



# PRAMS

## Pregnancy Risk Assessment Monitoring System

# Premature Birth Fact Sheet

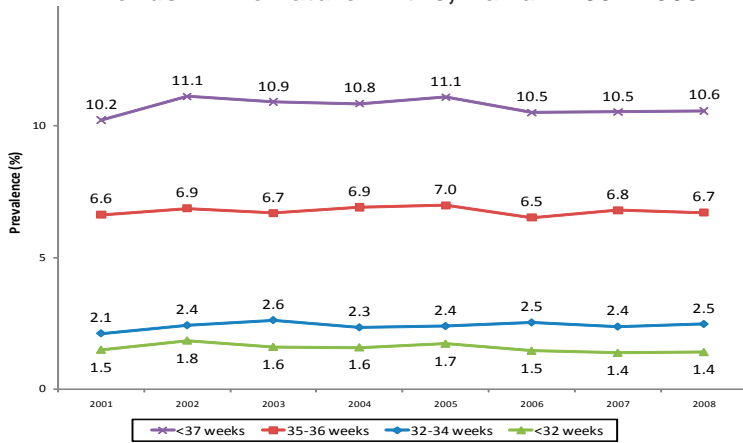
### Prematurity

The annual cost of premature births and the associated consequences was estimated to be at least \$26.2 billion in 2005 in the US.<sup>1</sup> Premature births are the leading cause of neonatal deaths and are associated with birth defects and long term health problems. Some risk factors include a prior premature birth, spontaneous abortion, low pre-pregnancy weight, and the use of alcohol, tobacco, or other drugs during pregnancy. However, it is estimated that these risk factors account for only one-third of all preterm births.<sup>2</sup> The American College of Obstetricians and Gynecologists (ACOG) have promoted multiple strategies to reduce the rate of premature births including delaying non-medically indicated inductions and cesarean deliveries to 39 weeks of gestation.<sup>3,4</sup> The National Healthy People 2010 Objective related to prematurity was to decrease the proportion of births that are premature (<37 weeks) to 7.6% with no more than 1.1% of all births being very preterm (<32 weeks of gestation).

### Data Highlights

- Almost 1 in 10 births were premature and there has been little change since 2001
- The highest rate of premature birth (nearly 3 out of 10) was found in women with a history of a prior premature birth
- Other characteristics increased the likelihood of premature birth included being Black, Filipino, under 20 years of age, 35 years of age and older, and being a first time mother
- Women with a premature birth were more likely to have diabetes, high blood pressure, and a cesarean delivery compared to those with a term birth
- Women with a premature birth were more likely to have smoked during the last 3 months of pregnancy and were more likely to report postpartum depressive symptoms than those who had their birth at term

### Trends in Premature Births, Hawai'i 2001-2008



Source: Resident Birth Certificates, Office of Health Status Monitoring, Hawai'i State Department of Health; calculations by the Family Health Services Division

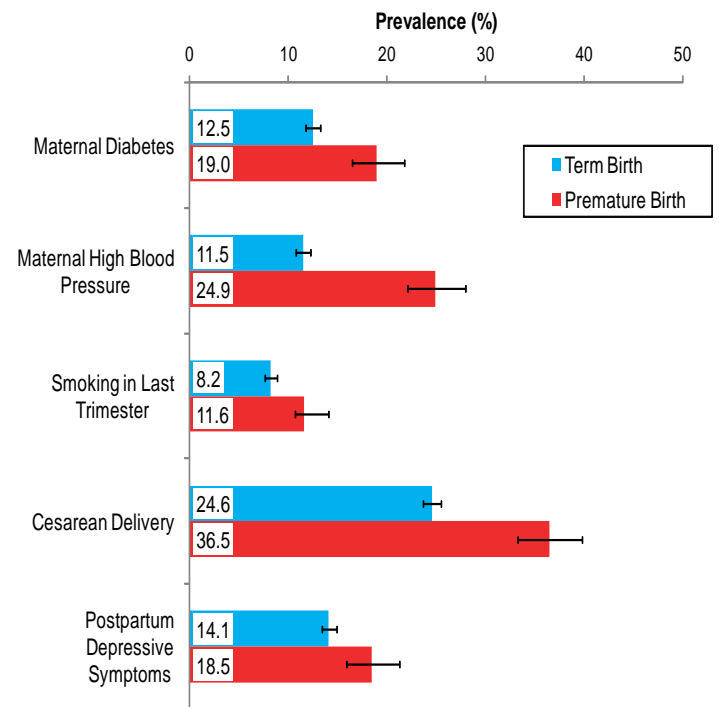
### Trends in Premature Births

Overall, prematurity proportions have remained stable since 2001 with 10.2% being premature in 2001 compared to 10.6% in 2008. There has been very little fluctuation over time in the estimates for the sub-groups of premature births. In 2008, about 6.7% of births occurred at 35-36 weeks, 2.5% of births at 32-34 weeks, and 1.4% of births at <32 weeks of gestation.

### Risk Factors and Outcomes

Mothers with a premature birth were more likely to have several adverse risks and birth outcomes such as maternal diabetes, maternal high blood pressure, smoking in the last 3 months of pregnancy, a cesarean delivery, and have postpartum depressive symptoms compared to those who had a term birth.

### Risk Factors and Outcomes Associated with Prematurity, Hawai'i PRAMS 2004-2008



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## Characteristics of Mothers with Premature Births, Hawai'i PRAMS 2004-2008

|  | Premature Delivery<br>(%) 95% CI* |
|--|-----------------------------------|
| <b>Race/Ethnicity</b>                      |                                   |
| White                                      | 7.2 (6.1-8.5)                     |
| Black                                      | 14.5 (10.1-20.4)                  |
| Hispanic                                   | 9.6 (5.8-15.6)                    |
| Hawaiian                                   | 9.8 (8.6-11.2)                    |
| Samoaan                                    | 5.0 (2.7-8.9)                     |
| Other Pacific Islander                     | 9.9 (7.3-13.4)                    |
| Filipino                                   | 11.7 (10.4-13.3)                  |
| Japanese                                   | 9.0 (7.4-10.8)                    |
| Chinese                                    | 9.0 (7.5-10.7)                    |
| Korean                                     | 9.8 (7.6-12.6)                    |
| Other Asian                                | 11.6 (7.6-17.4)                   |
| <b>Maternal Age</b>                        |                                   |
| under 20 years                             | 12.4 (10.0-15.3)                  |
| 20-24 years                                | 9.2 (8.0-10.6)                    |
| 25-34 years                                | 8.6 (7.8-9.5)                     |
| 35 and greater                             | 10.5 (9.1-12.0)                   |
| <b>Maternal Education</b>                  |                                   |
| < High School                              | 11.4 (9.1-14.0)                   |
| High School                                | 9.7 (8.7-10.8)                    |
| Some College                               | 8.5 (7.5-9.7)                     |
| College Graduate                           | 9.5 (8.5-10.7)                    |
| <b>Marital Status</b>                      |                                   |
| Married                                    | 8.9 (8.3-9.7)                     |
| Unmarried                                  | 10.3 (9.2-11.5)                   |
| <b>Insurance Coverage During Pregnancy</b> |                                   |
| Private Insurance                          | 9.5 (8.8-10.3)                    |
| QUEST/Medicaid                             | 9.2 (8.1-10.6)                    |
| None                                       | 7.1 (4.2-11.8)                    |
| <b>County of Residence</b>                 |                                   |
| Honolulu                                   | 9.5 (8.8-10.2)                    |
| Hawai'i                                    | 10.5 (8.7-12.5)                   |
| Maui                                       | 7.8 (6.2-9.7)                     |
| Kauai                                      | 9.9 (7.3-13.3)                    |
| <b>Pre-pregnancy Weight Status</b>         |                                   |
| Underweight (BMI <18.5)                    | 11.2 (8.7-14.2)                   |
| Normal (BMI 18.5- 24.9)                    | 8.6 (7.8-9.4)                     |
| Overweight (BMI 25-29.9)                   | 10.3 (9.0-11.8)                   |
| Obese (BMI ≥30)                            | 10.5 (8.9-12.3)                   |
| <b>Prior Premature Birth</b>               |                                   |
| First Birth                                | 10.0 (9.1-11.0)                   |
| No Prior Premature Birth                   | 6.6 (5.9-7.4)                     |
| Prior Premature Birth                      | 27.6 (24.0-31.5)                  |
| <b>Overall</b>                             | <b>9.4 (8.8-10.1)</b>             |

\* 95% CI refers to the 95% confidence interval around estimate.

### About the Data

The **Hawai'i Pregnancy Risk Assessment Monitoring System (PRAMS)** is a self-reported survey of recent mothers conducted by mail with telephone follow-up. It is designed to monitor the health and experiences of women before, during, and just after pregnancy. Every year, about 2,000 women who deliver a live infant in Hawai'i are randomly selected to participate. For this analysis we defined a premature birth as <37 weeks based on the clinical estimate of gestational weeks obtained from the linked birth certificate information. PRAMS estimates depend on survey respondents and differential responses will result in an under or over estimate for some population groups. In this analysis, the overall estimates for prematurity (9.4%) is lower than obtained from the full vital statistics data (10.8%) for 2004-2008.

**Birth Certificates** are collected for every birth in Hawai'i (~18,500 per year) by the Department of Health's Office of Health Status Monitoring. Data from all resident births in Hawai'i were used to determine the trends in prematurity using the reported clinical estimate of gestational age. These vary from reports of prematurity that are based on dates of the last menstrual period commonly reported on the national level.

## Maternal Characteristics

In Hawai'i, 9.4% of mothers have a premature birth. Black and Filipino mothers had the highest estimates among groups defined by race/ethnicity. Being in the youngest or the oldest age group conferred higher likelihood to have a premature birth. Premature birth estimates were similar across all maternal education, marital status, insurance coverage during pregnancy, maternal residence, and maternal pre-pregnancy weight status. First time mothers and those with a prior premature birth were more likely to have a premature birth.

***"We did not realize how many babies were born premature. We hope less families have to experience a sick or premature baby and hope our answers help to have more healthy moms and babies."***

-- Hawai'i PRAMS Participant

## Discussion

About 1 in 10 women in Hawai'i with a recent live birth had a premature birth. There has been little change since 2001 in premature birth despite an increased recognition of risks. Prematurity is a complex issue that requires the balancing of risks for the both the mother and her infant and thus may be impacted by factors such as the accessibility of providers and services. Reduction in prematurity holds great promise for overall reduction in infant illness, disability, and death. PRAMS data revealed some disparate groups for premature birth, with the strongest characteristic being a mother having had a prior premature birth. A premature birth was also associated with smoking during pregnancy, and having diabetes, high blood pressure, and postpartum depressive symptoms.

In 2009, the Hawai'i Department of Health convened a workgroup with the March of Dimes, Healthcare Association of Hawai'i, and the Healthy Mothers Healthy Babies Coalition to assess the contribution of early induction and cesarean deliveries prior to 39 weeks recommended by ACOG as a possible reason for prematurity. The workgroup analyzed vital statistics data, and surveyed both hospitals and providers. Recommendations included: 1) a public awareness campaign; 2) development of quality initiatives; and 3) training and collection of data relating to elective inductions and cesarean deliveries.

The Hawai'i Department of Health continues to work with collaborators to identify ways to address prematurity at the population level such as promoting health throughout the life course to decrease risks in the preconception period to optimize the health of a woman as she enters pregnancy. Population level efforts and targeted interventions towards groups at risk, particularly those with a prior premature birth, will help decrease the burden of prematurity.

## References

- 1 Institute of Medicine. Preterm Birth: Causes, Consequences, and Prevention: National Academies Press; 2006 & 2007.
- 2 Behrman RE, et al. Preterm Birth: Causes, Consequences, and Prevention. Washington, D.C.: The National Academies Press; 2007.
- 3 American College of Obstetricians and Gynecologists(ACOG). Cesarean Delivery on Maternal Request. ACOG Committee Opinion, #394, December 2007.
- 4 American College of Obstetricians and Gynecologists(ACOG). Induction of Labor. ACOG Practice Bulletin, #107, August 2009.