines the health of Rhode Island's infants during birth and the first year of life. The initial health topics for this portion of the report are rates of pre-term births, low birth weight, infant mortality, Cesarian sections (C-sections), and breastfeeding.

Definitions

Preterm Births

Preterm births are any birth that occurs before 37 weeks of gestation. However, the length of the gestation period plays a significant role in a baby's potential health outcomes. Babies born before 32 weeks gestation

are at the highest risk of death, high hospitalization costs, and serious long-term disabilities. So-called "late preterm" infants, born between 34-36 weeks gestation, are at lower risk of severe health issues but can also experience immediate and long-term health complications.[23] Data on preterm births come from Rhode Island birth records on the gestational age of a baby at birth.

The causes of preterm births are not entirely understood, but preterm births have been associated with a range of inter-related risk factors. Mothers with a history of pre-term births, who are carrying more than one fetus, and have abnormalities in their cervix or uterus appear to be at higher risk of having pre-term births. Other health factors associated with preterm births include maternal depression and maternal use of alcohol, tobacco, or other drugs during pregnancy. [24]

Low Birth Weight

Low birth weight often occurs among babies that are born prematurely, but even some infants brought to term are born at a weight that is below a healthy threshold. Babies with low birth weight are defined as those that weigh less than or equal to 2,500 grams at birth—which is equivalent to less than five pounds, eight ounces. Data on low birth weight babies come from Rhode Island birth records on the weight of a baby at birth.

Risk factors associated with low birth weight are similar to those for pre-term babies. The smallest babies—less than three pounds, four ounces—are 100 times more likely to die in their first year of life when compared to babies with a normal birth weight. Potential long-term health issues associated with preterm birth include severe physical and developmental delays.[25]

Infant Mortality

Complications of preterm birth are among the top five causes of infant mortality. Infant mortality is the number of infant deaths that occur per 1,000 live births. Deaths are considered "infant deaths" if the child died before turning one. Data on infant mortality in Rhode Island come from state vital records on infant deaths and births. In addition to low birth weight, birth defects, maternal complications, sudden infant death syndrome (SIDS), and unintentional injuries make up more than half of the causes of infant deaths in the United States.[26]

Cesarean Section

While Cesarean Sections (C-sections) are often medically necessary to protect the mother or her baby, they can also increase the risk of health issues later in the life of the mother. Women with C-sections have significantly higher rates of Intensive Care Unit (ICU) admissions, unplanned hysterectomies, and ruptured uteruses than women who deliver their babies through vaginal birth.[27] Data on caesarian sections come from Rhode Island birth records.

Breastfeeding

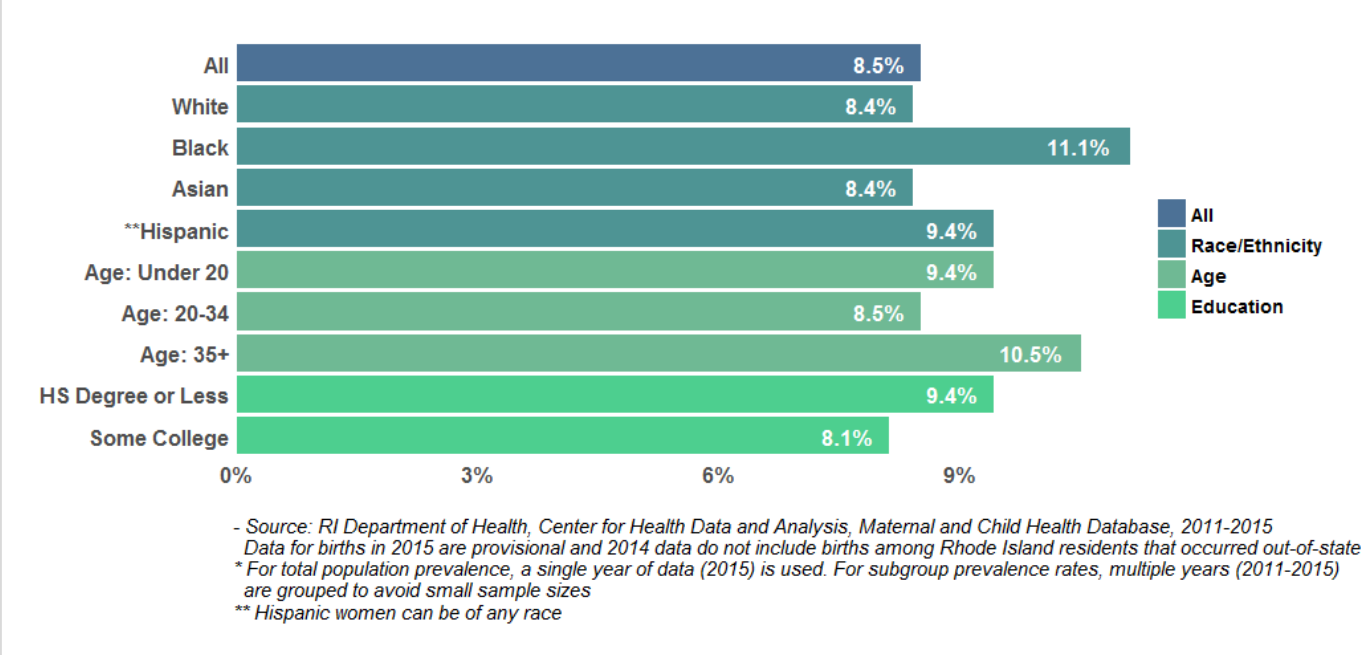
Breast milk is the ideal source of nutrition for infants in their first year of life. Experts recommend that mothers exclusively breastfeed their babies until the age of six months, breastfeed alongside solid foods until their babies turn one, and continue to breastfeed as long as both the baby and the mother want to continue.[28] Breastfeeding is associated with reduced risks of childhood obesity, type 1 and type 2 diabetes, and sudden infant death syndrome (SIDS), among other health issues.[29] Breastfeeding also encourages bonding between mothers and babies and is less expensive than purchasing formula.[30] Data on breastfeeding rates is based on responses to the Centers for Disease Control and Prevention (CDC)'s National Immunization Survey (NIS) which asks: "Was [child] ever breastfed or fed breast milk?", "How old was [child's name] when [child's name] completely stopped breastfeeding or being fed breast milk?" and "How old was [child's name] when (he/she) was first fed formula?"[31]

Prevalence across the Life Span

Preterm Births

According to Rhode Island birth records, in 2015, 8.5% of Rhode Island births occurred at least three weeks before their due date. This rate is lower than the *Healthy People 2020* target of 11.4% preterm births and has decreased over time (from 11.7% in 2004).[32] Figure 3 provides rates of preterm births by subgroups.

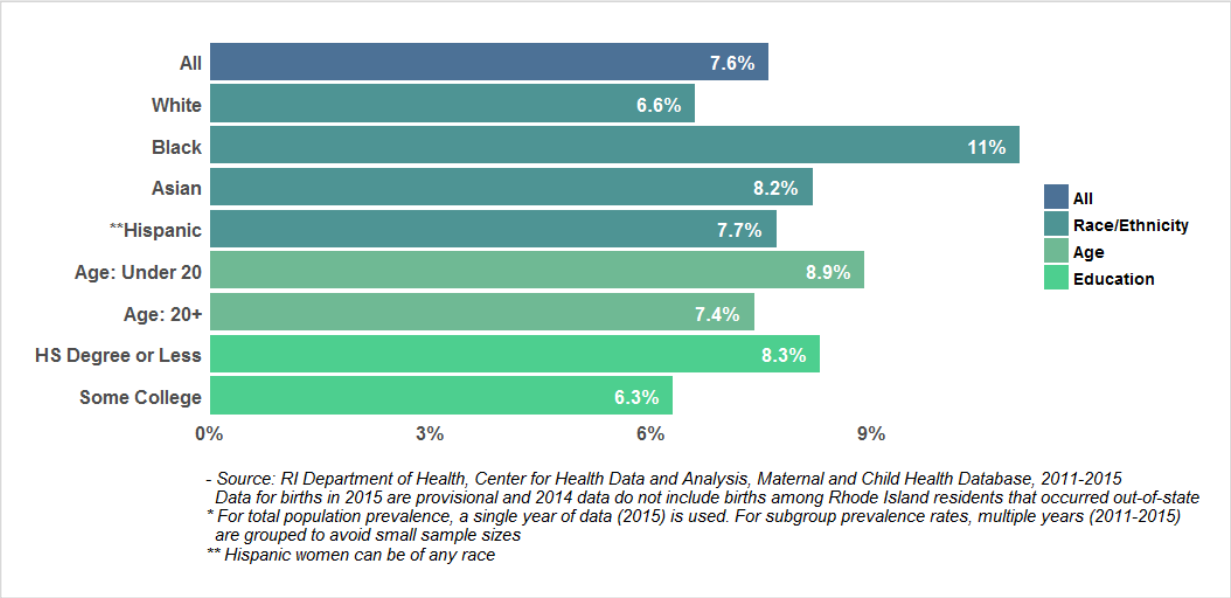
Figure 3: Preterm Births by Mother's Race/Ethnicity, Age, and Education, 2011 - 2015.



Low Birth Weight

In 2015, 7.6% of all Rhode Island babies had a birth weight at or under 2500 grams. That rate is already lower than the *Healthy People 2020* goal of 7.8% of babies with low birth weight.[33] The rate of Rhode Island babies with low birth weight has held fairly stable over the years, from a high of 8.5% in 2003 to 7.6% in 2015.[34] Figure 4 below illustrates differences in low birth weight rates by subgroups.

Figure 4: Low Birth Weight Infants by Mother's Race/Ethnicity, Age, and Education, 2011–2015.

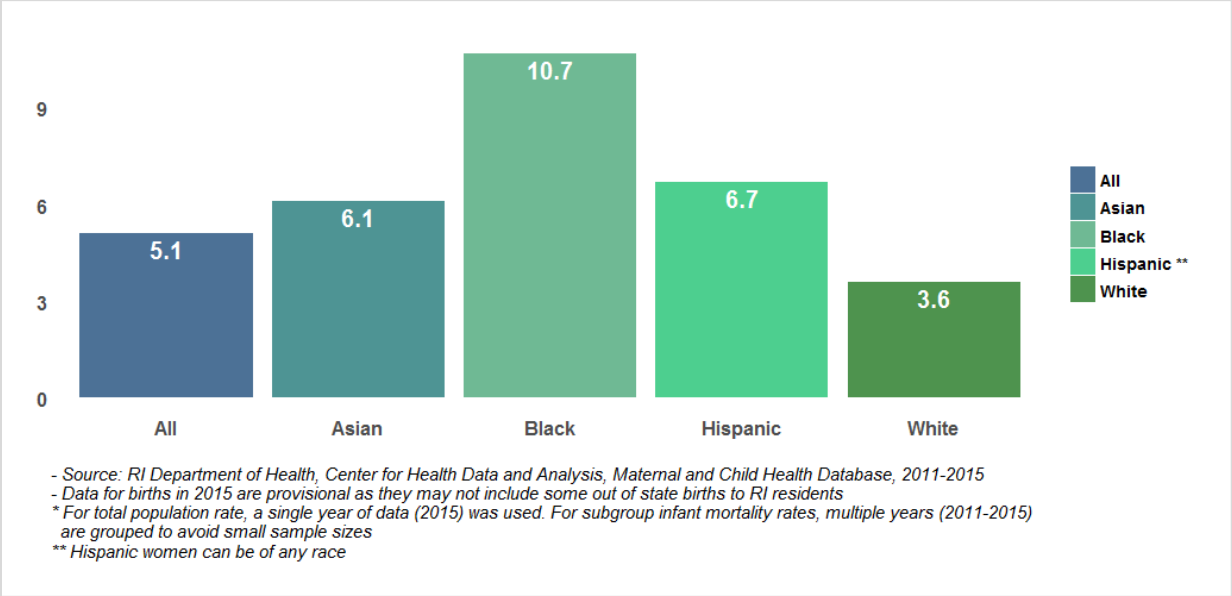


Infant Mortality

In 2015, Rhode Island ranked 13th in the nation and 5th in New England (alongside Massachusetts) for the lowest infant mortality rate.[35] Rates of infant mortality in the state and the nation have followed downward trend for decades, due to increased access to care, medical improvements, and economic growth.[36]

However, extreme disparities exist, especially in Rhode Island's Black/African American community. Between 2011 and 2015, the infant mortality rate among non-Hispanic Black infants in Rhode Island was 10.7 per 1,000 live births, compared to 3.6 for non-Hispanic, White infants and 5.1 for the state overall. Figure 5 below further illustrates how these rates vary by race and ethnicity.

Figure 5: Infant Mortality by Race/Ethnicity, 2011 – 2015.



RIDOH is committed to reducing those disparities and has launched a goal of reaching a Black, non-Hispanic infant mortality rate of 4.3 per 1,000 live births by 2020.[37]

Cesarean Section

Across the country, rates of C-section deliveries have increased by 60% between 1996 and 2015, from 20.7% to 32.0%.[38] These rising rates and the associated negative health outcomes have led to efforts by the American Congress of Obstetricians and Gynecologists, The United States Department of Health and Human Services (DHHS), and the Joint Commission to recommend activities to reduce the rate of "low-risk" C-sections. Low risk C-sections are defined as C-sections that occur when there is only one baby in the womb, the baby has reached full gestational age, and is positioned headfirst.[39]

C-section rates in Rhode Island have also followed an upward trend. First time, or "primary" C-section rates have increased from 18.9% in 2002 to 21.4% in 2013. In 2013, Newport Hospital had the highest primary C-section rate, at 25.2% and South County Hospital had the lowest rate at 16.1%, while the rest of the state's birthing hospitals had very similar primary rates, hovering just below or above 20%. In 2013, the overall rate of C-section births, including repeat C-sections was 31.7%.[40]

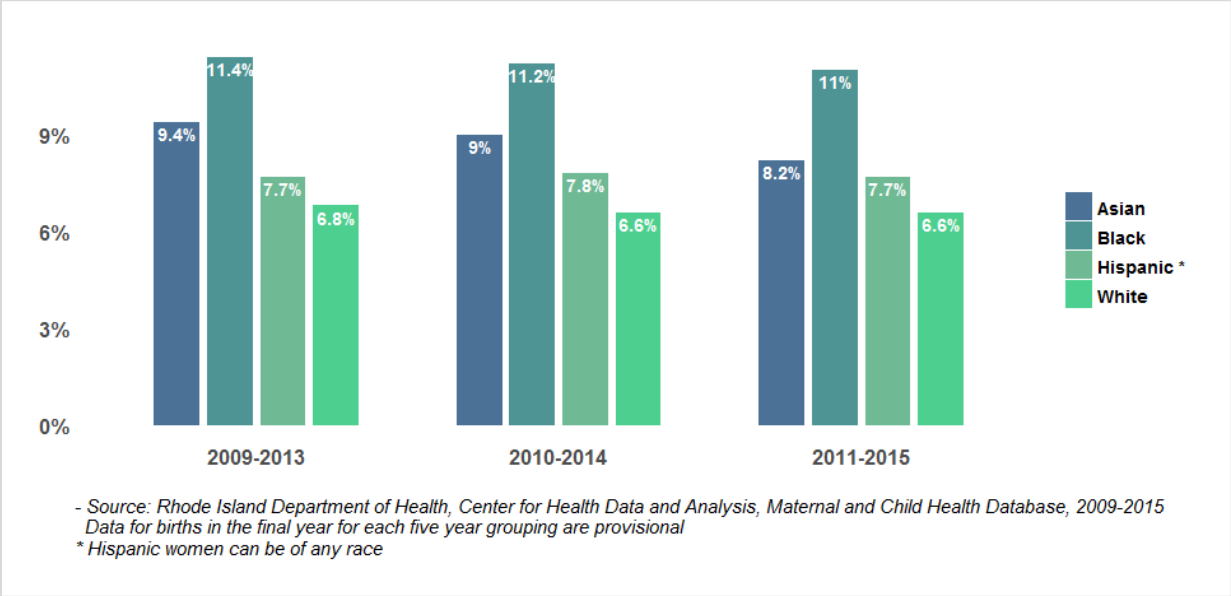
Breastfeeding

Data from CDC's NIS of 2013 births show that in Rhode Island, 81.8% of infants were breastfed at some point during their first year of life and 27.4% were breastfed exclusively for the first six months.[41] Rhode Island has almost met the Healthy People 2020 goal of 81.9% of infants ever breastfeeding and has already exceeded the *Healthy People* 2020 goal of 25.5% breastfeeding exclusively for six months.[42]

At-Risk Populations and Disparities

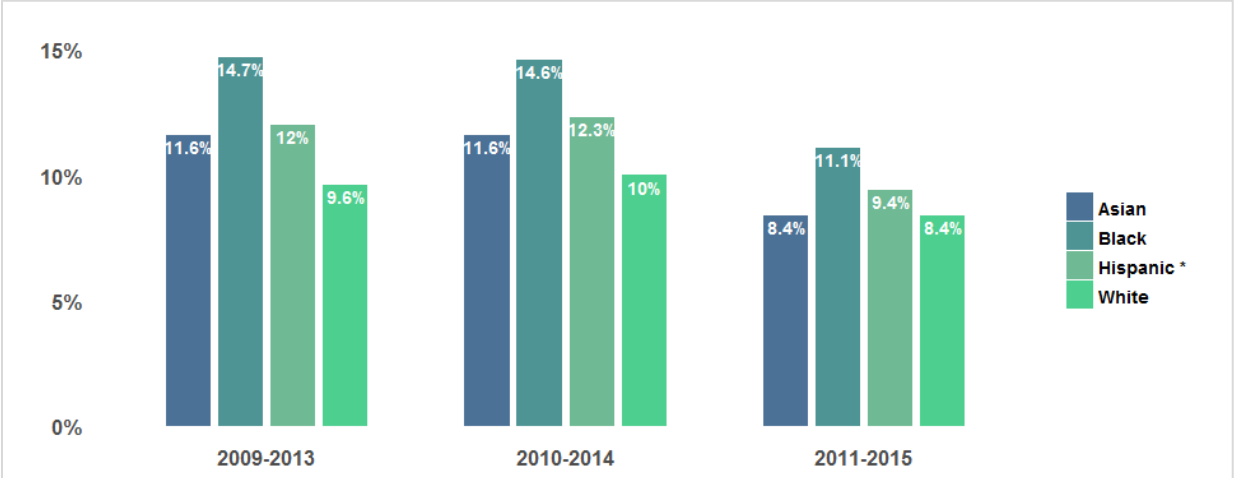
The populations that are most at risk for infant health conditions are similar to those most at risk for maternal health conditions. While much is unknown about the causes of pre-term births, women who are younger, lower-income, less educated and live in urban communities have higher rates of pre-term births and babies with low birth weight. Figures 6 and 7 present differences in low birth weight and preterm births by race, between 2019 and 2015.

Figure 6: Low Birth weight by Race/Ethnicity, 2009-2015.



- *Source: Rhode Island Department of Health, Center for Health Data and Analysis, Maternal and Child Health Database, 2009-2015*
  Data for births in the final year for each five year grouping are provisional
** Hispanic women can be of any race*

Figure 7: Preterm Births by Race/Ethnicity, 2009-2015.



- *Source: Rhode Island Department of Health, Center for Health Data and Analysis, Maternal and Child Health Database, 2009-2015*
  Data for births in the final year for each five year grouping are provisional
** Hispanic women can be of any race*

As mentioned above, non-Hispanic Black infants have higher rates of mortality, and so do babies born to mothers with a high school degree or less. While C-Section rates are fairly uniform across Rhode Island, breastfeeding rates go up as a mother's education, income, and age increase.[43]

Maternal Child Health Spotlight: Fetal Alcohol Spectrum Disorders

Fetal Alcohol Spectrum Disorders (FASDs) are a group of conditions that can occur in a person whose mother consumed alcohol during pregnancy. Effects include irreversible physical, behavioral, and/or learning impairments. Children with FASDs typically have at least one or more of the following characteristics and behaviors:[44]

- Low body weight;
- Hyperactive behavior;
- Difficulty with attention;
- Poor memory;
- Difficulty in school (especially with math);
- Learning disabilities;
- Speech and language delays;
- Intellectual disability or low IQ;
- Poor reasoning and judgment skills;
- Vision or hearing problems; and
- Problems with the heart, kidney, or bones.

Children and adults with FASDs often have a hard time in school, have trouble getting along with others, and as a result of poor judgment and poor impulse control, are often involved with the criminal justice system. The life expectancy at birth of people with Fetal Alcohol Syndrome (FAS), the most severe disorder on the spectrum, is greatly reduced. A recently published NIH study found that life expectancy for individuals with FASDs was 34 years, about 42% of that of the general population. The leading causes of death for people with FASDs were "external causes" (44%), including suicide (15%), accidents (14%), and poisoning by illegal drugs or alcohol (7%).[45]

The tragedy of these results is that FASDs are completely preventable.[46] While in the past, medical professionals warned against consuming alcohol in the third trimester of pregnancy, emerging research has determined that there is no safe time during pregnancy to drink. In addition, any amount or type of alcohol, including wine and beer, used during pregnancy or while trying to get pregnant increases the risk of FASD.[47] Future versions of this Report will explore Rhode Island data related to FASDs.

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