



# Issue Brief

## Preterm Births Among Rhode Island Mothers, 2012-2015

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### Definition and Significance

Preterm birth is defined as delivery earlier than 37 weeks of gestation.<sup>1</sup> Along with low birth weight, it is the second leading cause of infant mortality in the United States. In 2015, 17% of infant deaths in the nation were caused by preterm birth and low birth weight.<sup>2</sup> Preterm birth increases the risk of disabilities and health problems, such as breathing problems, cerebral palsy, developmental delays, hearing problems, feeding difficulties, and vision problems. In 2016, one in 11 infants born in Rhode Island (9.3% of live births) was preterm.<sup>3</sup> Often, the specific cause of preterm birth is unknown, but there are several known characteristics that could make an expectant mother more likely to deliver early. Among these risk factors are tobacco or substance use, age (mothers younger than 20 or older than 35 are at increased risk), low income, race (Black mothers are at increased risk), and prior preterm birth.<sup>1</sup> Nationally, there is growing interest in researching the relationship between prenatal maternal stress and preterm birth. There is a documented association between the two, though greater understanding of their connection is needed. Agencies such as the March of Dimes have issued recommendations that expectant mothers alleviate the effects of stress during pregnancy to combat preterm birth.<sup>4</sup> There is also growing acceptance among obstetricians about the importance of addressing social determinants of health. Social determinants of health (SDH) are the social, environmental, and economic conditions in which people are born, live, and age that can impact health—including pregnancy outcomes. Examples of SDH are poverty, access to safe housing, and institutional racism. Many of the risk factors for preterm birth are linked to SDH. In January 2018, the American College of Obstetricians and Gynecologists released a Committee Opinion on SDH. This report instructed providers to screen expectant mothers for SDHs and connect them with social services to mitigate effects of risk factors for adverse birth outcomes like preterm birth.<sup>5</sup>

### **Recommendations for Prenatal Care Providers**

- Ask about SDHs that may influence an expectant mother's health or access to prenatal care.
- Acknowledge race and ethnicity as SDHs.
- Speak with high-risk patients (age 35+, Black, low-income) about preterm birth risk reduction.
- Maximize referrals to social services to help improve mothers' abilities to meet their needs.
- Advocate for policy change to reduce the stress of pregnant women and promote equitable access to prenatal care.<sup>5</sup>

### **Recommendations for Expectant Mothers**

- Attend all scheduled prenatal care visits. Visit [www.health.ri.gov/find/providers/index.php/](http://www.health.ri.gov/find/providers/index.php/) to find a prenatal care provider near you.
- Consult [www.benefits.gov/benefits/browse-by-state/state/180](http://www.benefits.gov/benefits/browse-by-state/state/180) and [www.eohhs.ri.gov/Consumer/FamilieswithChildren/HealthcarePrograms.aspx](http://www.eohhs.ri.gov/Consumer/FamilieswithChildren/HealthcarePrograms.aspx) to access free and reduced-cost health insurance for pregnant women, as well as assistance with employment, income, housing, and nutrition.
- Ask your provider about resources in the community that may be able to meet your needs.
- Use a support network—your partner, family, and friends, to deal with pre-delivery stressors.
- Try relaxation activities, like prenatal yoga or meditation, to ease pre-delivery stress.<sup>4</sup>

### **Recommendations for Public Health Practitioners**

- Raise awareness about preterm birth risk factors, especially within at-risk communities.
- Ensure pregnant women's access to supportive programs, such as Family Visiting services and WIC.
- Advocate for policy changes that combat preterm birth risk factors, reduce prenatal maternal stress, and promote equitable access to prenatal care.

### **Recommendations for Policymakers**

- Advocate for policies and resources that combat preterm birth risk factors and reduce prenatal maternal stress, such as health insurance for pregnant and post-partum women; housing, financial and vocational assistance; maternity and family leave policies; violence and injury prevention and treatment, and mental health and substance use disorder services and treatment.

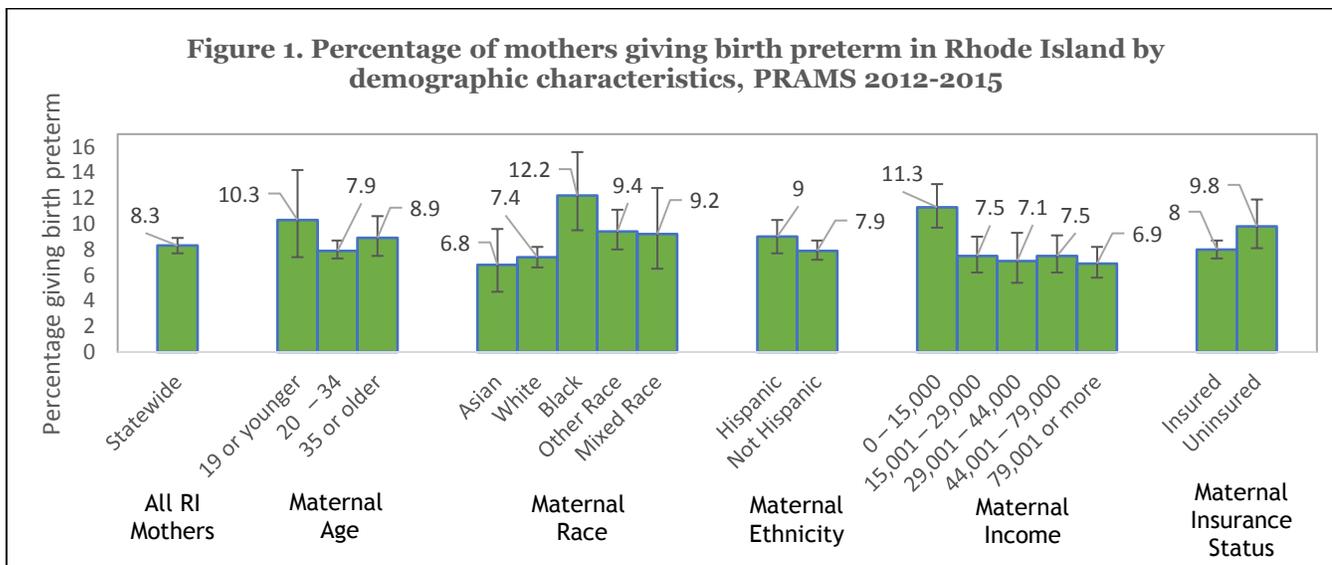
## Rhode Island Pregnancy Risk Assessment Monitoring System (PRAMS)

The goal of the PRAMS survey is to improve the health of mothers and infants by providing accurate data to a wide audience. The Rhode Island PRAMS program is conducted through a collaboration between the Rhode Island Department of Health (RIDOH) and the Centers for Disease Control and Prevention (CDC), and surveys about 1,900 recent mothers per year. Responses are weighted to be representative of women who delivered a live infant in Rhode Island from 2012-2015. More information is available on the PRAMS website.<sup>6,7</sup>

### Methods

In this brief, preterm birth prevalence was calculated using the number of gestational weeks prior to delivery—either less than 37 weeks of gestation (preterm) or 37 or more weeks of gestation (term). This brief analyzes the prevalence of preterm birth across several demographic factors—maternal age, race, ethnicity, income, and health insurance status. Two potential risk factors are given special interest in this brief: number of prenatal care visits and maternal experience of stressful life events (SLEs). The number of prenatal care visits was categorized as either up to eight visits, nine to 11 visits, or 12 or more visits. Lastly, 14 SLE questions assessed maternal exposure to a range of stressors in the year prior to delivery. These life events include a close family member becoming ill and going to a hospital; divorce or separation from a partner; moving to a new address; experiencing homelessness; one's or one's partner's job loss; a cut in work hours or pay for oneself or one's partner; separation from one's partner due to military or work obligations; arguing with one's partner more than usual; one's partner saying that he or she does not want one to be pregnant; having problems paying the rent, mortgage, or other bills; incarceration of oneself or one's partner; a close friend or family member having a drinking or drug problem; and the death of a close friend or family member. This brief defines maternal stress as the number of SLEs reported by a respondent—no SLEs; one or two SLEs; three to five SLEs; and six or more SLEs.

### Demographic Characteristics, 2012-2015



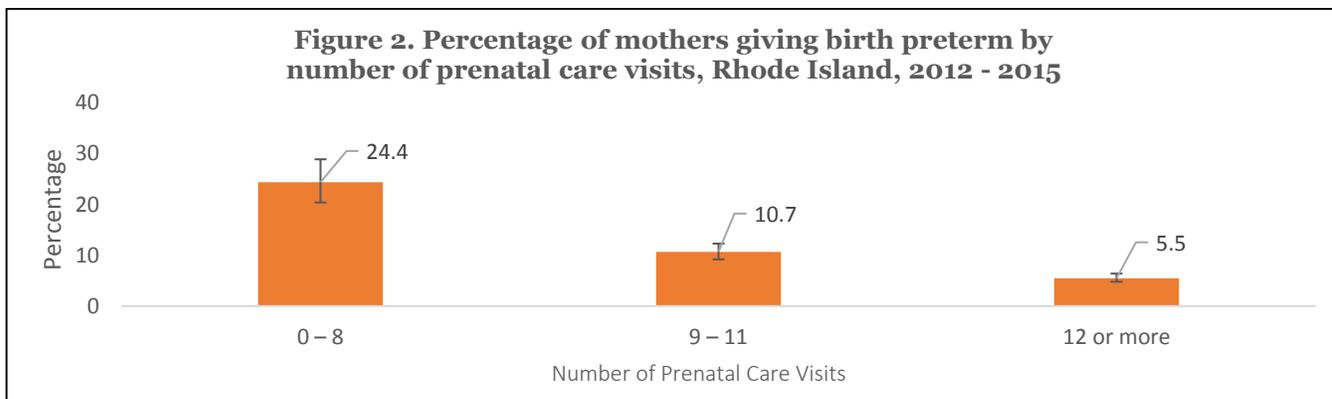
The overall prevalence of preterm birth among Rhode Island mothers was 8.3% (95% CI: 7.7% - 8.9%) from 2012 to 2015. Demographic characteristics significantly (*p*-value less than .05) associated with preterm birth were maternal race, maternal income, and maternal health insurance status. (Figure 1).

- Black mothers had a higher prevalence of preterm birth than mothers of other racial groups. Just more than 12% (12.2%) (95% CI: 9.5% - 15.6%) of Black mothers gave birth preterm, compared to 7.4% (95% CI: 6.6% - 8.2%) of White mothers and 6.8% (95% CI: 4.7% - 9.6%) of Asian mothers.
- Mothers with incomes of \$15,000 or less had a higher prevalence of preterm birth than their counterparts—11.3% (95% CI: 9.7% - 13.1%) of these lowest-income mothers delivered preterm, compared with 7.1% (95% CI: 5.4% - 9.3%) of mothers with incomes of \$29,001 - \$44,000, and 6.9% (95% CI: 5.8% - 8.2%) of those with incomes more than \$74,000.

- Uninsured mothers had a higher prevalence of preterm birth than mothers with health insurance—9.8% (95% CI: 8.1% - 11.9%) of uninsured mothers gave birth preterm, compared with 8.0% (95% CI: 7.3% - 8.7%) of insured mothers.

### Risk Factors

Number of prenatal visits and maternal experience of SLEs were also significantly (p-value less than .05) associated with preterm birth.



Mothers with up to eight prenatal care visits were more likely than those with more visits to deliver preterm (Figure 2).

- 24.4% (95% CI: 20.4% - 28.9%) of mothers with eight or fewer prenatal care visits gave birth preterm. This is more than four times the preterm birth prevalence of mothers with 12 or more prenatal visits, of whom only 5.5% (95% CI: 4.8% - 6.4%) gave birth preterm. 10.7% (95% CI: 9.2% - 12.3%) of mothers with nine to 11 visits gave birth preterm.



Mothers with more SLEs in the year before delivery were more likely to deliver preterm (Figure 3).

- 7.2% (95% CI: 6.2% - 8.4%) of mothers who reported no SLEs gave birth preterm; 8.0% (95% CI: 7.1% - 9.0%) of those who reported one or two SLEs gave birth preterm; and 9.1% (95% CI: 7.8% - 10.6%) of those who reported three to five SLEs gave birth preterm. Of those who reported six or more SLEs—12.2% (95% CI: 9.0% - 16.4%) gave birth preterm.

### Discussion and Conclusions

These data suggest that the previously documented association between prenatal maternal stress and preterm birth exists among Rhode Island mothers. An increased risk of preterm birth for Black and low-income mothers noted in national studies was also apparent in the Rhode Island population. This brief highlights two additional Rhode Island-specific preterm birth risk factors: lack of insurance and low number of prenatal care visits.

To reduce the prevalence of preterm birth in Rhode Island, policymakers and public health advocates should advocate for directing resources toward these at-risk groups, where the prevalence of preterm birth is far

higher than that of the population at large. Public health advocates should work to address the risk factors for women at risk for preterm birth in Rhode Island. In addition, increasing awareness of preterm birth risk factors should emphasize the importance of early prenatal care and regular prenatal visits. In tandem with the efforts to raise awareness, advocates should promote supportive services to at-risk mothers, including spotlighting the State's health insurance programs for pregnant women.

Rhode Island policymakers should take measures to increase access to prenatal care; expand free and reduced-cost health insurance programs; and devote funding to connecting uninsured expectant mothers with health insurance. Policies that address the social determinants of health and SLEs for expectant mothers may lead to decreased preterm birth rates. Policies should give pregnant women priority for services to access affordable housing, financial assistance, vocational assistance, mental health services, and violence prevention.

## Limitations

Due to the cross-sectional nature of the Rhode Island PRAMS data, this brief can examine the association between SLEs prior to delivery and preterm birth but cannot confirm or disprove a causal relationship between the two. Future studies should analyze whether the SLE-preterm birth relationship is attributable to confounding factors and whether a biological link exists between the two phenomena. An additional limitation of this brief is the measurement of the SLE using the survey questions. Issues also arise for the SLE and insurance variables. Rhode Island PRAMS assesses SLEs in the year before birth rather than solely during the pregnancy, and SLEs are reported in the aggregate, without a severity level.

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