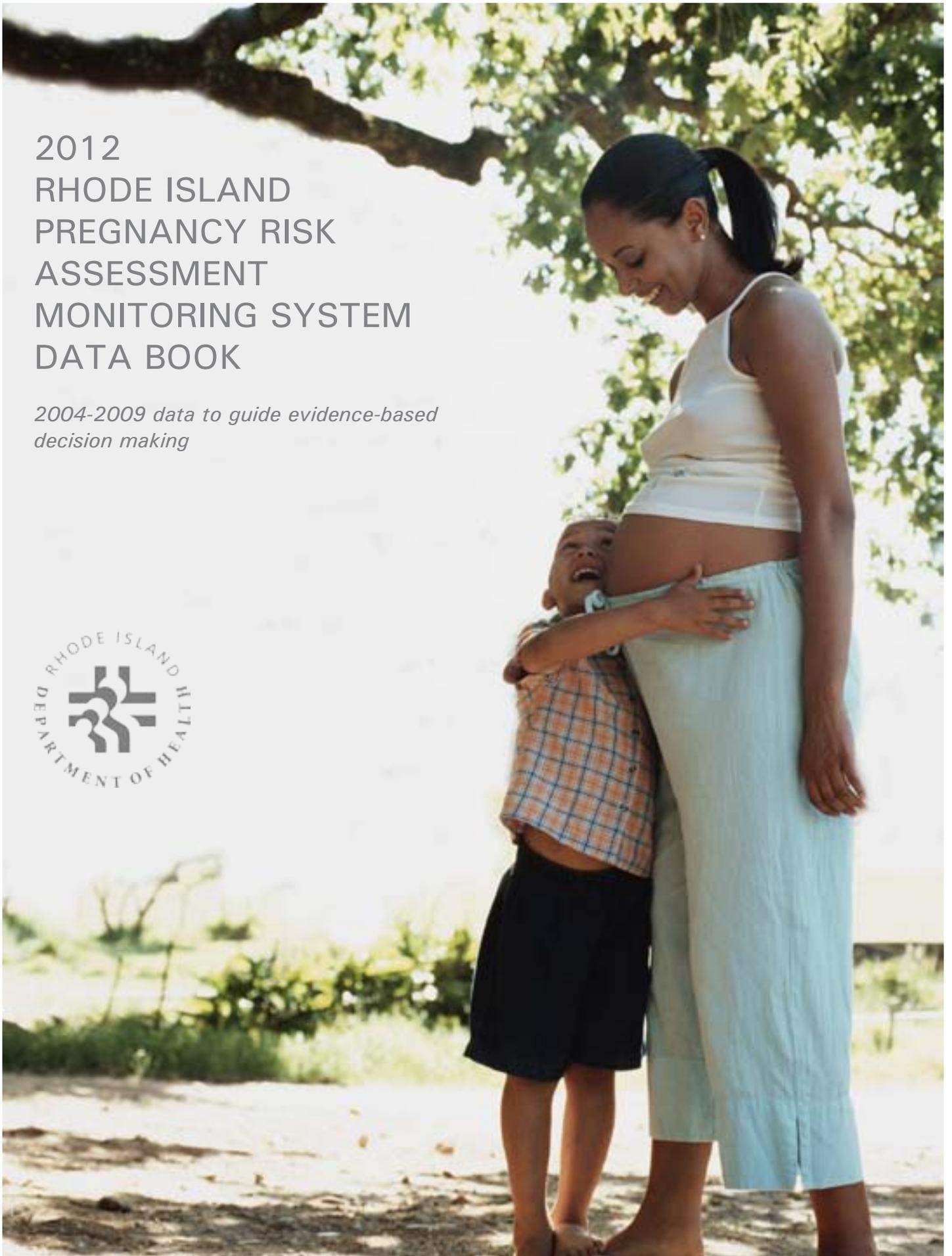


2012  
RHODE ISLAND  
PREGNANCY RISK  
ASSESSMENT  
MONITORING SYSTEM  
DATA BOOK

*2004-2009 data to guide evidence-based  
decision making*



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Centers for Disease Control and Prevention (CDC): [www.cdc.gov/prams](http://www.cdc.gov/prams)

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# INTRODUCTION

The goal of the Rhode Island Pregnancy Risk Assessment Monitoring System (PRAMS) Program is to improve the health of mothers and infants by providing accurate, timely, and comprehensive data to decision makers and health professionals as well as the general public. To this end, the Rhode Island PRAMS Program collects, monitors, analyzes, and disseminates information on a variety of maternal behaviors and experiences that may be associated with maternal and infant health outcomes.

This data book provides information on 13 health topics regarding maternal behaviors and experiences before, during, and shortly after pregnancy, using the Rhode Island PRAMS data. The 13 topics include unintended pregnancy, pre-pregnancy obesity, pre-pregnancy multivitamin use, intimate partner violence, tobacco use, prenatal care, flu vaccination, human immunodeficiency virus (HIV) testing, perinatal depression, low birth weight, preterm birth, breastfeeding, and infant sleep position. These topics were selected by the Rhode Island PRAMS Steering Committee as the key areas that may contribute to maternal and infant health during perinatal periods (the periods around childbirth). This data book focuses on monitoring the prevalence of health problems over time and identifying groups at high risk for the problems. We hope that the information provided in this data book is used to help guide policy, decision making, program planning, and other efforts to reduce health disparities among groups and improve the health of pregnant women and their infants in Rhode Island.



## What is PRAMS?

PRAMS is a surveillance project of the Centers for Disease Control and Prevention (CDC) and state health departments, which collects state-specific, population-based data on maternal behaviors and experiences before, during, and shortly after pregnancy.<sup>1</sup> PRAMS was initiated in 1987 and the survey instrument is revised periodically (called survey phases). The PRAMS survey instrument consists of three parts: core questions that all states must include, standardized optional questions that states may select from, and state-developed questions that reflect state-specific issues.<sup>1</sup>

Rhode Island has collected PRAMS data since 2002 and is one of 40 states currently participating in PRAMS.<sup>2</sup> Each year, about 1,890 women who delivered a live infant are randomly selected from the state's birth file as a PRAMS sample, which represents more than 15% of recent mothers.<sup>2</sup> The Rhode Island PRAMS Program selects all mothers delivering a low birth weight baby and over-sampled mothers who resided in core cities\* to ensure adequate data in the smaller but higher-risk populations.<sup>2</sup> The survey is mailed to the sampled mothers up to three times, and then phone follow-ups are made for non-respondents.<sup>1,2</sup> The survey is conducted two to six months postpartum and is available in both English and Spanish. Currently, CDC requires a minimum response rate of 65% in order to analyze and use the data.<sup>2</sup> More detailed information is available at the PRAMS website.<sup>1,2</sup>

A summary of the Rhode Island PRAMS population size, number of survey respondents, and weighted response rate for 2002-2009 appears below.

Year	RI PRAMS Population Size	RI Number of Respondents	RI Weighted Response Rate	Required Response Rate by CDC	PRAMS Survey Phase
2002	12,179	1,414	71.7	70	4
2003	12,426	1,533	71.8	70	4
2004	12,064	1,506	75.5	70	5
2005	12,013	1,424	75.1	70	5
2006	11,732	1,360	72.5	70	5
2007	11,802	1,372	72.1	65	5
2008	11,467	1,297	70.4	65	5
2009	10,910	1,294	71.4	65	6

## About This Data Book

The topics presented in this data book are organized according to the pregnancy periods: **before pregnancy** (unintended pregnancy, pre-pregnancy obesity, pre-pregnancy multivitamin use), **during pregnancy** (intimate partner violence, tobacco use, prenatal care, flu vaccination, HIV testing, perinatal depression), and **after pregnancy** (low birth weight, preterm birth, breastfeeding, infant sleep position). Each topic includes the definition and significance of the health issue, a comparison of Rhode Island with other PRAMS states, prevalence and trend data, demographic characteristics, risk behaviors and outcomes, and other related information. Graphs and a brief explanation on reading them are also included.

\* Core cities are those with more than 15% of children in families living below the federal poverty line. In Rhode Island, they include: Central Falls, Newport, Pawtucket, Providence, West Warwick, and Woonsocket.

The 2004-2008 Rhode Island PRAMS data (Phase 5) are analyzed to describe demographic characteristics and related health risks for each topic. The 2004-2009 data are presented in the trend graphs if the 2009 data (Phase 6) are available and consistent with 2004-2008 data. Weighted data are used to represent all women who delivered a live birth in Rhode Island. The p-values from the chi-square tests are presented in the graphs to determine the statistical significance of the differences among groups. The p-values less than 0.05 are considered statistically significant in this data book, and the smaller p-values reflect stronger evidence of significant differences among the groups that are compared. CDC's CPONDER<sup>3</sup> report is used to compare Rhode Island with and rank it among other PRAMS states with respect to the prevalence of the health issue. CPONDER is a web-based query system created by CDC PRAMS to access data collected through the PRAMS survey. CPONDER is available to the general public via the internet and includes only states that reached the required response rate. Most of the variables available are from core questions. At this time, the most current year available for the CPONDER report is 2008, and data from 29 PRAMS states are reported for the core indicators. Healthy People 2010 objectives are introduced for relevant health topics, if available.

A description of the Rhode Island PRAMS population, the PRAMS Phase 5 questionnaire, and detailed data tables for each topic are included in appendices A and C.

## Limitations

The data reported in this data book have several limitations. First, since the PRAMS data are based on self-reporting and are not verified by the physician or medical records, they can be subject to a recall bias or a bias towards the socially-desirable answer. Second, even though Rhode Island achieved high response rates for all survey years, certain high-risk populations may be under-represented in the estimates due to non-response or non-coverage bias. Third, the PRAMS Program samples only women who have delivered a live infant, so the estimates cannot be extrapolated to all pregnant women in Rhode Island. Nevertheless, the PRAMS survey is an important data source that provides data not available from other sources about pregnancy and the first few months after birth.

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1. Centers for Disease Control and Prevention (CDC). Pregnancy Risk Assessment Monitoring System (PRAMS): Home. Available from: [www.cdc.gov/prams](http://www.cdc.gov/prams)
2. State of Rhode Island, Department of Health. Pregnancy Risk Assessment Monitoring System. Available from: [www.health.ri.gov/programs/pregnancyriskassessmentmonitoring](http://www.health.ri.gov/programs/pregnancyriskassessmentmonitoring)
3. Centers for Disease Control and Prevention (CDC). CPONDER—CDC's PRAMS On-line Data for Epidemiologic Research. Available from: <http://apps.nccd.cdc.gov/cPONDER>



# 1. UNINTENDED PREGNANCY

## Definition and Significance

An unintended pregnancy is defined as a pregnancy that is either mistimed (the woman wanted to be pregnant later) or unwanted (she did not want to be pregnant then or at any time in the future) at the time of conception.<sup>1,2</sup> An unintended pregnancy may influence a woman's behaviors and experiences during and after pregnancy: women with an unintended pregnancy are more likely to engage in negative health behaviors, including delayed prenatal care, tobacco and alcohol use during pregnancy, and not breastfeeding their infants, which can cause adverse effects for both mothers and infants.<sup>1,2</sup> A better understanding of unintended pregnancy can lead to more effective interventions that might decrease its prevalence and would further decrease the health risks to mothers and newborn infants.<sup>1</sup> The PRAMS survey asks mothers about the timing and intendedness of their pregnancy at the time of conception as well as their reasons for not using birth control.

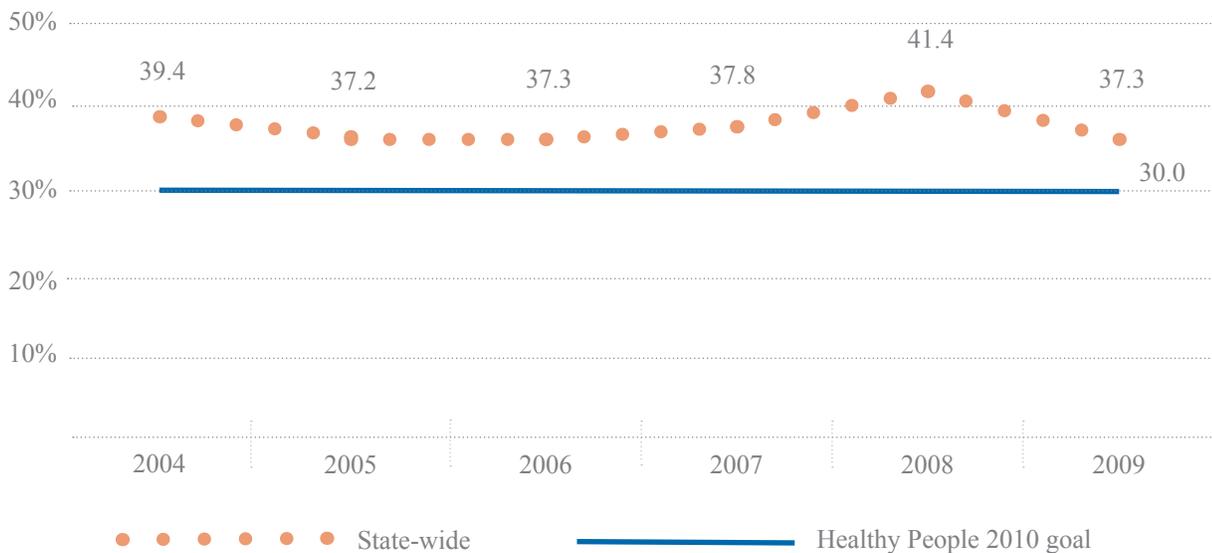
## Rhode Island Compared to Other PRAMS States, 2008

According to the PRAMS CPONDER report, the prevalence of unintended pregnancy ranged from 29.6% (best) to 58.3% (worst) in 2008.<sup>3</sup> Compared to the other 28 PRAMS states, Rhode Island ranked 17th (1st is the best) with 41.4% of mothers reporting their pregnancy was unintended.<sup>3</sup>

## Prevalence and Trends, 2004-2009

The proportion of Rhode Island mothers who had an unintended pregnancy did not change dramatically during 2004-2009, ranging from 37.2% to 41.4%. Rhode Island did not achieve the Healthy People 2010 goal of increasing the proportion of pregnancies that are intended to 70% (or reducing the proportion of unintended pregnancy to 30%).<sup>4</sup>

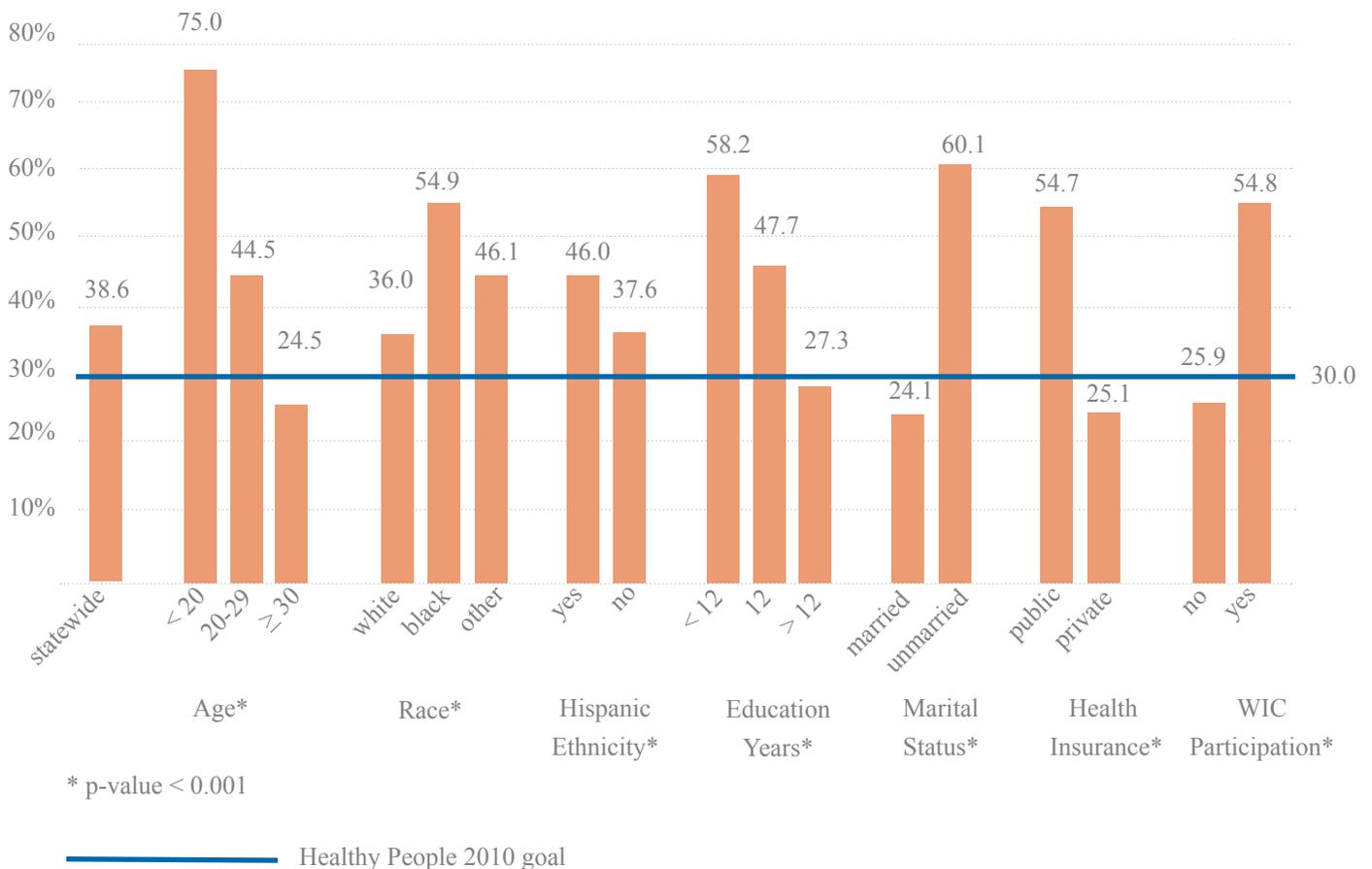
**FIGURE 1-1: UNINTENDED PREGNANCY BY YEAR, RHODE ISLAND, 2004-2009**



## Demographic Characteristics, 2004-2008

- » The overall prevalence of Rhode Island mothers with an unintended pregnancy was 38.6%.
- » Demographic characteristics that were significantly (p-value less than 0.001) associated with unintended pregnancy included age, race, ethnicity, educational level, marital status, health insurance type, and participation in the Women, Infants, and Children (WIC) program.
  - » Mothers who were younger than 20 years old (75.0%), black (54.9%), Hispanic (46.0%), unmarried (60.1%), had less than 12 years of education (58.2%), had public health insurance (54.7%), and participated in the WIC program (54.8%) had a higher prevalence of unintended pregnancy compared with their counterparts.
- » Several demographic groups reached the Healthy People 2010 goal of reducing the unintended pregnancy rate to 30%. They included women who were aged 30 or older, were married, had more than 12 years of education, had private health insurance, and did not participate in the WIC program.

**FIGURE 1-2: UNINTENDED PREGNANCY: DEMOGRAPHIC CHARACTERISTICS  
RHODE ISLAND, 2004-2008**

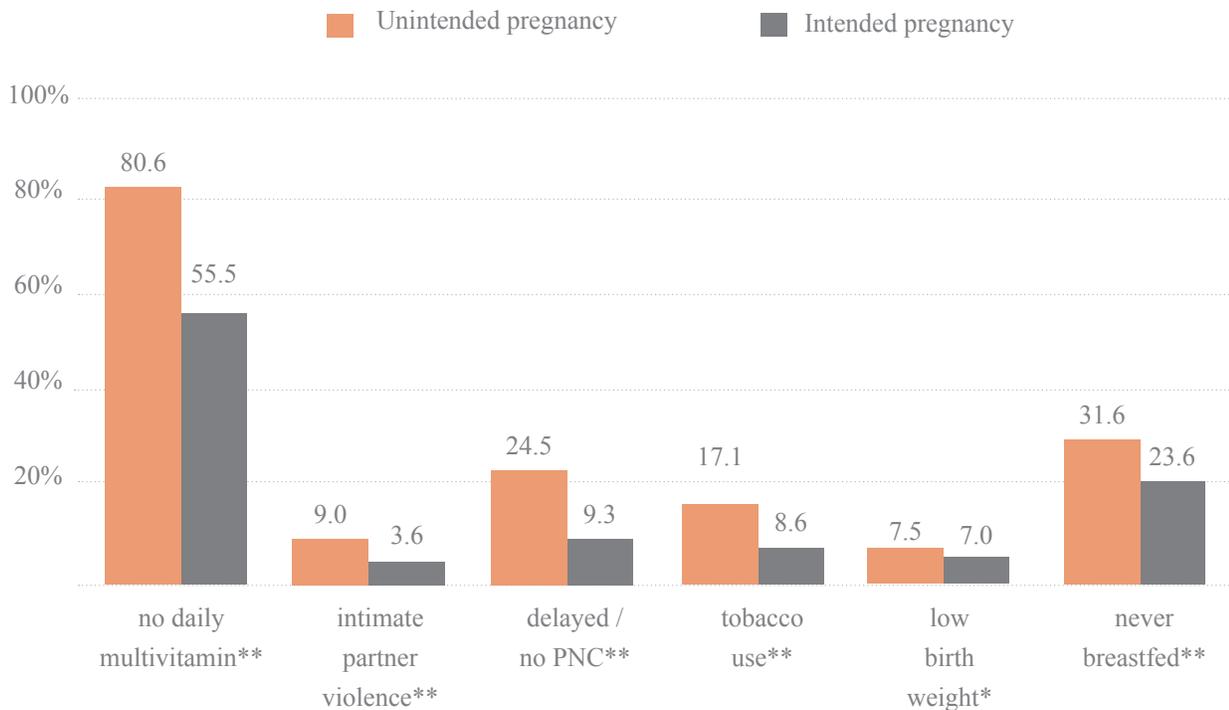


# Risk Behaviors and Outcomes by Pregnancy Intendedness, 2004-2008

Mothers who had an unintended pregnancy, compared to mothers who had an intended pregnancy, were significantly (p-value less than 0.05) more likely to report that:

- » They did not take multivitamins daily prior to pregnancy (80.6% vs. 55.5%).
- » They experienced intimate partner violence during the 12 months before or during pregnancy (9.0% vs. 3.6%).
- » They had delayed or no prenatal care (PNC) (24.5% vs. 9.3%).
- » They smoked during their pregnancy (17.1% vs. 8.6%).
- » They had a low birth weight baby (7.5% vs. 7.0%).
- » They never breastfed their baby (31.6% vs. 23.6%).

**FIGURE 1-3: RISK BEHAVIORS AND OUTCOMES BY PREGNANCY INTENDEDNESS RHODE ISLAND, 2004-2008**



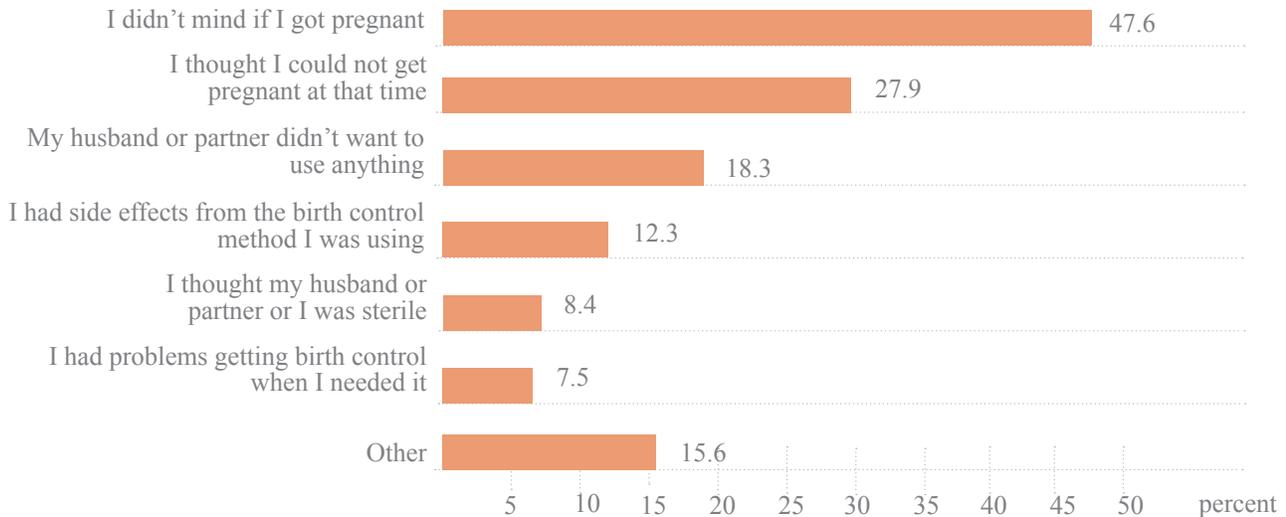
\*p-value < 0.05

\*\* p-value < 0.001

## Reasons for Not Using Birth Control, 2004-2008

Among women who were not trying to get pregnant, 53.6% did not use birth control at the time of pregnancy. The most common reasons for not using birth control were: they did not mind if they got pregnant (47.6%), they thought they could not get pregnant at that time (27.9%), and their husbands or partners did not want to use anything (18.3%).

**FIGURE 1-4: REASONS FOR NOT USING BIRTH CONTROL, RHODE ISLAND, 2004-2008**



## References

1. Centers for Disease Control and Prevention (CDC). Unintended Pregnancy Prevention: Home. Available from: [www.cdc.gov/reproductivehealth/unintendedpregnancy](http://www.cdc.gov/reproductivehealth/unintendedpregnancy)
2. Centers for Disease Control and Prevention (CDC). Pregnancy Risk Assessment Monitoring System (PRAMS): PRAMS and Unintended Pregnancy.
3. Centers for Disease Control and Prevention (CDC). CPONDER—CDC's PRAMS On-line Data for Epidemiologic Research. Available from: <http://apps.nccd.cdc.gov/cPONDER>
4. U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Healthy People 2010, Family Planning. Available from: [www.healthypeople.gov/2010/data/midcourse/pdf/fa09.pdf](http://www.healthypeople.gov/2010/data/midcourse/pdf/fa09.pdf)

## 2. PRE-PREGNANCY OBESITY

### Definition and Significance

Body mass index (BMI) is calculated as weight in kilograms divided by height in meters squared (kg/m<sup>2</sup>).<sup>1</sup> Obesity is defined as having a BMI of 30 or higher.<sup>1</sup> Maternal obesity during pregnancy is associated with many complications such as gestational diabetes, preeclampsia, eclampsia, cesarean section, macrosomia, instrumental delivery, and fetal distress.<sup>2</sup> Children born to obese mothers are twice as likely to be obese and to develop type 2 diabetes in life.<sup>2</sup> A study, published in 2007, reported that one in five women is obese at the beginning of their pregnancy in the United States.<sup>3</sup> The PRAMS survey asks mothers about their weight prior to pregnancy and their height without shoes to calculate their pre-pregnancy BMI.

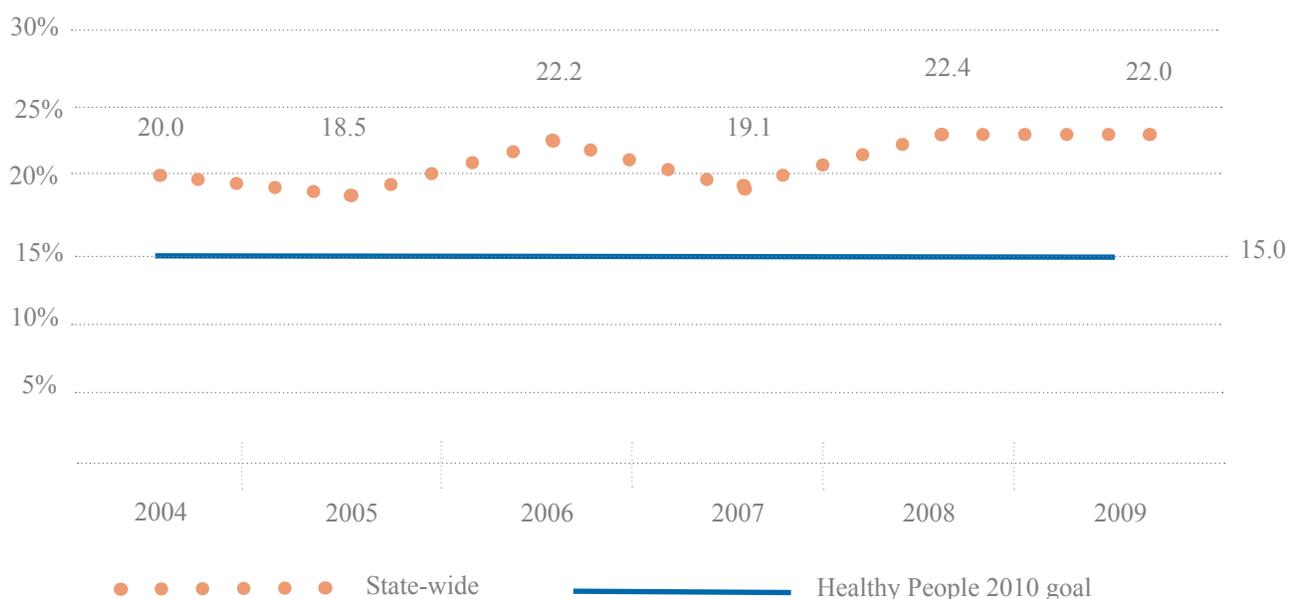
### Rhode Island Compared to Other PRAMS States, 2008

According to the PRAMS CPONDER report, the prevalence of obesity prior to pregnancy ranged from 17.2% (best) to 31.3% (worst) in 2008.<sup>4</sup> Compared to the other 28 PRAMS states, Rhode Island ranked 11th (1st is the best) with 22.4% of mothers being obese prior to pregnancy.<sup>4</sup>

### Prevalence and Trends, 2004-2009

The proportion of Rhode Island mothers who were obese prior to pregnancy ranged from 18.5% to 22.4% during 2004-2009. The Healthy People 2010 goal of reducing the proportion of adults who are obese to 15.0%<sup>5</sup> was not achieved.

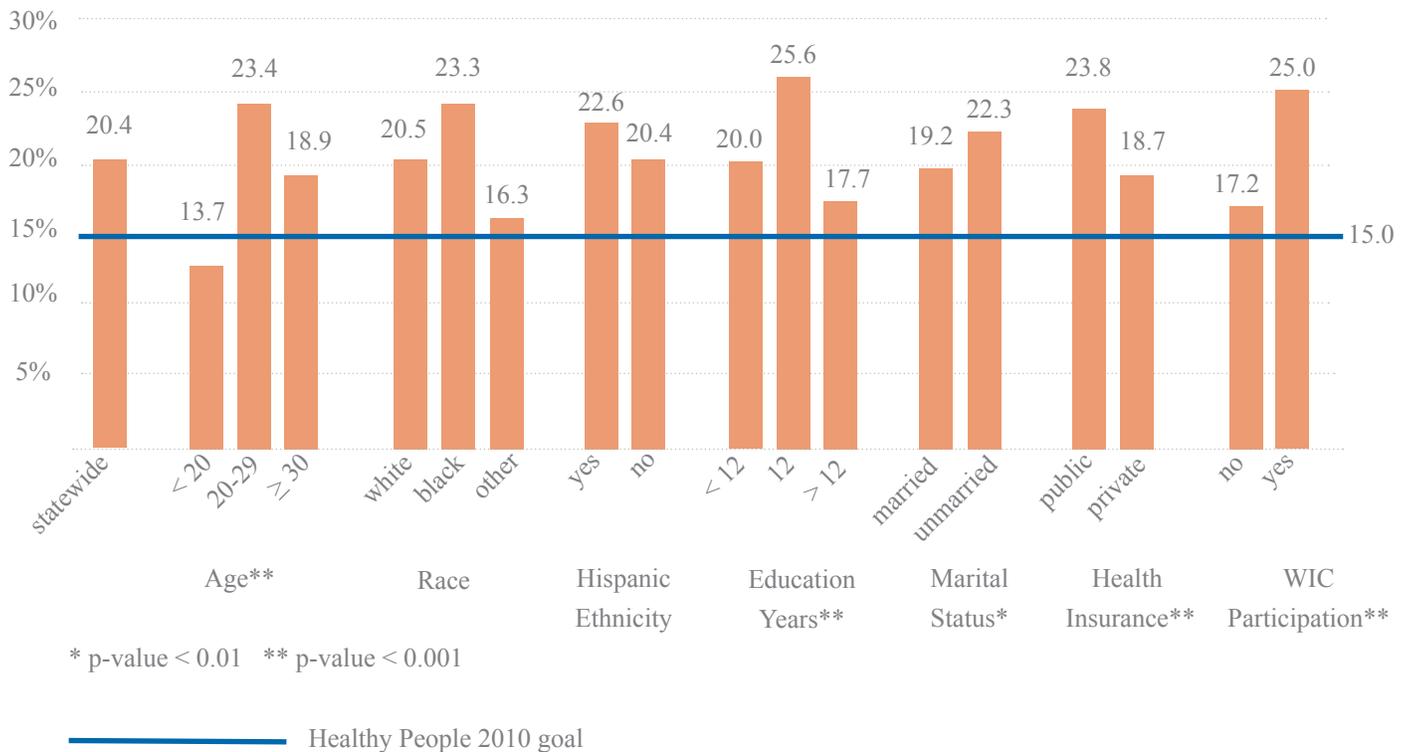
**FIGURE 2-1: PRE-PREGNANCY OBESITY BY YEAR, RHODE ISLAND, 2004-2009**



## Demographic Characteristics, 2004-2008

- » The overall prevalence of Rhode Island mothers being obese prior to pregnancy was 20.4%.
- » Demographic characteristics that were significantly (p-value less than 0.01) associated with pre-pregnancy obesity included age, education level, marital status, health insurance type, and participation in the Women, Infants, and Children (WIC) program.
  - » Mothers who were aged 20-29 years (23.4%), were unmarried (22.3%), had 12 years of education (25.6%), had public health insurance (23.8%), and participated in the WIC program (25.0%) had a higher prevalence of pre-pregnancy obesity compared with their counterparts.
- » The only demographic group that reached the Healthy People 2010 goal of a 15.0% obesity rate was mothers younger than 20 years of age.

**FIGURE 2-2: PRE-PREGNANCY OBESITY: DEMOGRAPHIC CHARACTERISTICS  
RHODE ISLAND, 2004-2008**

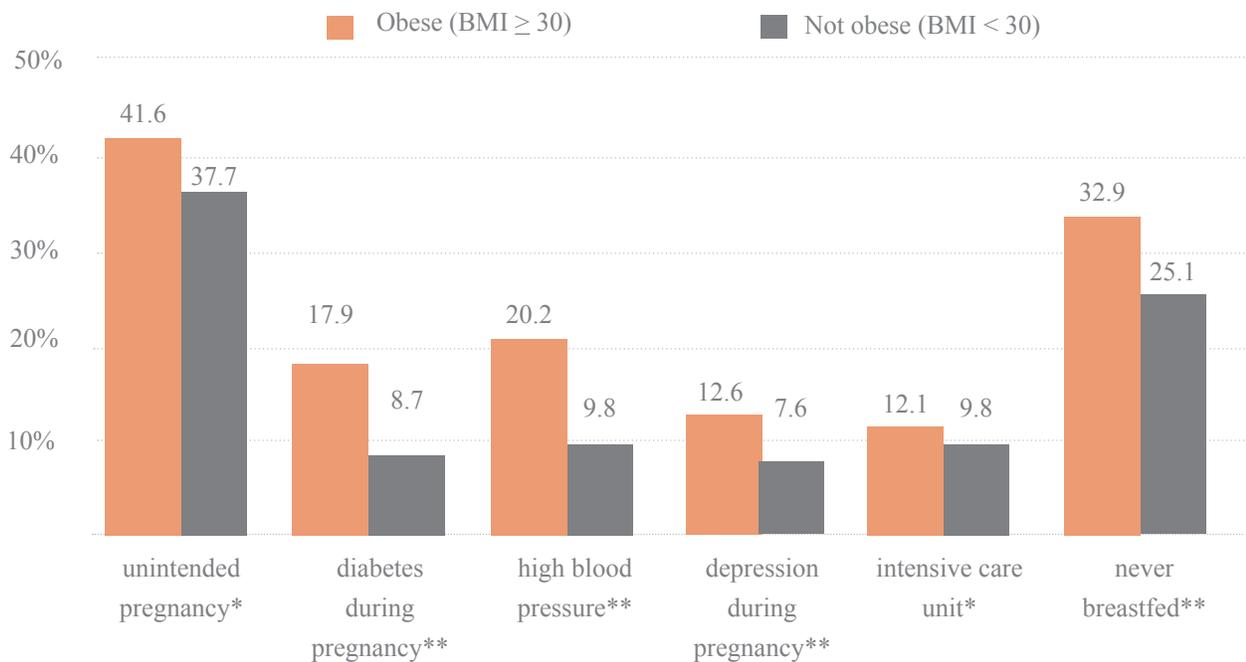


## Risk Behaviors and Outcomes by Pre-Pregnancy Obesity, 2004-2008

Mothers who were obese prior to pregnancy, compared to mothers who were not obese, were significantly (p-value less than 0.05) more likely to report that:

- » Their pregnancy was unintended (41.6% vs. 37.7%).
- » They had high blood sugar (diabetes) that started during the pregnancy (17.9% vs. 8.7%).
- » They had high blood pressure, hypertension (including pregnancy-induced hypertension), preeclampsia, or toxemia during their pregnancy (20.2% vs. 9.8%).
- » They were diagnosed with depression during pregnancy (12.6% vs. 7.6%).
- » Their baby was put in an intensive care unit after the baby was born (12.1% vs. 9.8%).
- » They never breastfed their baby (32.9% vs. 25.1%).

**FIGURE 2-3: RISK BEHAVIORS AND OUTCOMES BY PRE-PREGNANCY OBESITY RHODE ISLAND, 2004-2008**



\*p-value < 0.05

\*\* p-value < 0.001



## References

1. Centers for Disease Control and Prevention (CDC). Overweight and Obesity. Available from: [www.cdc.gov/obesity/defining.html](http://www.cdc.gov/obesity/defining.html)
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### 3. PRE-PREGNANCY MULTIVITAMIN USE

#### Definition and Significance

The consumption of 400 µg (micrograms) of folic acid daily before conception and during the first trimester is recommended in order to reduce the occurrence of neural tube defects (NTDs).<sup>1</sup> NTDs, including spina bifida and anencephaly, affect an estimated 3,000 pregnancies annually in the United States and are among the most common birth defects that contribute to perinatal mortality, infant mortality, and serious disability in surviving children.<sup>1</sup> Although folic acid can be obtained from fortified foods or dietary supplements containing folic acid, not all women obtain an adequate level of folic acid through their diet.<sup>2</sup> Therefore, taking daily multivitamins is recommended since they generally contain 400 µg of folic acid.<sup>1</sup> The PRAMS survey asks mothers how many times a week they took a multivitamin or a prenatal vitamin during the month before they got pregnant. The response options include “did not take it at all,” “1 to 3 times a week,” “4 to 6 times a week,” and “every day of the week.”

#### Rhode Island Compared to Other PRAMS States, 2008

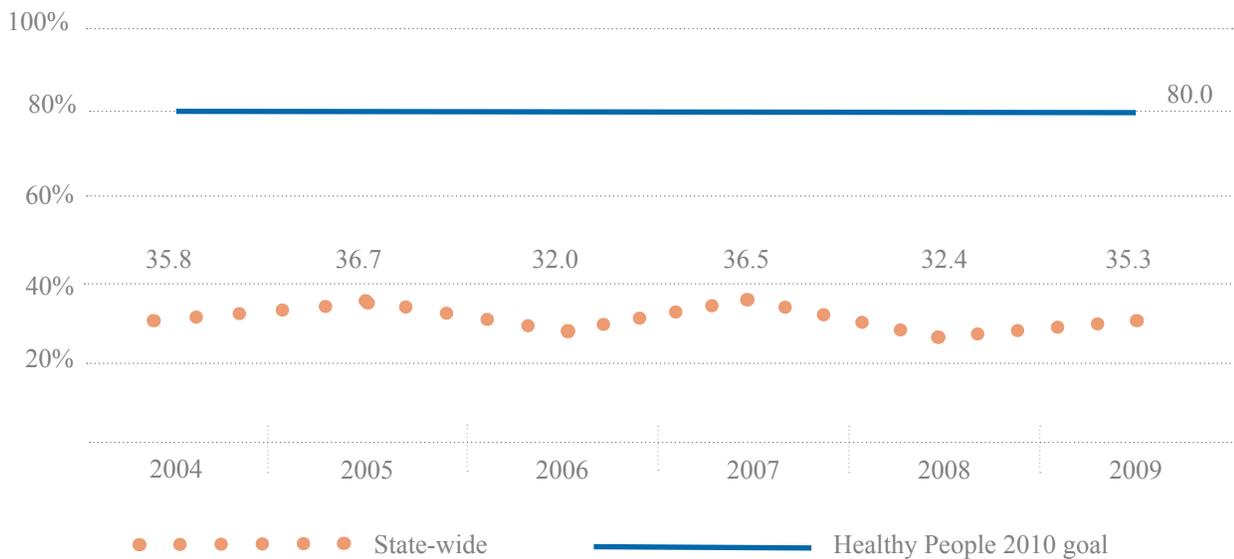
According to the PRAMS CPONDER report, the prevalence of taking a daily multivitamin during the month before pregnancy ranged from 36.2% (best) to 20.2% (worst) in 2008.<sup>3</sup> Compared to the other 28 PRAMS states, Rhode Island ranked 10th (1st is the best) with 32.4% of mothers taking a daily multivitamin during the month before pregnancy.<sup>3</sup> The prevalence of taking multivitamins four or more times a week during the month prior to pregnancy ranged from 42.4% (best) to 23.9% (worst), and Rhode Island ranked 9th (1st is the best) with a 38.6% prevalence.<sup>3</sup>



## Prevalence and Trends, 2004-2009

The proportion of Rhode Island mothers who took a daily multivitamin during the month prior to pregnancy did not change considerably, ranging from 32.0% to 36.7%, during 2004-2009. The Healthy People 2010 goal is to increase the proportion of pregnancies that begin with consuming at least 400  $\mu\text{g}$  of folic acid daily to 80.0%.<sup>4</sup> (Note: The Healthy People 2010 goal may not be directly comparable with our measurement of daily multivitamin use.)

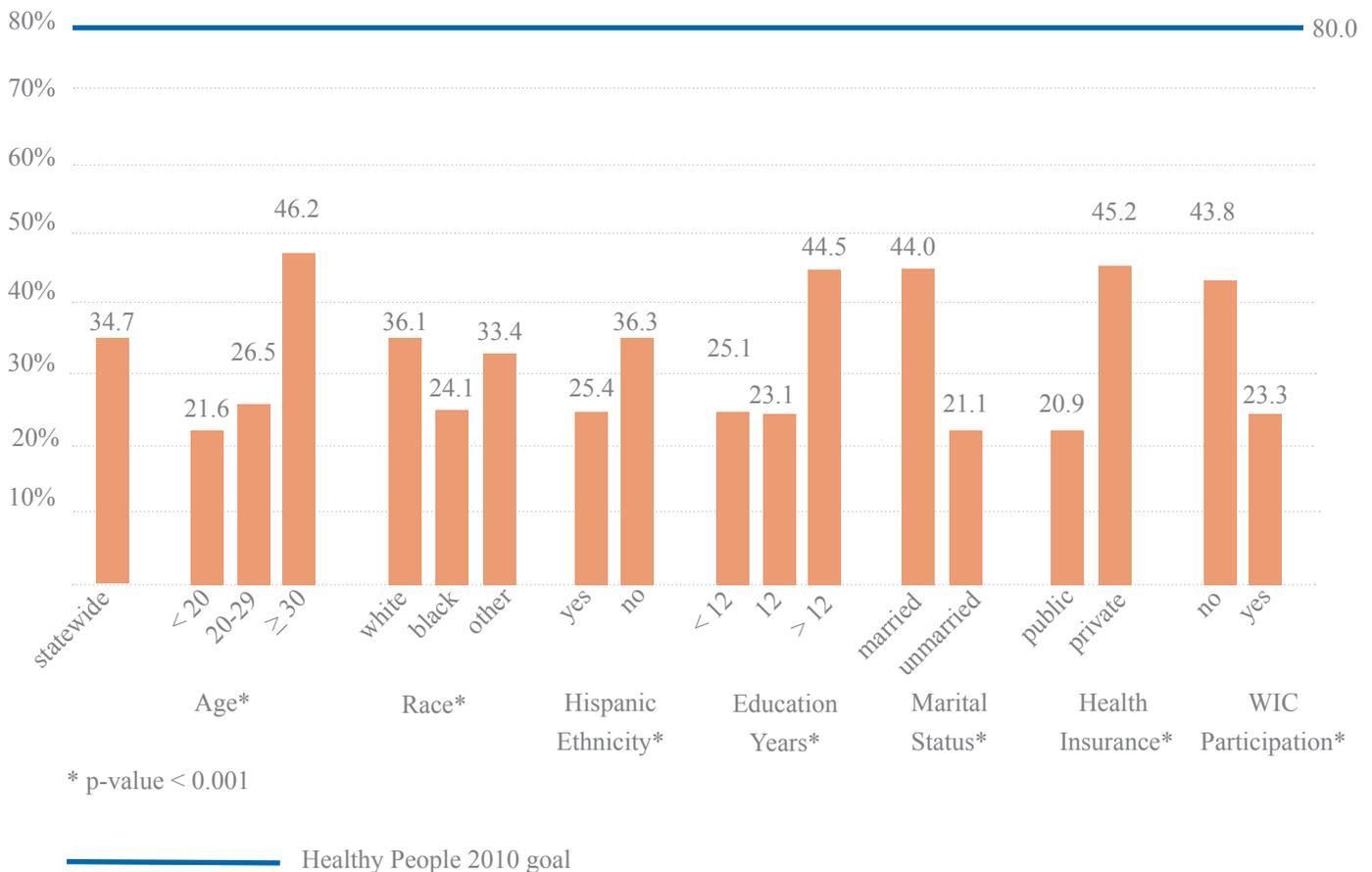
**FIGURE 3-1: DAILY MULTIVITAMIN USE PRIOR TO PREGNANCY BY YEAR  
RHODE ISLAND, 2004-2009**



## Demographic Characteristics, 2004-2008

- » The overall prevalence of Rhode Island mothers taking a daily multivitamin prior to pregnancy was 34.7%.
- » Demographic characteristics that were significantly (p-value less than 0.001) associated with daily multivitamin use prior to pregnancy included age, race, ethnicity, education level, marital status, health insurance type, and participation in the Women, Infants, and Children (WIC) program.
  - » Mothers who were aged 30 or older (46.2%), white (36.1%), non-Hispanic (36.3%), married (44.0%), had more than 12 years of education (44.5%), had private health insurance (45.2%), and did not participate in the WIC program (43.8%) had a higher prevalence of daily multivitamin use prior to pregnancy compared with their counterparts.
- » None of the demographic groups reported in Figure 3-2 achieved the Healthy People 2010 goal of increasing the proportion of pregnancies that begin with consuming at least 400 µg of folic acid daily to 80.0%.

**FIGURE 3-2: DAILY MULTIVITAMIN USE PRIOR TO PREGNANCY: DEMOGRAPHIC CHARACTERISTICS, RHODE ISLAND, 2004-2008**

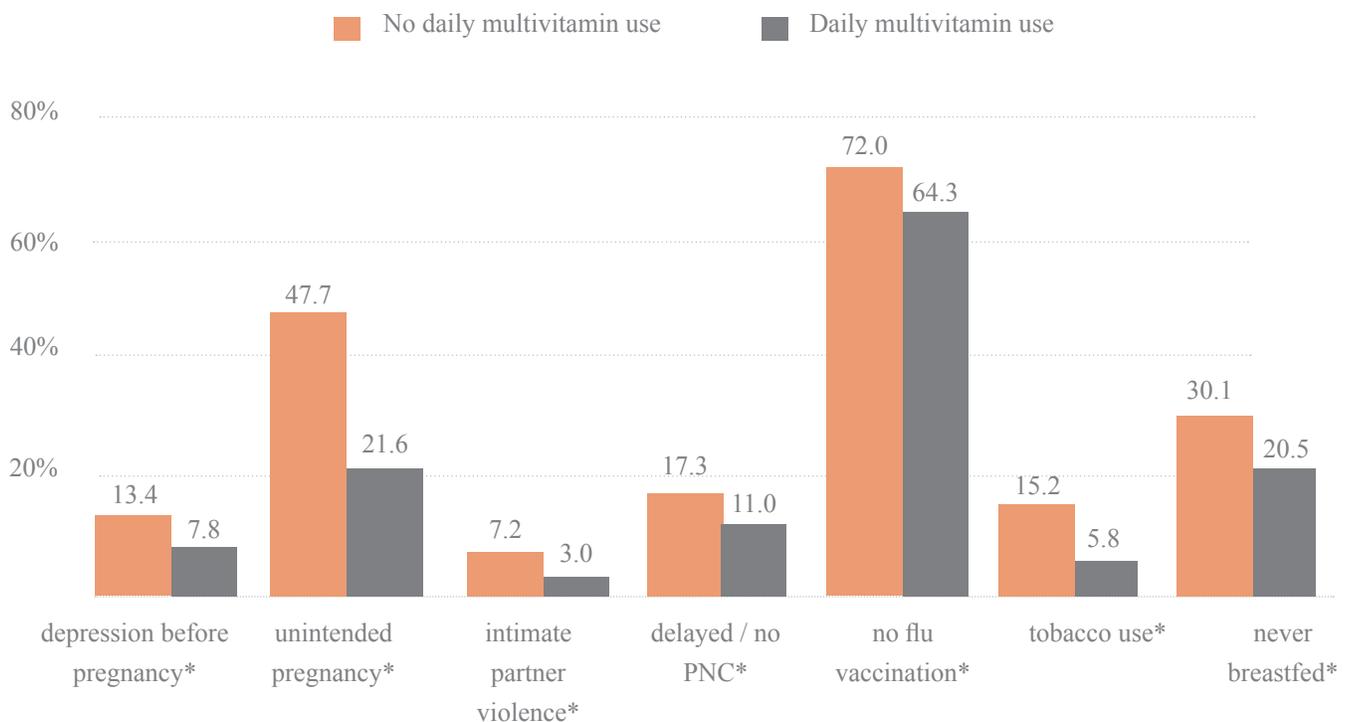


## Risk Behaviors and Outcomes by Daily Multivitamin Use, 2004-2008

Mothers who did not take a daily multivitamin prior to pregnancy, compared to mothers who took a daily multivitamin, were significantly (p-value less than 0.001) more likely to report that:

- » They were diagnosed with depression during the 12 months before pregnancy (13.4% vs. 7.8%).
- » Their pregnancy was unintended (47.7% vs. 21.6%).
- » They experienced intimate partner violence before or during pregnancy (7.2% vs. 3.0%).
- » They had delayed or no prenatal care (PNC) (17.3% vs. 11.0%).
- » They did not get a flu vaccination during their pregnancy (72.0% vs. 64.3%).
- » They smoked during their pregnancy (15.2% vs. 5.8%).
- » They never breastfed their baby (30.1% vs. 20.5%).

**FIGURE 3-3: RISK BEHAVIORS AND OUTCOMES BY DAILY MULTIVITAMIN USE RHODE ISLAND, 2004-2008**



\*p-value < 0.001

## References

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4. U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Healthy People 2010, Maternal, Infant, and Child Health. Available from: [www.healthypeople.gov/2010/data/midcourse/html/focusareas/fa16objectives.htm](http://www.healthypeople.gov/2010/data/midcourse/html/focusareas/fa16objectives.htm)

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Kim H, Cain R, Viner-Brown S, Yang M. *Multivitamin Use prior to Pregnancy in Rhode Island*. *Medicine & Health / Rhode Island*, Vol. 94 (No. 9):276-278, September 2011. Available from: [www.rimed.org/medhealthri/2011-09/2011-09-276.pdf](http://www.rimed.org/medhealthri/2011-09/2011-09-276.pdf)



## 4. INTIMATE PARTNER VIOLENCE BEFORE OR DURING PREGNANCY

### Definition and Significance

Intimate partner violence (IPV) usually includes four types of behavior: physical violence, sexual violence, threats, and emotional abuse.<sup>1</sup> It occurs between two people in a close relationship including current and former partners.<sup>1</sup> In 2007, IPV resulted in 2,340 deaths in the United States, and 70% of them were females.<sup>1,2</sup> Victims of IPV usually suffer physical injuries, emotional harm, eating disorders, depression, and other adverse health outcomes.<sup>1</sup> They often practice harmful health behaviors such as tobacco and alcohol use.<sup>1</sup> The PRAMS survey asks mothers four questions regarding IPV (two questions for before pregnancy and two questions for during pregnancy): whether an ex-husband/partner or current husband/partner pushed, hit, slapped, kicked, choked, or physically hurt them in any other way during the 12 months before pregnancy or during pregnancy. In this data book, mothers who responded “yes” to any of these four questions were defined as having experienced IPV.

### Rhode Island Compared to Other PRAMS States, 2008

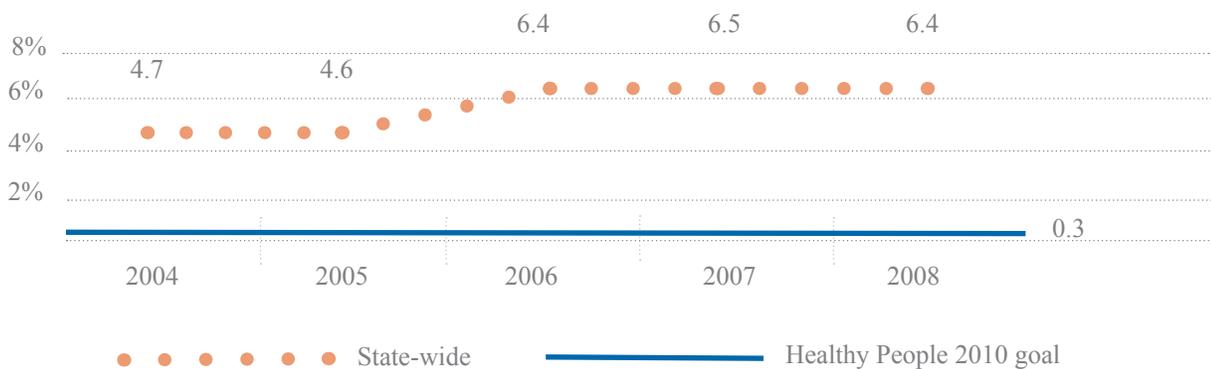
According to the PRAMS CPONDER report, the prevalence of experiencing IPV during the 12 months **before pregnancy** ranged from 1.8% (best) to 6.0% (worst) in 2008.<sup>3</sup> Compared to the other 28 PRAMS states, Rhode Island ranked 10th (1st is the best) with 3.0% of mothers experiencing IPV before pregnancy.<sup>3</sup> The prevalence of experiencing IPV **during pregnancy** ranged from 1.3% (best) to 4.6% (worst), and Rhode Island ranked 20th (1st is the best) with a 2.7% prevalence.<sup>3</sup>



## Prevalence and Trends, 2004-2008

The proportion of Rhode Island mothers who experienced IPV at any time during the 12 months before pregnancy or during pregnancy was under 5.0% in 2004 and 2005. It increased to over 6.0% in 2006 and remained at approximately 6.5% until 2008. The IPV questions were changed in Phase 6, so the 2009 data are not comparable with previous years and not reported here. The Healthy People 2010 goal is to reduce the rate of physical assault by current or former intimate partners to 3.3 assaults per 1,000 people age 12 years and older,<sup>4</sup> which was not achieved.

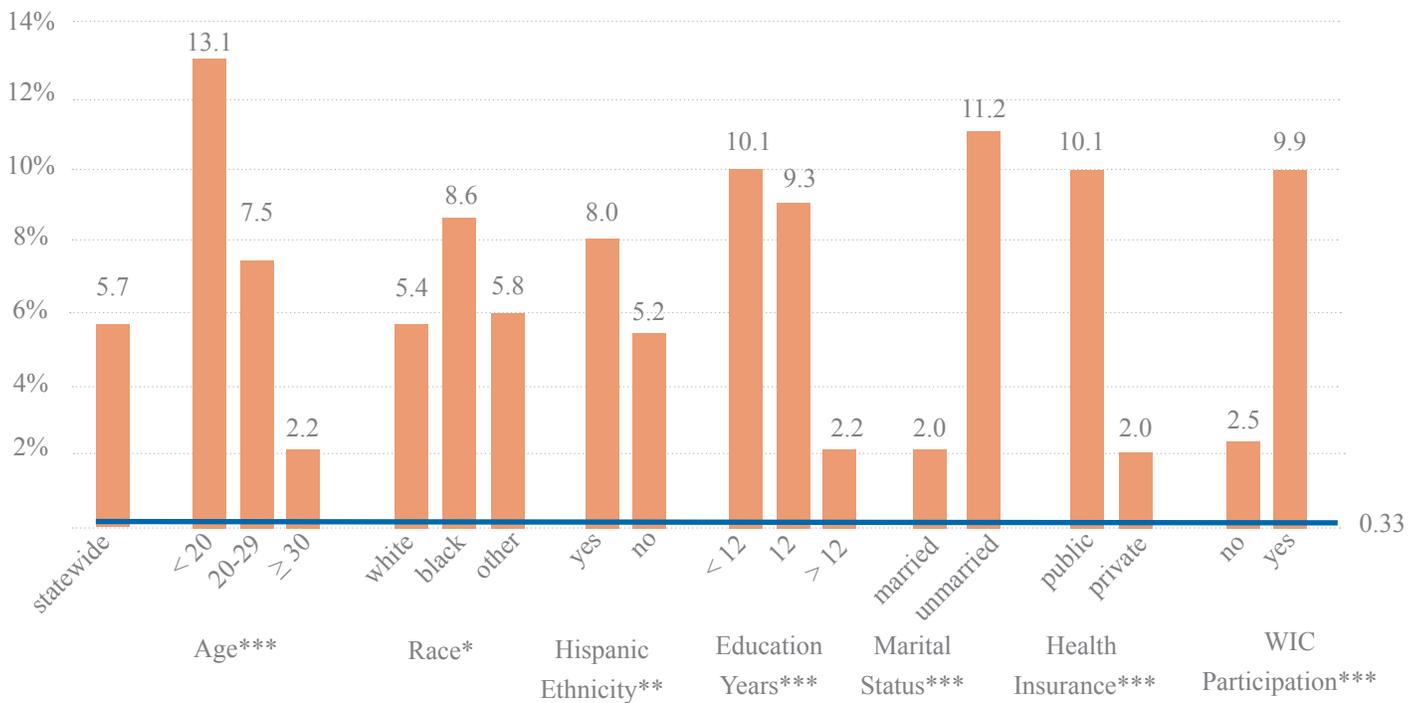
**FIGURE 4-1: INTIMATE PARTNER VIOLENCE BEFORE / DURING PREGNANCY BY YEAR RHODE ISLAND, 2004-2008**



## Demographic Characteristics, 2004-2008

- » The overall prevalence of Rhode Island mothers experiencing IPV before or during pregnancy was 5.7%.
- » Demographic characteristics that were significantly (p-value less than 0.05) associated with experiencing IPV before or during pregnancy included age, race, ethnicity, education level, marital status, health insurance type, and participation in the Women, Infants, and Children (WIC) program.
  - » Mothers who were younger than 20 years of age (13.1%), black (8.6%), Hispanic (8.0%), unmarried (11.2%), had less than 12 years of education (10.1%), had public health insurance (10.1%), and participated in the WIC program (9.9%) had a higher prevalence of experiencing IPV compared with their counterparts.
- » None of the demographic groups reported in Figure 4-2 achieved the Healthy People 2010 goal of reducing the rate of IPV to 3.3 assaults per 1,000 people.

**FIGURE 4-2: INTIMATE PARTNER VIOLENCE BEFORE / DURING PREGNANCY: DEMOGRAPHIC CHARACTERISTICS, RHODE ISLAND, 2004-2008**



\* p-value < 0.05 \*\* p-value < 0.01 \*\*\* p-value < 0.001

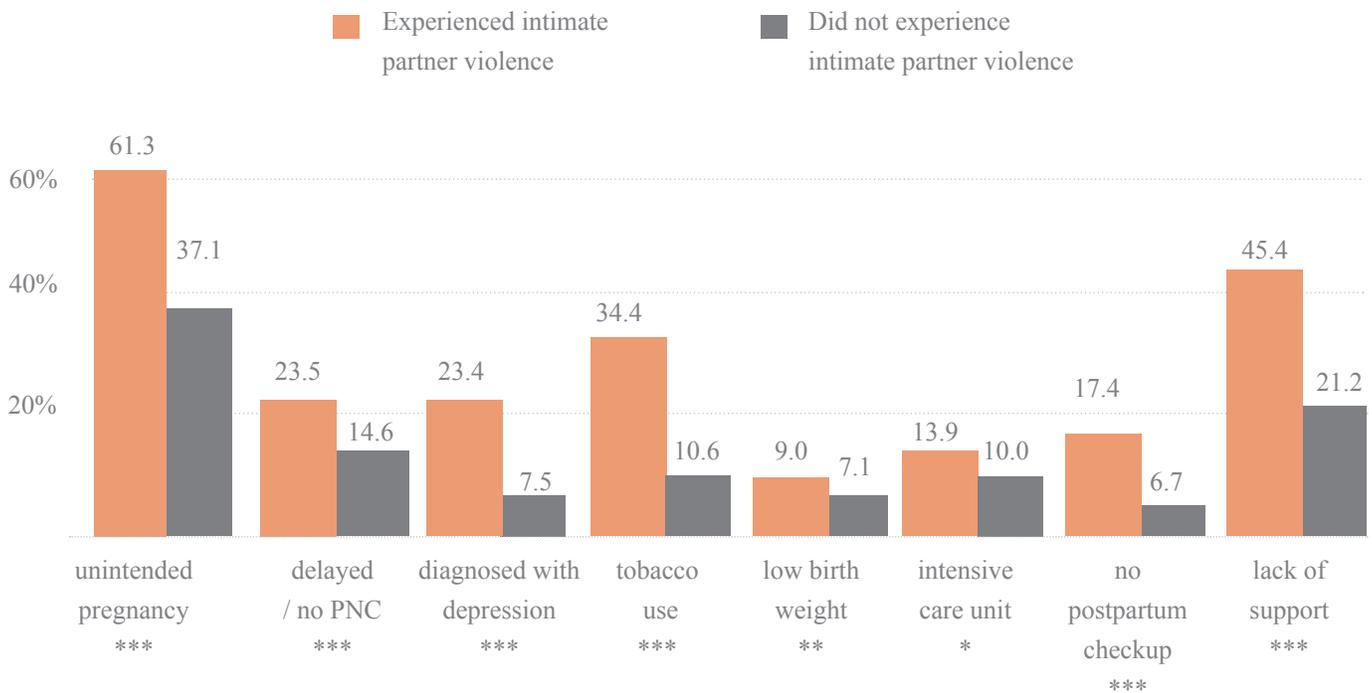
— Healthy People 2010 goal

## Risk Behaviors and Outcomes by IPV Experience, 2004-2008

Mothers who experienced IPV before or during pregnancy, compared to mothers who did not experience IPV, were significantly (p-value less than 0.05) more likely to report that:

- » Their pregnancy was unintended (61.3% vs. 37.1%).
- » They had delayed or no prenatal care (PNC) (23.5% vs. 14.6%).
- » They were diagnosed with depression during their pregnancy (23.4% vs. 7.5%).
- » They smoked during their pregnancy (34.4% vs. 10.6%).
- » They had a low birth weight baby (9.0% vs. 7.1%).
- » Their baby was put in an intensive care unit after the baby was born (13.9% vs. 10.0%).
- » They did not have a postpartum checkup (17.4% vs. 6.7%).
- » They lacked some social support since delivery (45.4% vs. 21.2%).

**FIGURE 4-3: RISK BEHAVIORS AND OUTCOMES BY INTIMATE PARTNER VIOLENCE RHODE ISLAND, 2004-2008**



\*p-value < 0.05    \*\* p-value < 0.01    \*\*\* p-value < 0.001

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## Related Publication

Kim H, Cain R, Viner-Brown S. *Intimate Partner Violence Before or During Pregnancy in Rhode Island*. *Medicine & Health / Rhode Island*, Vol. 93 (No. 1):29-31, January 2010. Available from: [www.rimed.org/medhealthri/2010-01/2010-01-29.pdf](http://www.rimed.org/medhealthri/2010-01/2010-01-29.pdf)

# 5. TOBACCO USE

## Definition and Significance

Cigarette smoking during pregnancy increases the risk for several adverse health outcomes for both mothers and their newborns.<sup>1</sup> Women who smoke during their pregnancy are more likely to experience premature rupture of membranes (PROM), placental abruption, or placenta previa during pregnancy.<sup>1</sup> Babies born to women who smoke during pregnancy are more likely to be born prematurely, be low birth weight, or die of Sudden Unexpected Infant Death (SUID).<sup>1</sup> Therefore, the Centers for Disease Control and Prevention (CDC) recommend that pregnant women not smoke cigarettes during pregnancy. The PRAMS survey asks mothers about their tobacco use and the amount of cigarettes smoked in the three months before pregnancy, in the last three months of pregnancy, and after delivery.

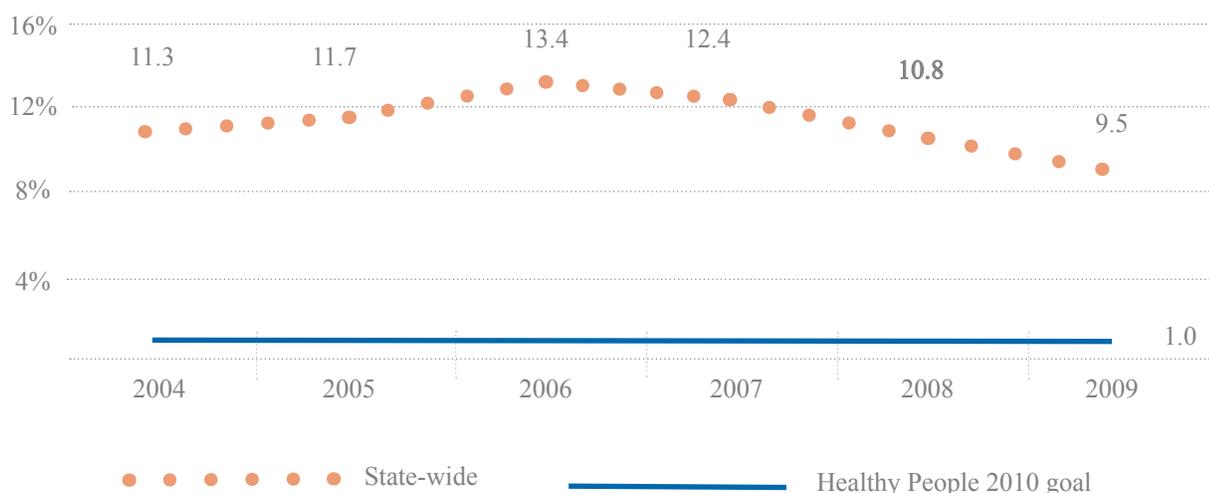
## Rhode Island Compared to Other PRAMS States, 2008

According to the PRAMS CPONDER report, the prevalence of tobacco use in the **last three months of pregnancy** ranged from 5.1% (best) to 28.7% (worst) in 2008.<sup>2</sup> Compared to the other 28 PRAMS states, Rhode Island ranked 8th (1st is the best) with 10.8% of mothers smoking during pregnancy.<sup>2</sup> The prevalence of **smoking cessation during pregnancy** ranged from 57.1% (best) to 28.7% (worst), and Rhode Island ranked 3rd (1st is the best) with a cessation rate of 52.9%.<sup>2</sup> The smoking cessation rate during pregnancy was calculated by comparing mothers who smoked before pregnancy with mothers who smoked during pregnancy.

## Prevalence and Trends: Tobacco Use, 2004-2009

The proportion of Rhode Island mothers who smoked in the last three months of pregnancy was between 9.5% and 13.4%, with the highest rate in 2006. The Healthy People 2010 goal is to reduce cigarette smoking among pregnant women to 1%.<sup>3</sup> For this data book, progress towards this goal was measured by looking at the percentage of women who smoked in the last three months of pregnancy.

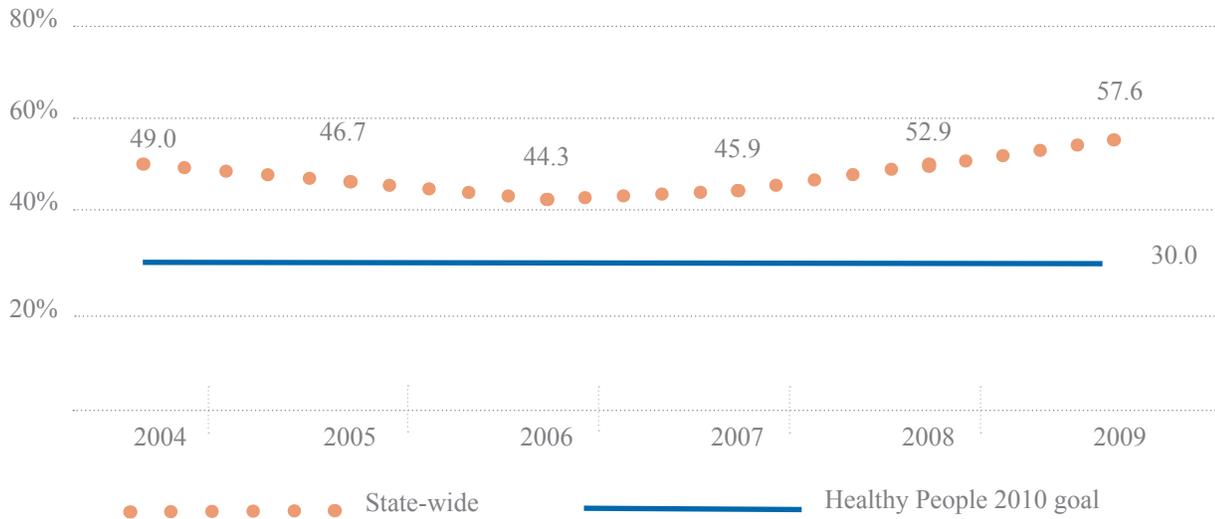
**FIGURE 5-1: TOBACCO USE DURING PREGNANCY BY YEAR  
RHODE ISLAND, 2004-2009**



## Prevalence and Trends: Smoking Cessation, 2004-2009

The proportion of Rhode Island mothers who quit smoking during their pregnancy increased from 49.0% in 2004 to 57.6% in 2009. The Healthy People 2010 goal of increasing smoking cessation during pregnancy to 30%<sup>4</sup> has been reached since 2002, when Rhode Island started to collect the PRAMS data.

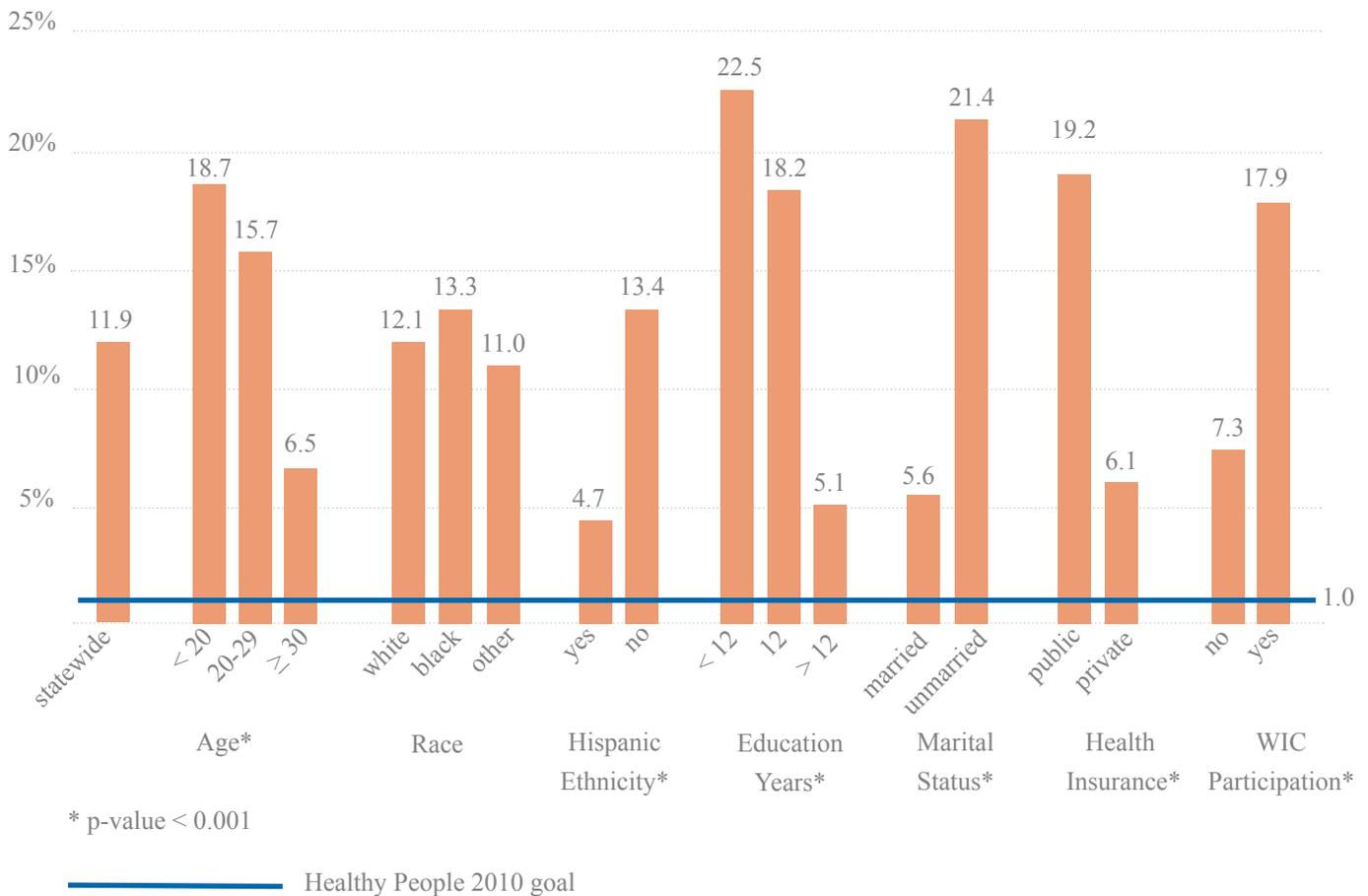
**FIGURE 5-2: SMOKING CESSATION DURING PREGNANCY BY YEAR  
RHODE ISLAND, 2004-2009**



## Demographic Characteristics, 2004-2008

- » The overall prevalence of Rhode Island mothers smoking in the last three months of pregnancy was 11.9%.
- » Demographic characteristics that were significantly (p-value less than 0.001) associated with smoking in the last three months of pregnancy included age, ethnicity, education level, marital status, health insurance type, and participation in the Women, Infants, and Children (WIC) program.
  - » Mothers who were younger than 20 years of age (18.7%), non-Hispanic (13.4%), unmarried (21.4%), had less than 12 years of education (22.5%), had public health insurance (19.2%), and participated in the WIC program (17.9%) had a higher prevalence of tobacco use during pregnancy compared with their counterparts.
- » None of the demographic groups reported in Figure 5-3 achieved the Healthy People 2010 goal of reducing cigarette smoking during pregnancy to 1%.

**FIGURE 5-3: TOBACCO USE DURING PREGNANCY: DEMOGRAPHIC CHARACTERISTICS RHODE ISLAND, 2004-2008**

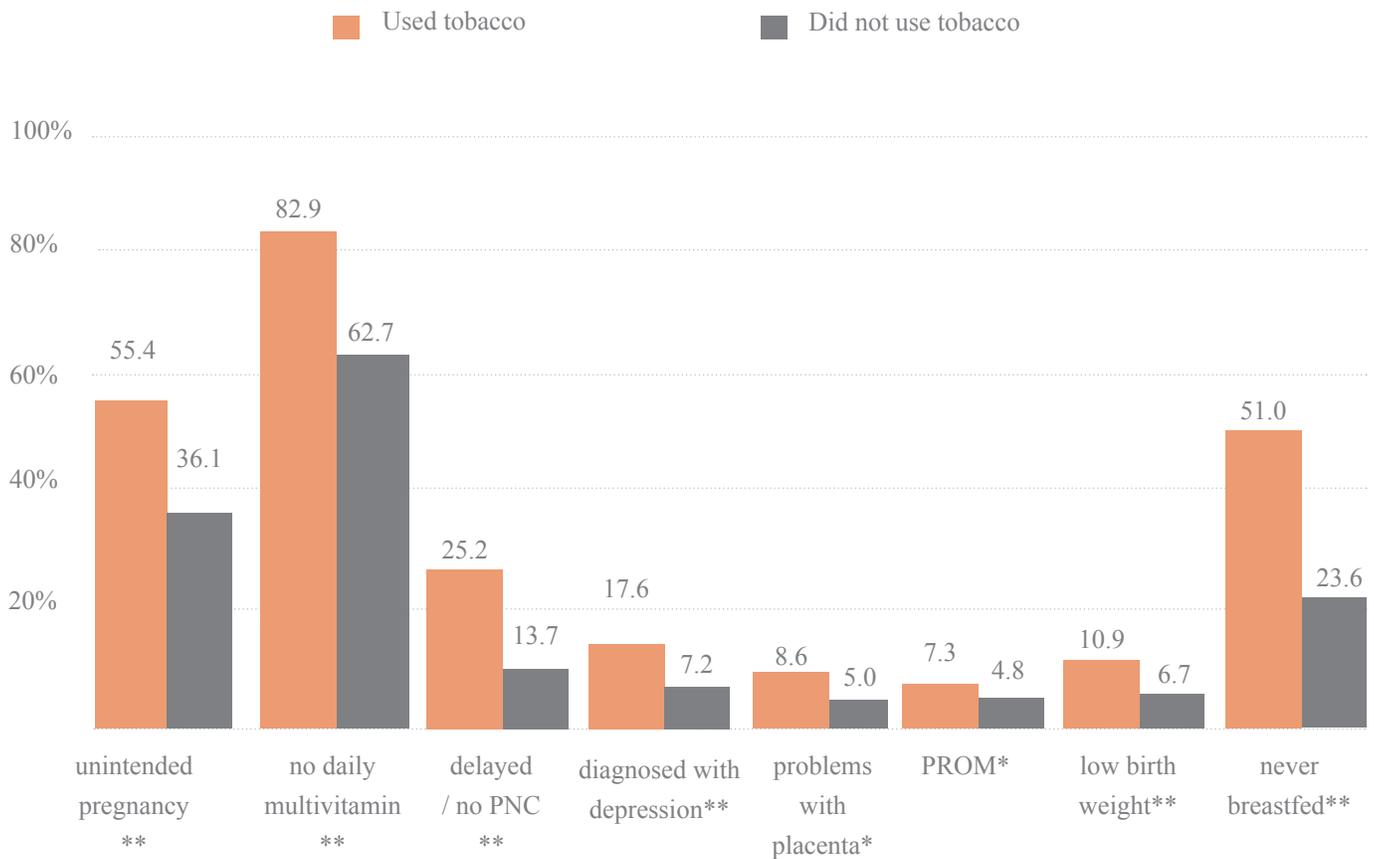


## Risk Behaviors and Outcomes by Tobacco Use During Pregnancy, 2004-2008

Mothers who smoked in the last three months of pregnancy, compared to mothers who did not smoke, were significantly (p-value less than 0.01) more likely to report that:

- » Their pregnancy was unintended (55.4% vs. 36.1%).
- » They did not take multivitamins daily prior to pregnancy (82.9% vs. 62.7%).
- » They had delayed or no prenatal care (PNC) (25.2% vs. 13.7%).
- » They were diagnosed with depression during their pregnancy (17.6% vs. 7.2%).
- » They had problems with their placenta during their pregnancy (such as placental abruption or placenta previa) (8.6% vs. 5.0%).
- » They had premature rupture of membranes (PROM) (7.3% vs. 4.8%).
- » They had a low birth weight baby (10.9% vs. 6.7%).
- » They never breastfed their baby (51.0% vs. 23.6%).

**FIGURE 5-4: RISK BEHAVIORS AND OUTCOMES BY TOBACCO USE DURING PREGNANCY, RHODE ISLAND, 2004-2008**

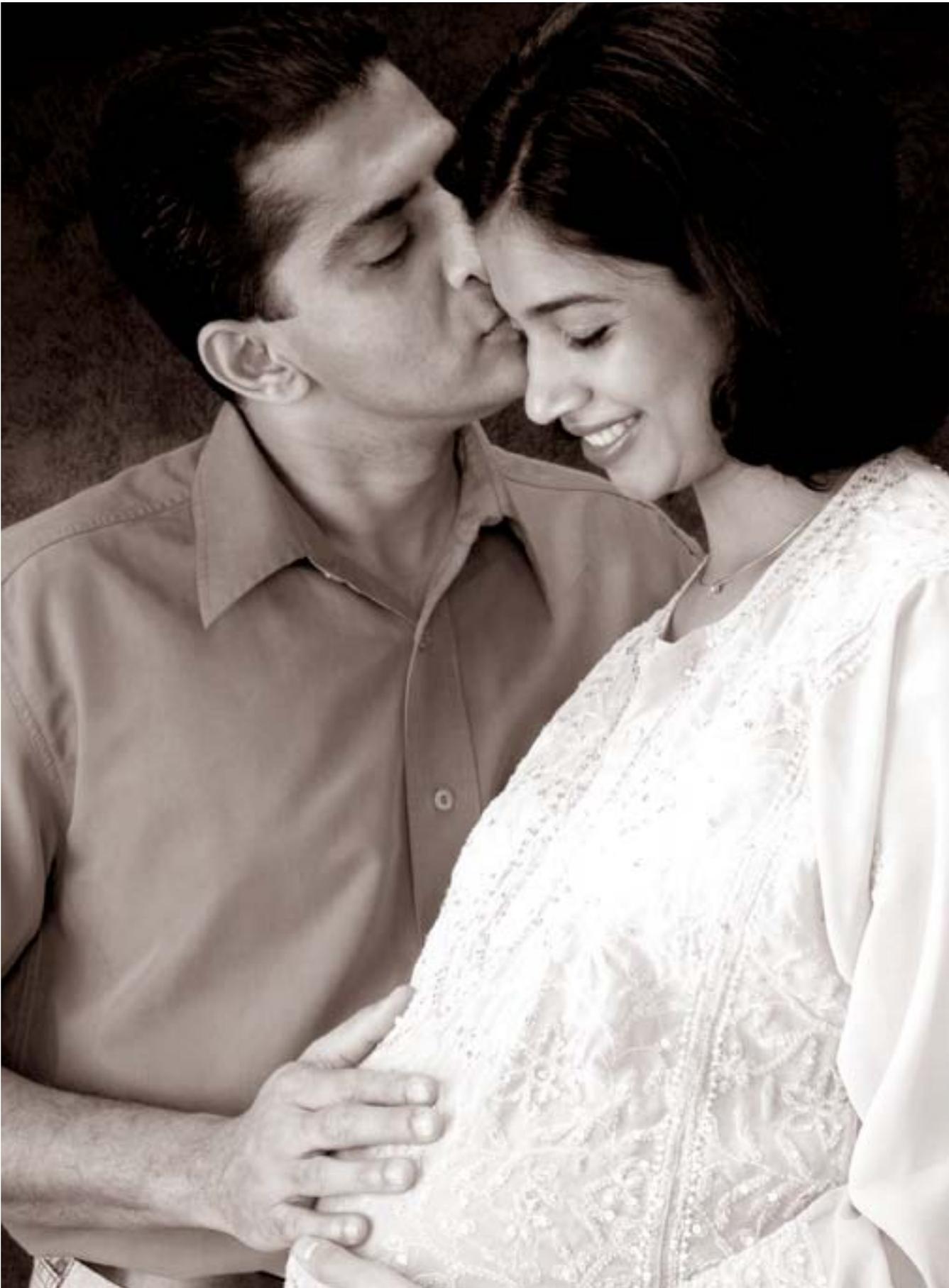


\*p-value < 0.01 \*\* p-value < 0.001



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# 6. PRENATAL CARE

## Definition and Significance

Prenatal care (PNC) is a series of assessments and interventions for pregnant women, to help ensure healthy pregnancies and birth outcomes, and to prevent any potential adverse health outcomes to mothers and their babies.<sup>1</sup> It is recommended that prenatal care start in the first trimester of pregnancy, and continue throughout the whole pregnancy period.<sup>1,2</sup> Early prenatal care provides opportunities for detection, treatment, and management of medical and obstetric conditions, as well as the opportunity for encouraging healthy behaviors by educating women in their pregnancies.<sup>2</sup> The PRAMS survey asks mothers about how many weeks or months pregnant they were when they had their first visit for prenatal care, which is used to determine the timing of prenatal care initiation. The survey also asks mothers about barriers to getting prenatal care, and the health topics that were discussed during their prenatal care visits.

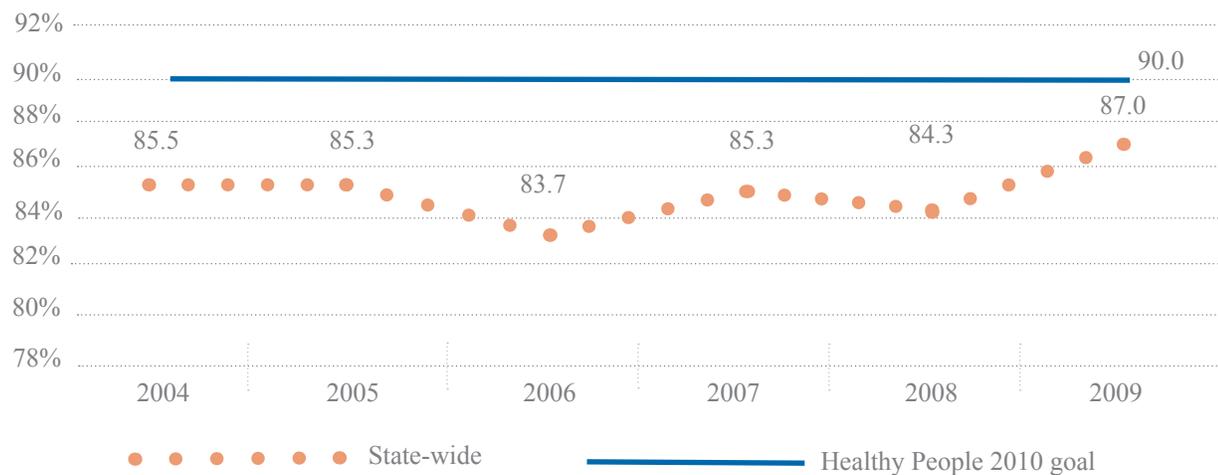
## Rhode Island Compared to Other PRAMS States, 2008

According to the PRAMS CPONDER report, the prevalence of initiating prenatal care in the first trimester ranged from 88.1% (best) to 70.0% (worst) in 2008.<sup>3</sup> Compared to the other 28 PRAMS states, Rhode Island ranked 4th (1st is the best) with 84.3% of mothers initiating prenatal care in the first trimester.<sup>3</sup>

## Prevalence and Trends, 2004-2009

The proportion of Rhode Island mothers who initiated prenatal care in the first trimester ranged from 83.7% to 85.5% during 2004-2008 and increased to 87.0% in 2009. The Healthy People 2010 goal of increasing the proportion of women initiating prenatal care in the first trimester to 90.0%<sup>4</sup> was not achieved.

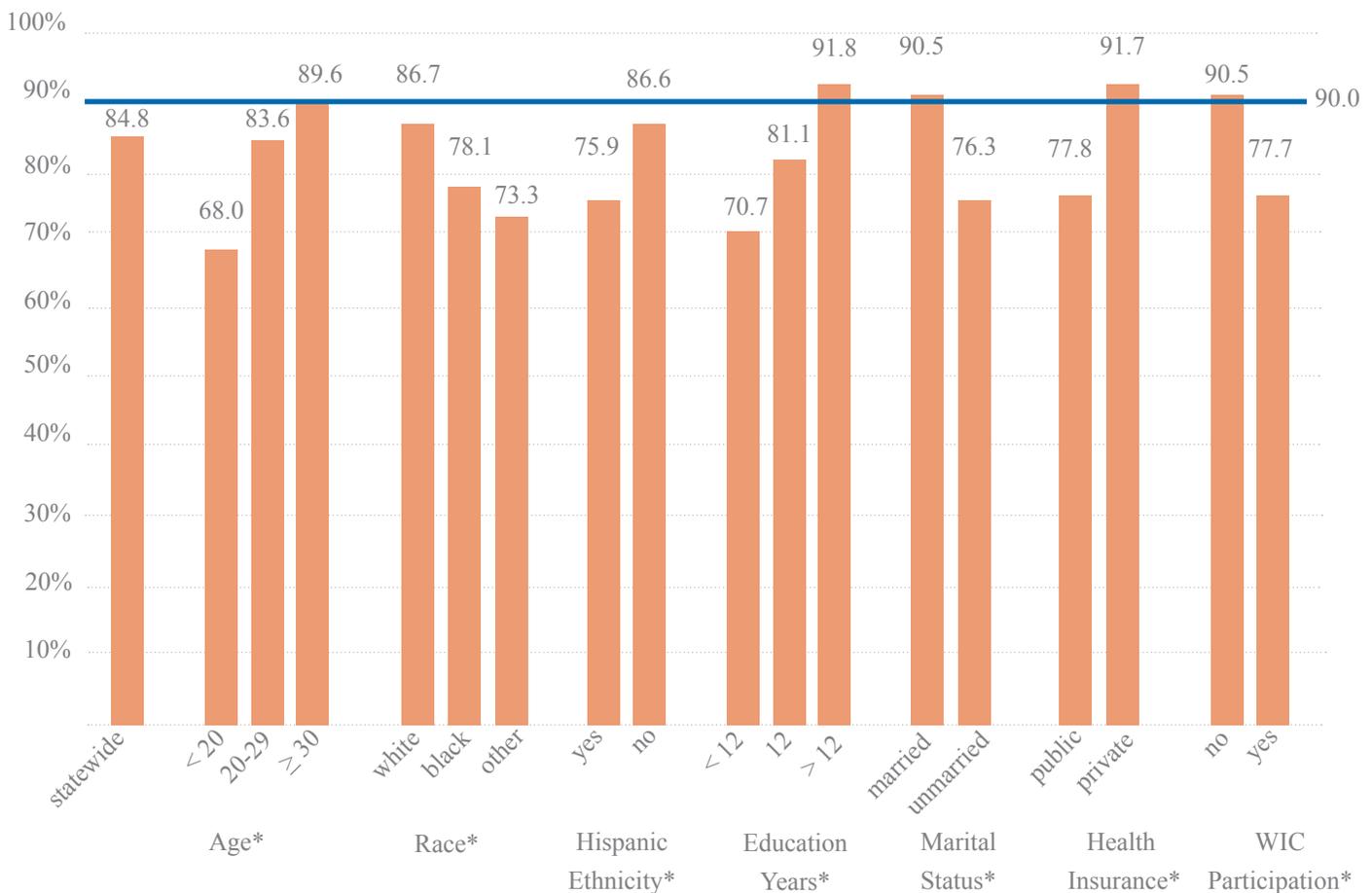
**FIGURE 6-1: PRENATAL CARE IN FIRST TRIMESTER BY YEAR  
RHODE ISLAND, 2004-2009**



## Demographic Characteristics, 2004-2008

- » The overall prevalence of Rhode Island mothers initiating prenatal care in the first trimester was 84.8%.
- » Demographic characteristics that were significantly (p-value less than 0.001) associated with initiating prenatal care in the first trimester included age, race, ethnicity, education level, marital status, health insurance type, and participation in the Women, Infants, and Children (WIC) program.
  - » Mothers who were aged 30 or older (89.6%), white (86.7%), non-Hispanic (86.6%), married (90.5%), had more than 12 years of education (91.8%), had private health insurance (91.7%), and did not participate in the WIC program (90.5%) had a higher prevalence of initiating prenatal care in the first trimester compared with their counterparts.
  - » Demographic groups that achieved the Healthy People 2010 goal of 90.0% included mothers who were married, had more than 12 years of education, had private health insurance, and did not participate in the WIC program.

**FIGURE 6-2: PRENATAL CARE IN FIRST TRIMESTER: DEMOGRAPHIC CHARACTERISTICS, RHODE ISLAND, 2004-2008**



\* p-value < 0.001

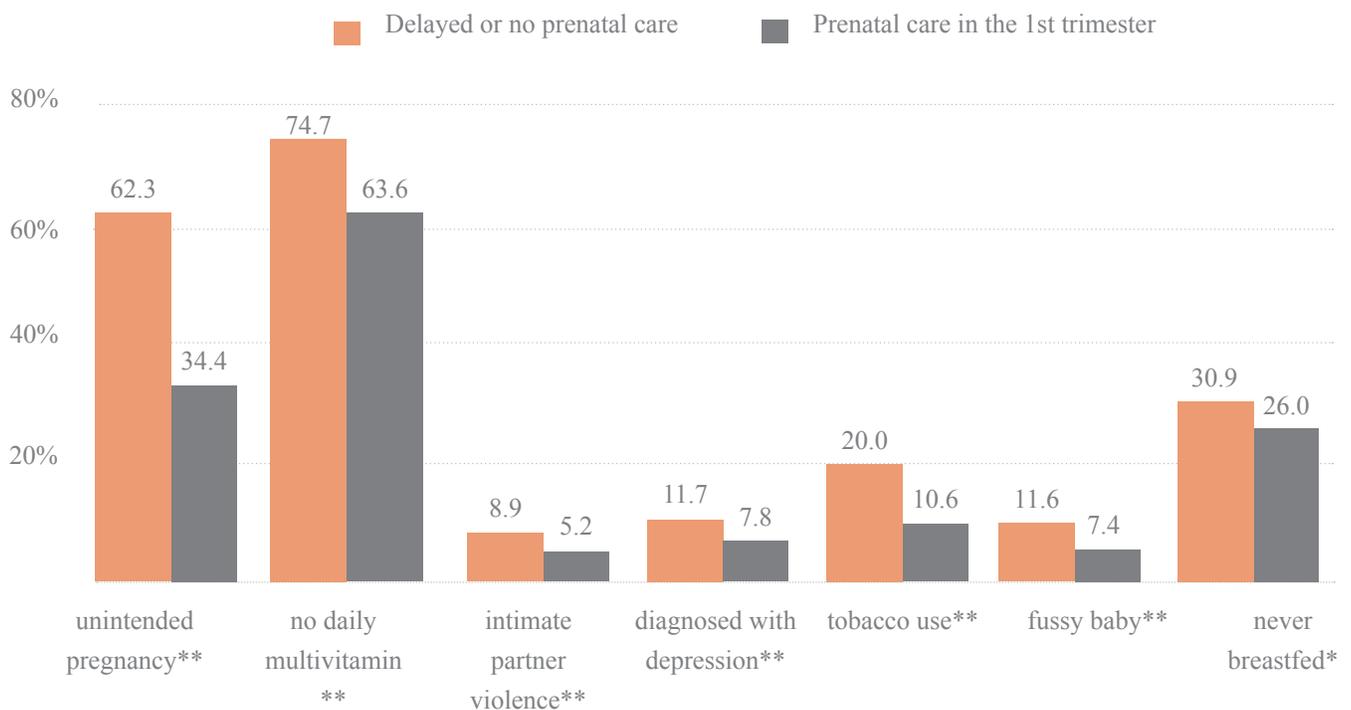
— Healthy People 2010 goal

## Risk Behaviors and Outcomes by Prenatal Care Initiation, 2004-2008

Mothers who had delayed or no prenatal care, compared to mothers who initiated prenatal care in the first trimester, were significantly (p-value less than 0.01) more likely to report that:

- » Their pregnancy was unintended (62.3% vs. 34.4%).
- » They did not take multivitamins daily prior to pregnancy (74.7% vs. 63.6%).
- » They experienced intimate partner violence during the 12 months before pregnancy or during pregnancy (8.9% vs. 5.2%).
- » They were diagnosed with depression during their pregnancy (11.7% vs. 7.8%).
- » They smoked during their pregnancy (20.0% vs. 10.6%).
- » They had a fussy baby (11.6% vs. 7.4%). (This question refers to the mother's perception about how easy it is to calm her baby when the baby is crying or fussing.)
- » They never breastfed their baby (30.9% vs. 26.0%).

**FIGURE 6-3: RISK BEHAVIORS AND OUTCOMES BY PRENATAL CARE INITIATION RHODE ISLAND, 2004-2008**

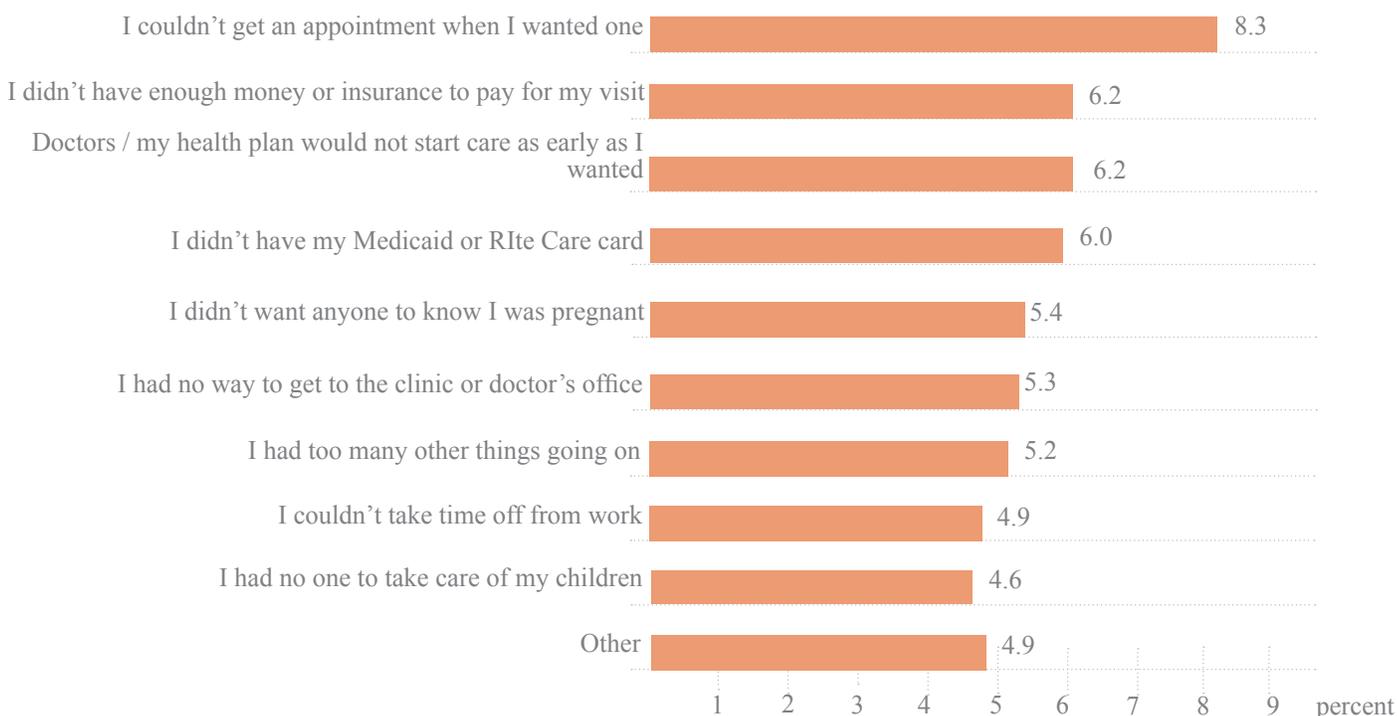


\* p-value < 0.01 \*\*p-value < 0.001

## Barriers to Getting Prenatal Care, 2004-2008

In 2004-2008, a small proportion of Rhode Island mothers (0.4%) reported they did not want prenatal care during their most recent pregnancy. Of those mothers who wanted prenatal care, 8.3% reported they did not get an appointment when they wanted one; 6.2% reported not having enough money or insurance to pay for their visits; and 6.2% reported their doctor or health plan would not start care as early as they wanted.

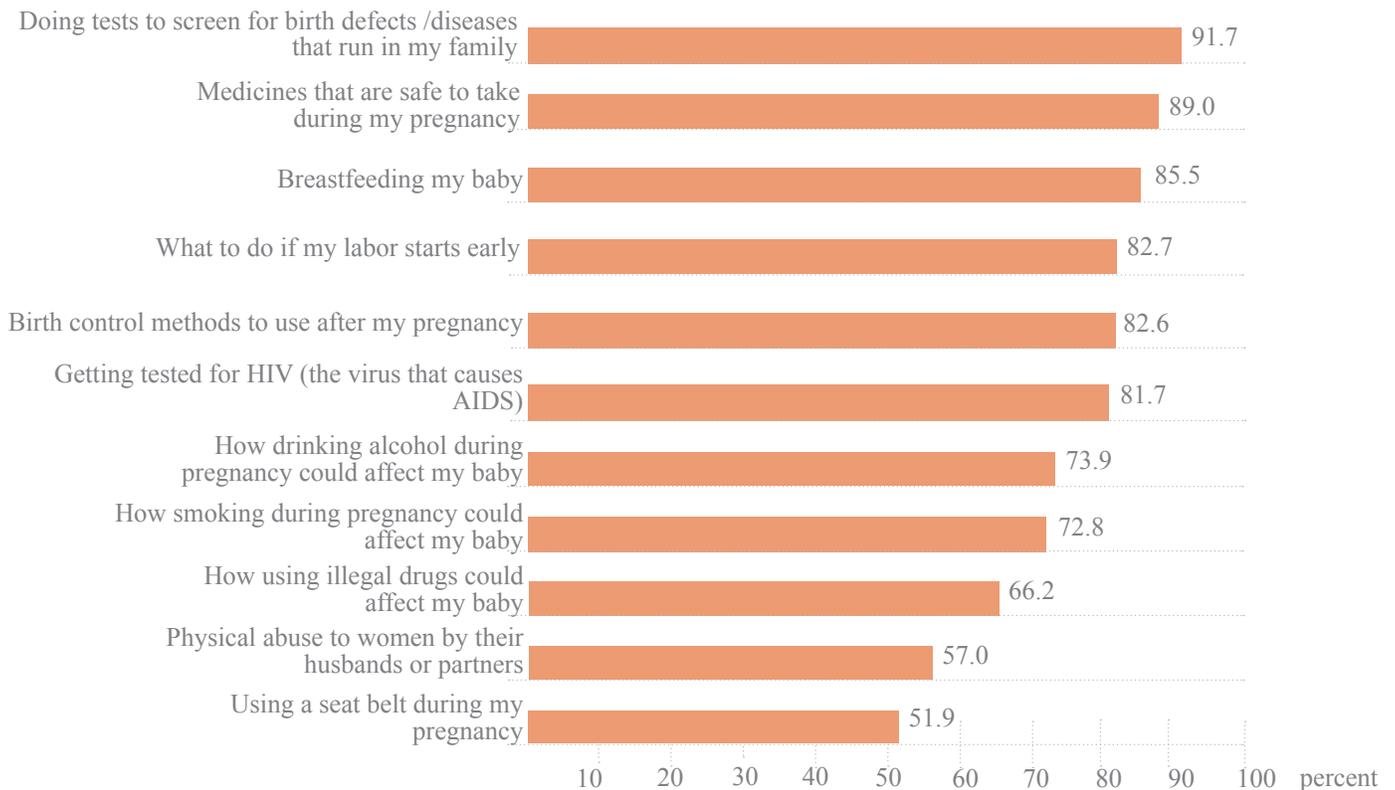
**FIGURE 6-4: BARRIERS TO GETTING PRENATAL CARE, RHODE ISLAND, 2004-2008**



## Discussions During Prenatal Care, 2004-2008

The PRAMS survey asks mothers about what kinds of health topics their healthcare providers talked with them during their prenatal care visits. The most frequently discussed health topics were: doing tests to screen for birth defects or diseases that run in their family (91.7%), medicines that are safe to take during pregnancy (89.0%), and breastfeeding their baby (85.5%). However, only 51.9% of the mothers reported discussions about using a seat belt during pregnancy.

**FIGURE 6-5: DISCUSSIONS WITH HEALTHCARE PROVIDERS DURING PRENATAL CARE VISITS, RHODE ISLAND, 2004-2008**





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# 7. INFLUENZA (FLU) VACCINATION DURING PREGNANCY

## Definition and Significance

Pregnant women have increased morbidity and mortality from flu infection, likely due to the physiological changes associated with pregnancy.<sup>1</sup> Pregnant women with the flu also have an increased risk of developing health problems for their unborn baby, including premature labor and delivery.<sup>1</sup> Flu vaccination during pregnancy is safe and the most effective way to protect pregnant women, their unborn babies, and their infants from flu infection and its complications. Research has shown that vaccination during pregnancy significantly reduces flu illness among infants up to six months of age who are too young to be vaccinated.<sup>2</sup> Therefore, the Centers for Disease Control and Prevention (CDC) recommend that all pregnant women, regardless of trimester of pregnancy, get a flu vaccination during the flu season. The Rhode Island PRAMS survey includes two standard questions regarding flu vaccination, which ask mothers 1) whether their healthcare provider offered a flu vaccination or told them to get one at any time during their pregnancy, and 2) whether they got a flu vaccination during their pregnancy.

## Rhode Island Compared to Other PRAMS States, 2008

Data on flu vaccination for other PRAMS states are not available in the CDC's CPONDER report as the flu questions were not core questions during 2004-2008.

## Prevalence and Trends: Flu Vaccine Offered / Recommended, 2004-2009

The proportion of Rhode Island mothers who were offered a flu vaccination or told to get one by their healthcare providers during pregnancy increased from 33.0% in 2004 to 71.8% in 2009.

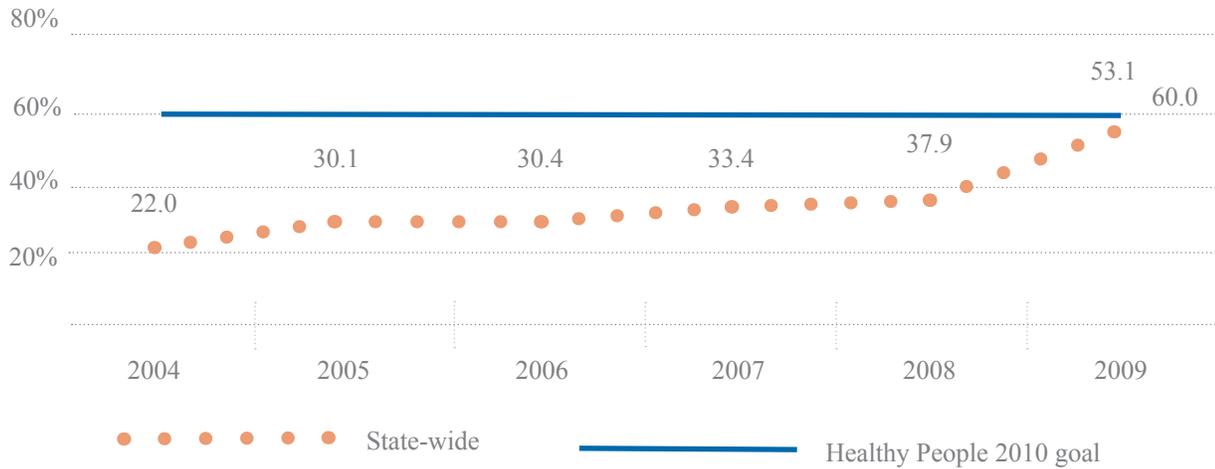
**FIGURE 7-1: FLU VACCINE OFFERED / RECOMMENDED DURING PREGNANCY BY YEAR RHODE ISLAND, 2004-2009**



## Prevalence and Trends: Flu Vaccine Received, 2004-2009

The proportion of Rhode Island mothers who received a flu vaccination during their pregnancy increased every year, from 22.0% in 2004 to 53.1% in 2009. The Healthy People 2010 goal of increasing the proportion of high-risk adults who are vaccinated against flu to 60.0%<sup>3</sup> was not achieved.

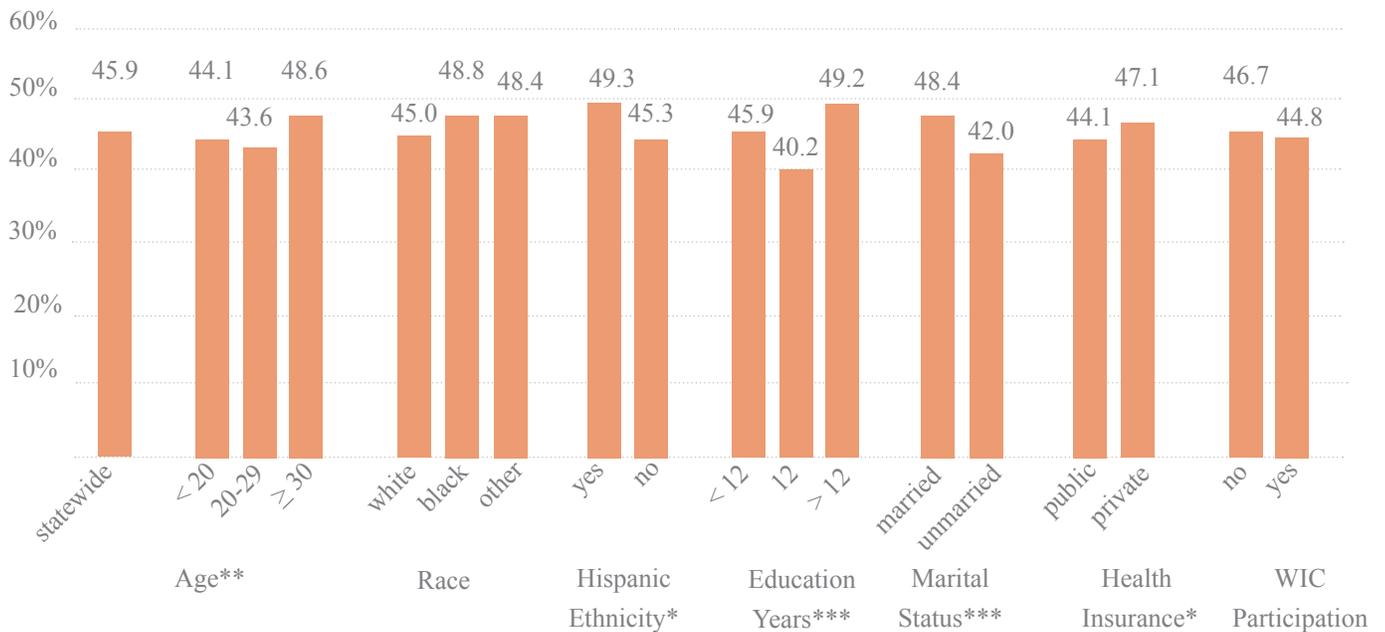
**FIGURE 7-2: FLU VACCINE RECEIVED DURING PREGNANCY BY YEAR  
RHODE ISLAND, 2004-2009**



## Demographic Characteristics: Flu Vaccine Offered / Recommended, 2004-2008

- » The overall prevalence of Rhode Island mothers being offered a flu vaccination or told to get one by their healthcare providers during pregnancy was 45.9%.
- » Demographic characteristics that were significantly (p-value less than 0.05) associated with receiving advice on flu vaccination during pregnancy included age, ethnicity, education level, marital status, and health insurance type.
  - » Mothers who were aged 30 or older (48.6%), Hispanic (49.3%), married (48.4%), had more than 12 years of education (49.2%), and had private health insurance (47.1%) had a higher prevalence of receiving advice on flu vaccination during pregnancy compared with their counterparts.

**FIGURE 7-3: FLU VACCINE OFFERED / RECOMMENDED: DEMOGRAPHIC CHARACTERISTICS, RHODE ISLAND, 2004-2008**

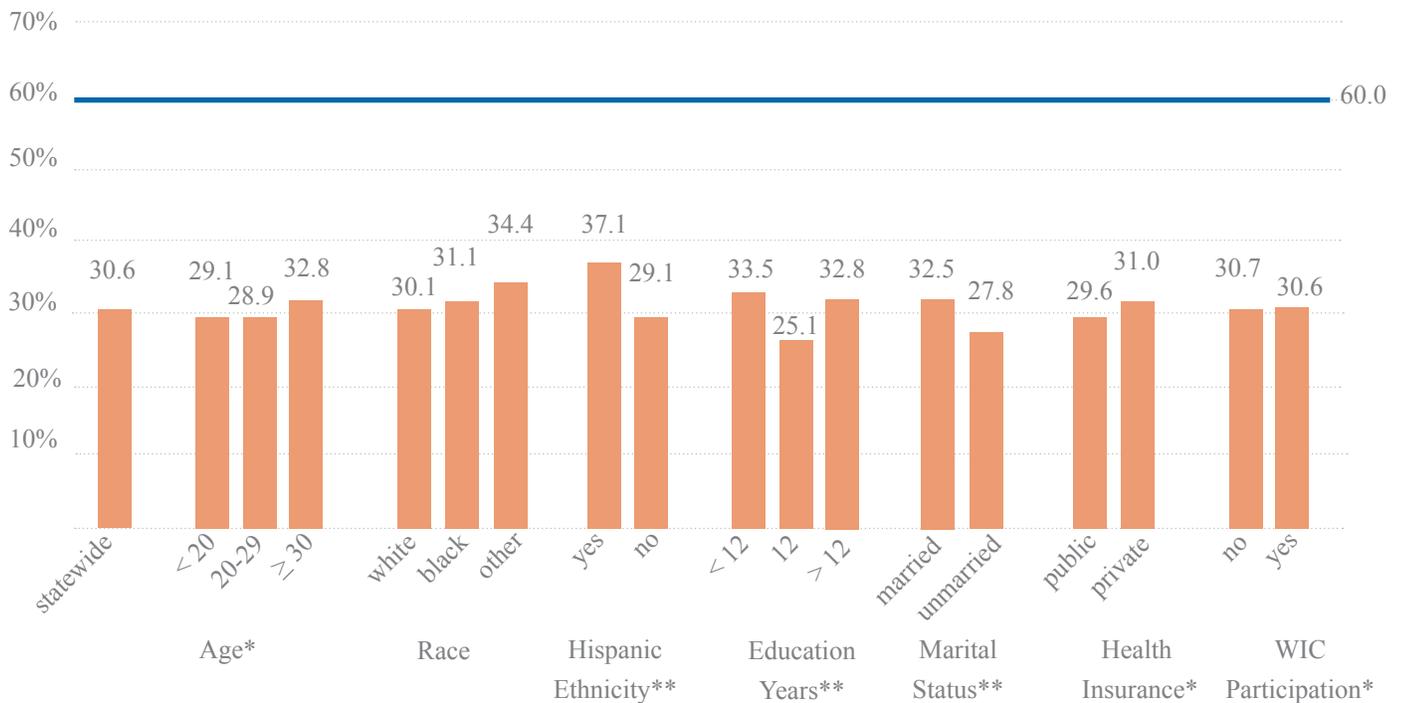


\* p-value < 0.05    \*\* p-value < 0.01    \*\*\* p-value < 0.001

## Demographic Characteristics: Flu Vaccine Received, 2004-2008

- » The overall prevalence of Rhode Island mothers receiving a flu vaccination during their pregnancy was 30.6%.
- » Demographic characteristics that were significantly (p-value less than 0.05) associated with receiving a flu vaccination during pregnancy included age, ethnicity, education level, and marital status.
  - » Mothers who were aged 30 or older (32.8%), Hispanic (37.1%), married (32.5%), and had less than 12 years of education (33.5%) had a higher prevalence of receiving a flu vaccination during their pregnancy compared with their counterparts.
- » None of the demographic groups reported in Figure 7-4 achieved the Healthy People 2010 goal of a 60.0% vaccination rate.

**FIGURE 7-4: FLU VACCINE RECEIVED DURING PREGNANCY: DEMOGRAPHIC CHARACTERISTICS, RHODE ISLAND, 2004-2008**



\* p-value < 0.05    \*\* p-value < 0.001

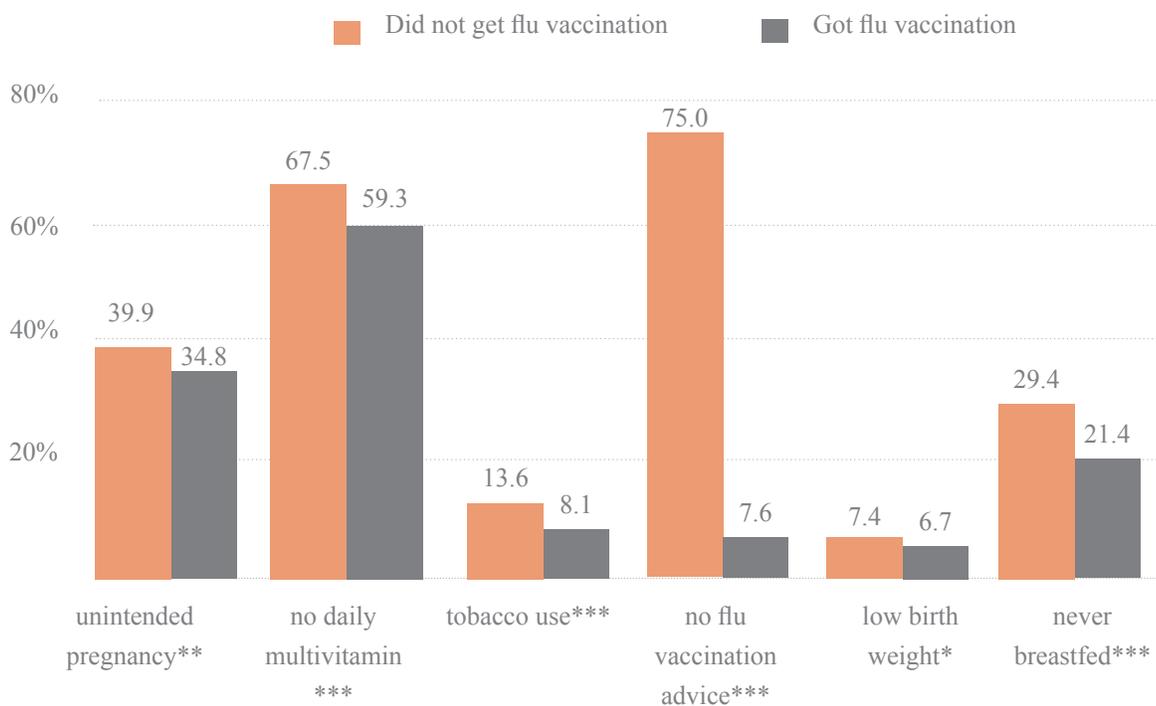
————— Healthy People 2010 goal

# Risk Behaviors and Outcomes by Flu Vaccination During Pregnancy, 2004-2008

Mothers who did not receive a flu vaccination during their pregnancy, compared to mothers who received a flu vaccination, were significantly (p-value less than 0.05) more likely to report that:

- » Their pregnancy was unintended (39.9% vs. 34.8%).
- » They did not take multivitamins daily prior to pregnancy (67.5% vs. 59.3%).
- » They smoked during their pregnancy (13.6% vs. 8.1%).
- » They were not offered a flu vaccination or told to get one by their healthcare providers during pregnancy (75.0% vs. 7.6%).
- » They had a low birth weight baby (7.4% vs. 6.7%).
- » They never breastfed their baby (29.4% vs. 21.4%).

**FIGURE 7-5: RISK BEHAVIORS AND OUTCOMES BY FLU VACCINATION DURING PREGNANCY, RHODE ISLAND, 2004-2008**



\* p-value < 0.05    \*\*p-value < 0.01    \*\*\* p-value < 0.001



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3. U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Healthy People 2010, Immunization and Infectious Diseases. Available from: [www.healthypeople.gov/2010/data/midcourse/html/focusareas/fa14objectives.htm](http://www.healthypeople.gov/2010/data/midcourse/html/focusareas/fa14objectives.htm)

## Related Publication

Kim H, Raymond R, Paine V, Cain R, Viner-Brown S. *Seasonal Influenza Vaccination Coverage among Pregnant Women in Rhode Island*. *Medicine & Health / Rhode Island*, Vol. 92 (No. 10):345-347, October 2009. Available from: [www.rimed.org/medhealthri/2009-10/2009-10-345.pdf](http://www.rimed.org/medhealthri/2009-10/2009-10-345.pdf)

# 8. HUMAN IMMUNODEFICIENCY VIRUS (HIV) TESTING

## Definition and Significance

In the United States, between 120,000 and 160,000 women are human immunodeficiency virus (HIV) positive, but nearly one in four of them does not know that she has HIV.<sup>1</sup> HIV can be transmitted from HIV positive mothers to their babies during pregnancy, at the time of child delivery, or through breastfeeding.<sup>1</sup> The chance that HIV infection is transmitted from an HIV positive mother to her baby is about 25% if the mother is not treated, but it can be reduced to less than 2% if the mother is treated.<sup>1,2</sup> Therefore, getting a test for HIV before pregnancy or as early as possible during pregnancy is important to prevent newborn babies from contracting HIV.<sup>2</sup> The PRAMS survey asks mothers about whether they were tested for HIV at any time during their pregnancy or delivery. Three response options are included: “yes,” “no,” and “I do not know.” Since a large proportion of mothers do not know whether they had an HIV test during their pregnancy, all three response options were included in the analyses, which is consistent with the PRAMS CPONDER report.

## Rhode Island Compared to Other PRAMS States, 2008

According to the PRAMS CPONDER report, the prevalence of getting a test for HIV at any time during pregnancy or delivery ranged from 86.7% (best) to 37.9% (worst) in 2008.<sup>3</sup> Compared to the other 28 PRAMS states, Rhode Island ranked 8th (1st is the best) with 71.8% of mothers having had a test for HIV.<sup>3</sup>

## Prevalence and Trends, 2004-2009

The proportion of Rhode Island mothers who were tested for HIV at any time during pregnancy or delivery increased every year, from 55.5% in 2004 to 73.3% in 2009.

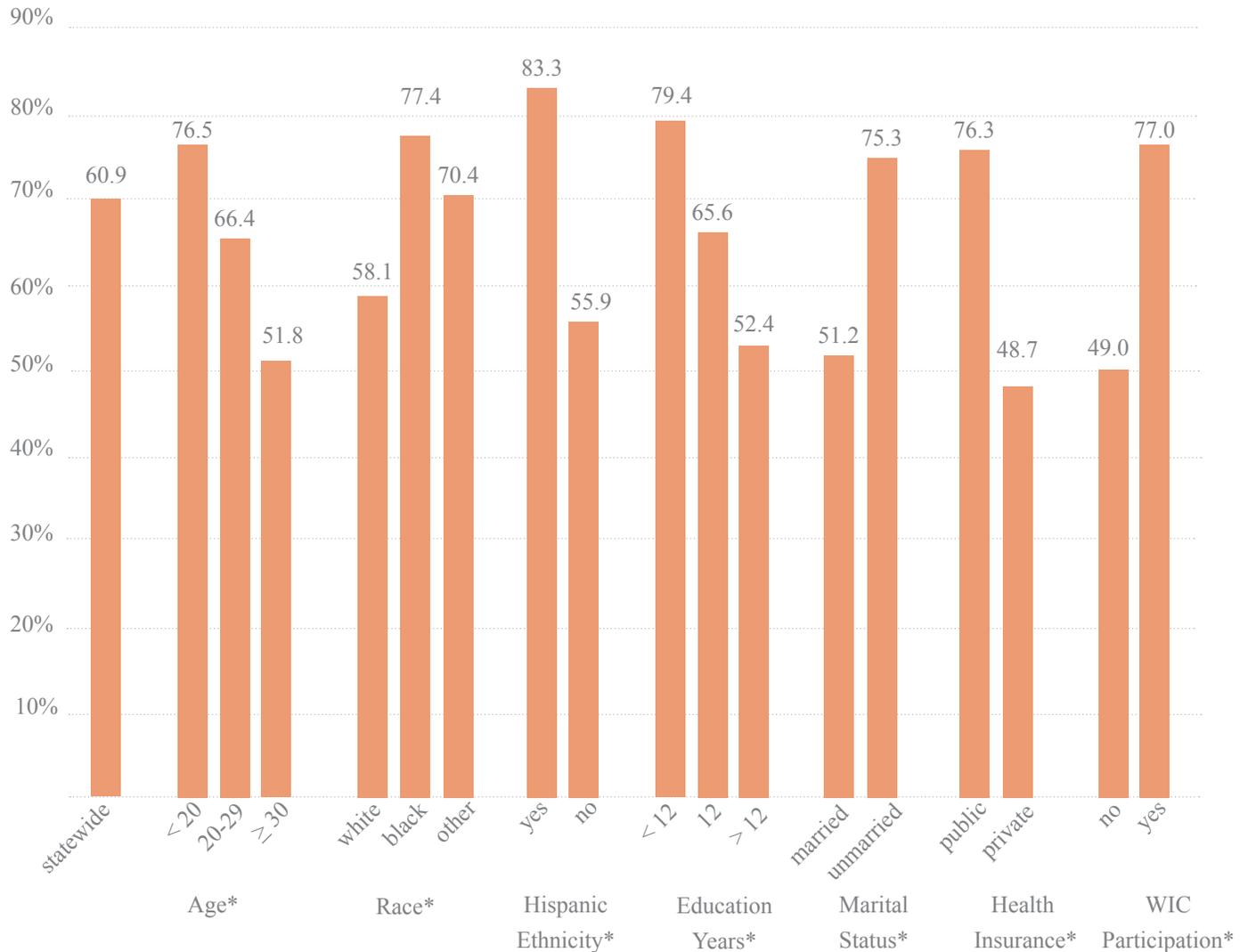
**FIGURE 8-1: TESTED FOR HIV DURING PREGNANCY BY YEAR  
RHODE ISLAND, 2004-2009**



## Demographic Characteristics, 2004-2008

- » The overall prevalence of Rhode Island mothers getting an HIV test at any time during pregnancy or delivery was 60.9%.
- » Demographic characteristics that were significantly (p-value less than 0.001) associated with getting an HIV test at any time during pregnancy or delivery included age, race, ethnicity, education level, marital status, health insurance type, and participation in the Women, Infants, and Children (WIC) program.
  - » Mothers who were younger than 20 years of age (76.5%), black (77.4%), Hispanic (83.3%), unmarried (75.3%), had less than 12 years of education (79.4%), had public health insurance (76.3%), and participated in the WIC program (77.0%) had a higher prevalence of getting an HIV test during their pregnancy or delivery compared with their counterparts.

**FIGURE 8-2: TESTED FOR HIV DURING PREGNANCY: DEMOGRAPHIC CHARACTERISTICS, RHODE ISLAND, 2004-2008**



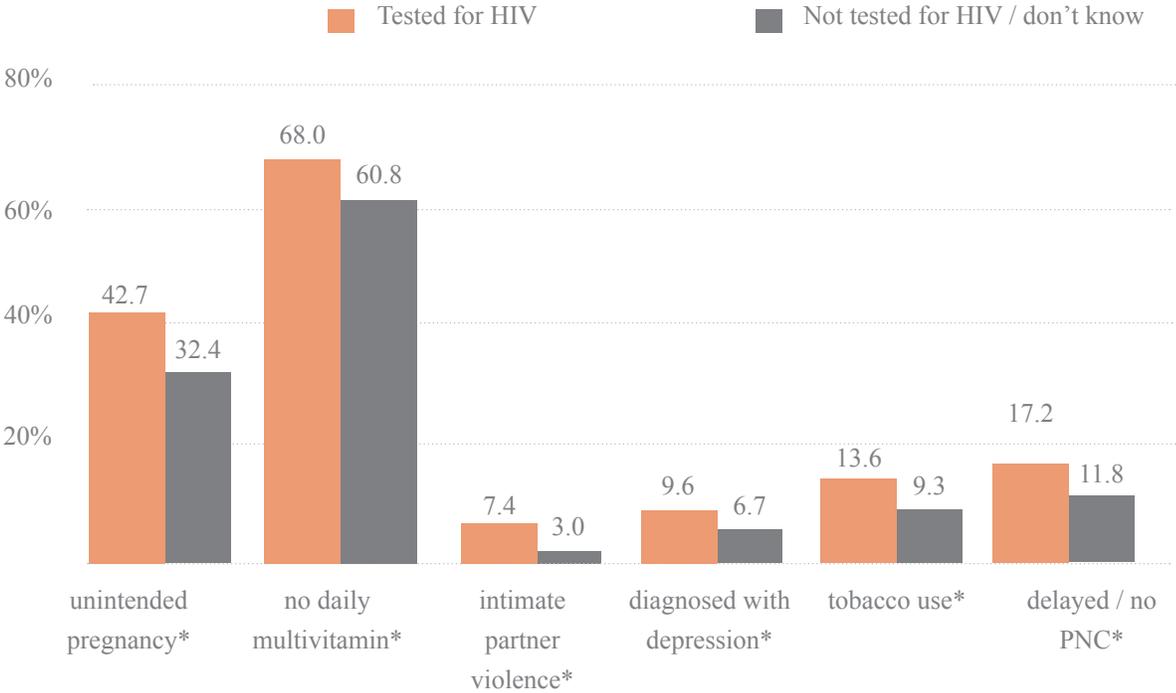
\* p-value < 0.001

# Risk Behaviors and Outcomes by HIV Testing During Pregnancy, 2004-2008

Mothers who were tested for HIV at any time during pregnancy or delivery, compared to mothers who were not tested for HIV, were significantly (p-value less than 0.001) more likely to report that:

- » Their pregnancy was unintended (42.7% vs. 32.4%).
- » They did not take multivitamins daily prior to pregnancy (68.0% vs. 60.8%).
- » They experienced intimate partner violence during the 12 months before pregnancy or during pregnancy (7.4% vs. 3.0%).
- » They were diagnosed with depression during their pregnancy (9.6% vs. 6.7%).
- » They smoked during their pregnancy (13.6% vs. 9.3%).
- » They had delayed or no prenatal care (PNC) (17.2% vs. 11.8%).

**FIGURE 8-3: RISK BEHAVIORS AND OUTCOMES BY HIV TESTING DURING PREGNANCY, RHODE ISLAND, 2004-2008**



\*p-value < 0.001



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3. Centers for Disease Control and Prevention (CDC). CPONDER—CDC's PRAMS On-line Data for Epidemiologic Research. Available from: <http://apps.nccd.cdc.gov/cPONDER>

## 9. PERINATAL DEPRESSION

### Definition and Significance

Depressive symptoms may include a sad mood, loss of interest in many activities, feelings of worthlessness, problems in thinking or concentrating, and changes in eating or sleep.<sup>1</sup> According to the Centers for Disease Control and Prevention (CDC), approximately 1 in 10 women experience depression during pregnancy or within the first year after pregnancy.<sup>2</sup> Depression during or after pregnancy (postpartum depression) may affect a woman's ability to perform daily activities or to take care of her infant.<sup>2,3</sup> The Rhode Island PRAMS survey includes a CDC standard question that asks mothers whether their doctor, nurse, or other healthcare worker diagnosed them with **depression at any time during their pregnancy**. To determine **postpartum depression**, many states, including Rhode Island, ask two CDC standard questions: 1) "Since your new baby was born, how often have you felt down, depressed, or hopeless?" and 2) "Since your new baby was born, how often have you had little interest or little pleasure in doing things?" Mothers who reported "always" or "often" to either question were classified as experiencing postpartum depressive symptoms (PDS). Since many PRAMS states included these standard questions, the CDC PRAMS Program reported the data in CPONDER.

### Rhode Island Compared to Other PRAMS States, 2008

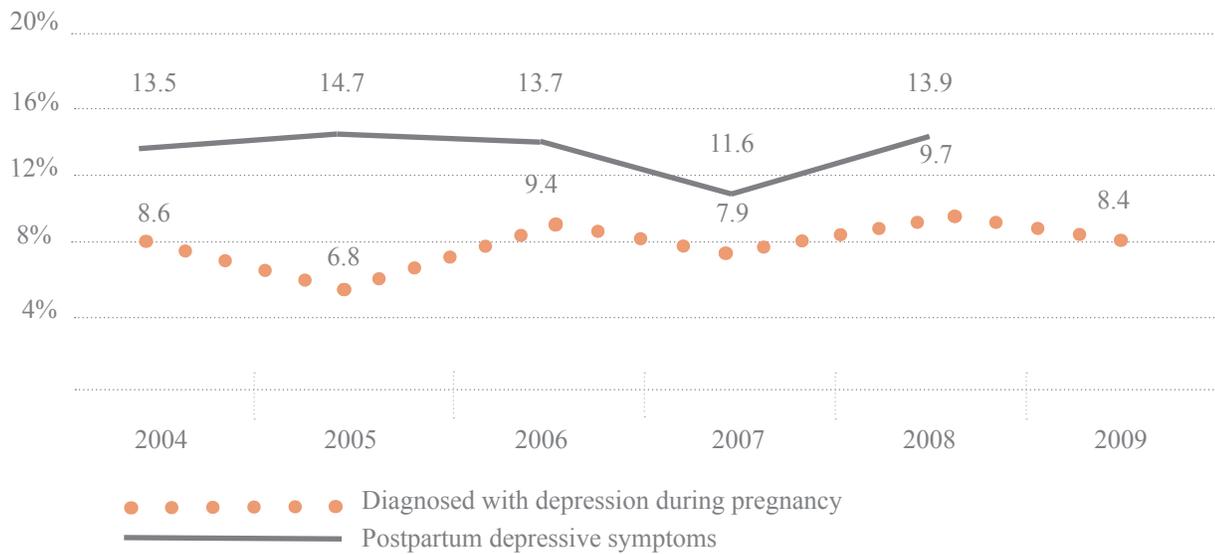
The PRAMS CPONDER reported the prevalence of mothers with frequent PDS for 22 states in 2008. According to the PRAMS CPONDER report, the prevalence ranged from 9.8% (best) to 21.3% (worst).<sup>3</sup> Compared to the other 21 PRAMS states, Rhode Island ranked 17th (1st is the best) with 13.9% of mothers experiencing frequent PDS.<sup>4</sup>



## Prevalence and Trends, 2004-2009

The proportion of Rhode Island mothers who were **diagnosed with depression during pregnancy** fluctuated, ranging from 6.8% to 9.7%, during 2004-2009. The proportion of Rhode Island mothers who reported **postpartum depressive symptoms** ranged from 11.6% to 14.7% during 2004-2008. The postpartum depression questions were changed in Phase 6, so the 2009 data are not comparable with previous years and not reported here.

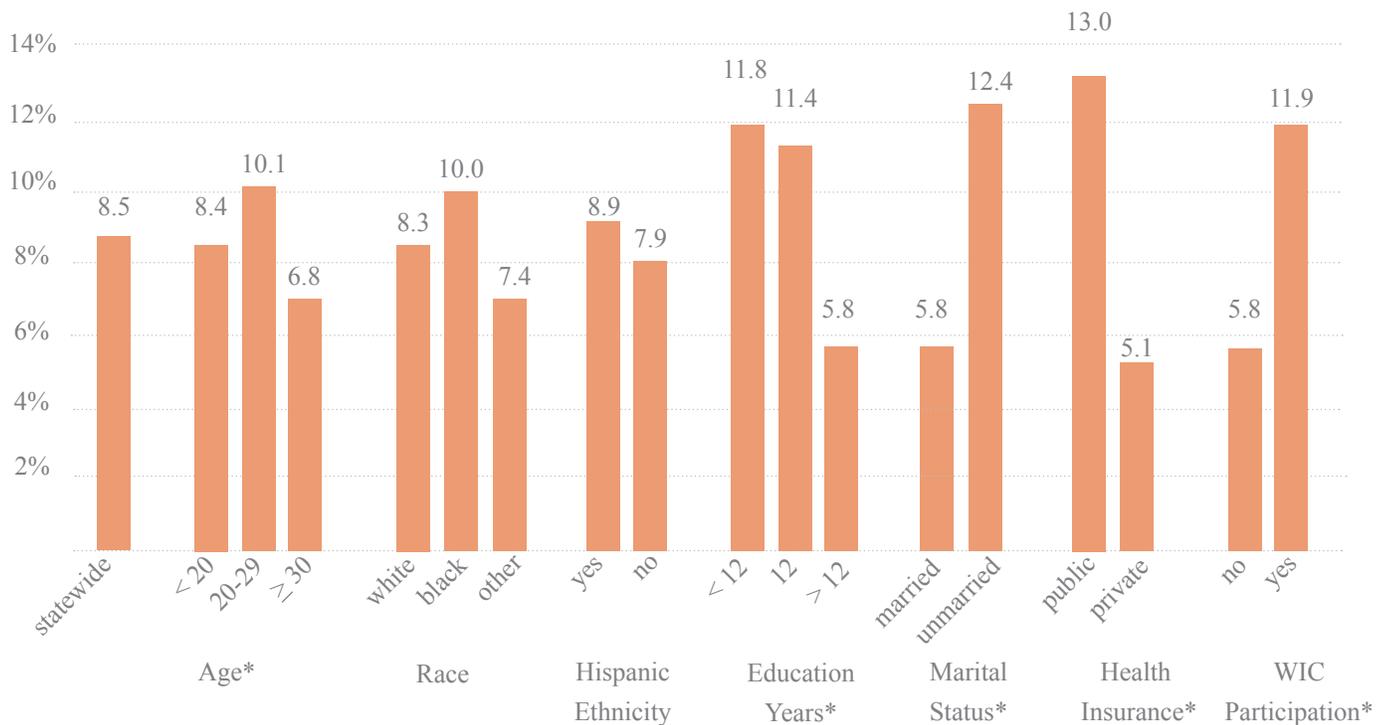
**FIGURE 9-1: DEPRESSION DURING / AFTER PREGNANCY BY YEAR  
RHODE ISLAND, 2004-2009**



## Demographic Characteristics: Depression During Pregnancy, 2004-2008

- » The overall prevalence of Rhode Island mothers **diagnosed with depression during pregnancy** was 8.5%.
- » Demographic characteristics that were significantly (p-value less than 0.001) associated with being diagnosed with depression during pregnancy included age, education level, marital status, health insurance type, and participation in the Women, Infants, and Children (WIC) program.
  - » Mothers who were aged 20-29 years (10.1%), were unmarried (12.4%), had less than 12 years of education (11.8%), had public health insurance (13.0%), and participated in the WIC program (11.9%) had a higher prevalence of being diagnosed with depression during pregnancy compared with their counterparts.

**FIGURE 9-2: DIAGNOSED WITH DEPRESSION DURING PREGNANCY: DEMOGRAPHIC CHARACTERISTICS, RHODE ISLAND, 2004-2008**

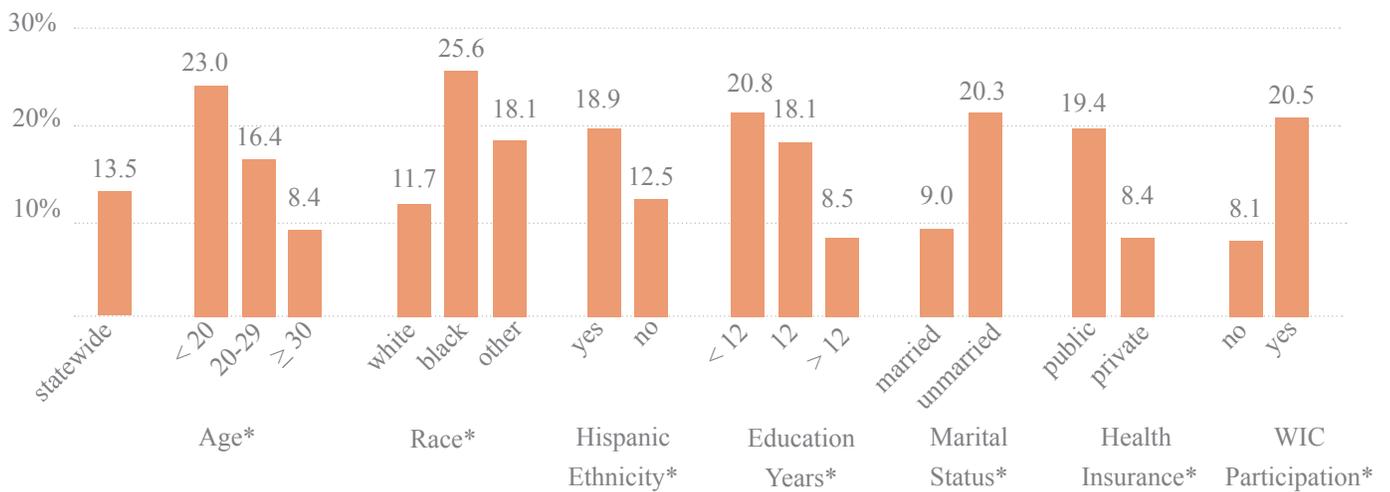


\* p-value < 0.001

## Demographic Characteristics: Postpartum Depressive Symptoms, 2004-2008

- » The overall prevalence of Rhode Island mothers reporting **postpartum depressive symptoms** (PDS) was 13.5%.
- » Demographic characteristics that were significantly (p-value less than 0.001) associated with PDS included age, race, ethnicity, education level, marital status, health insurance type, and participation in the Women, Infants, and Children (WIC) program.
  - » Mothers who were younger than 20 years old (23.0%), black (25.6%), Hispanic (18.9%), unmarried (20.3%), had less than 12 years of education (20.8%), had public health insurance (19.4%), and participated in the WIC program (20.5%) had a higher prevalence of PDS compared with their counterparts.

**FIGURE 9-3: POSTPARTUM DEPRESSIVE SYMPTOMS: DEMOGRAPHIC CHARACTERISTICS, RHODE ISLAND, 2004-2008**



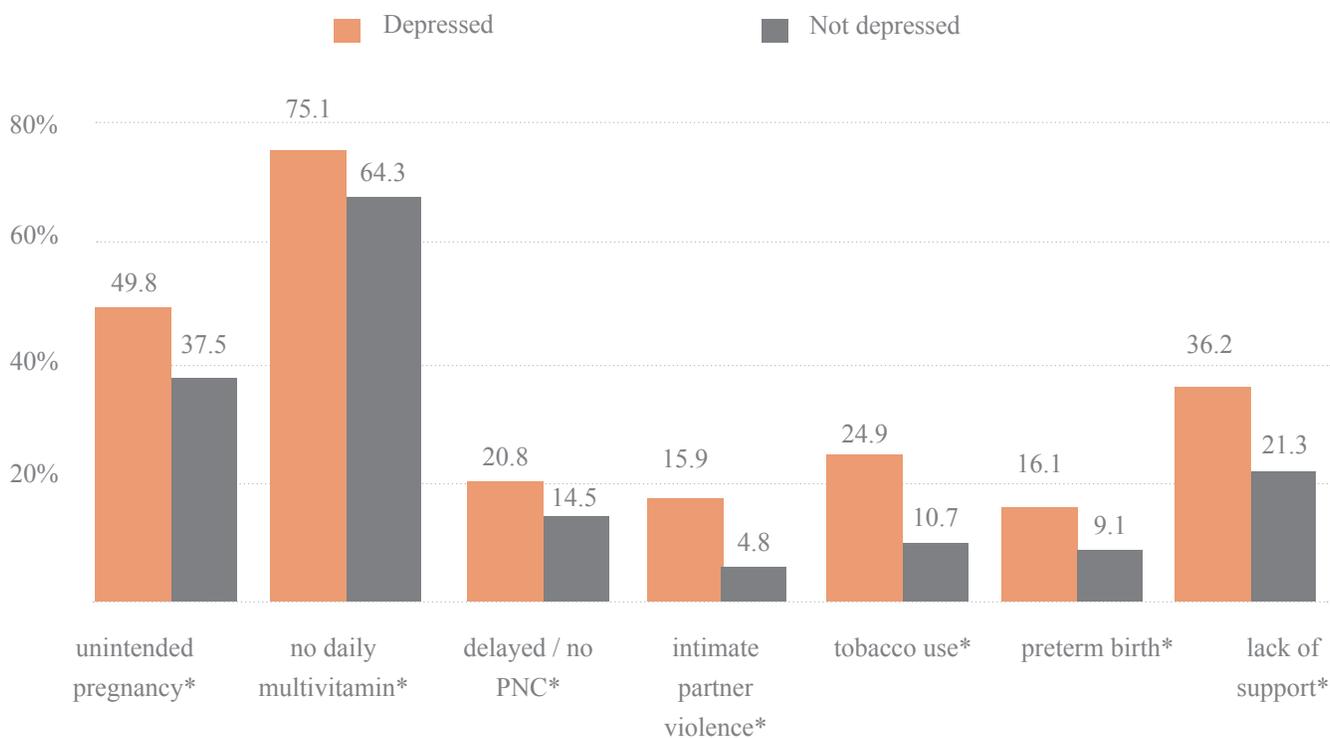
\* p-value < 0.001

## Risk Behaviors and Outcomes by Depression During Pregnancy, 2004-2008

Mothers diagnosed with depression **during pregnancy**, compared to mothers not diagnosed with depression, were significantly (p-value less than 0.001) more likely to report that:

- » Their pregnancy was unintended (49.8% vs. 37.5%).
- » They did not take multivitamins daily prior to pregnancy (75.1% vs. 64.3%).
- » They had delayed or no prenatal care (PNC) (20.8% vs. 14.5%).
- » They experienced intimate partner violence during the 12 months before pregnancy or during pregnancy (15.9% vs. 4.8%).
- » They smoked during their pregnancy (24.9% vs. 10.7%).
- » They had a preterm birth (16.1% vs. 9.1%).
- » They lacked some social support since delivery (36.2% vs. 21.3%).

**FIGURE 9-4: RISK BEHAVIORS AND OUTCOMES BY DEPRESSION DURING PREGNANCY, RHODE ISLAND, 2004-2008**



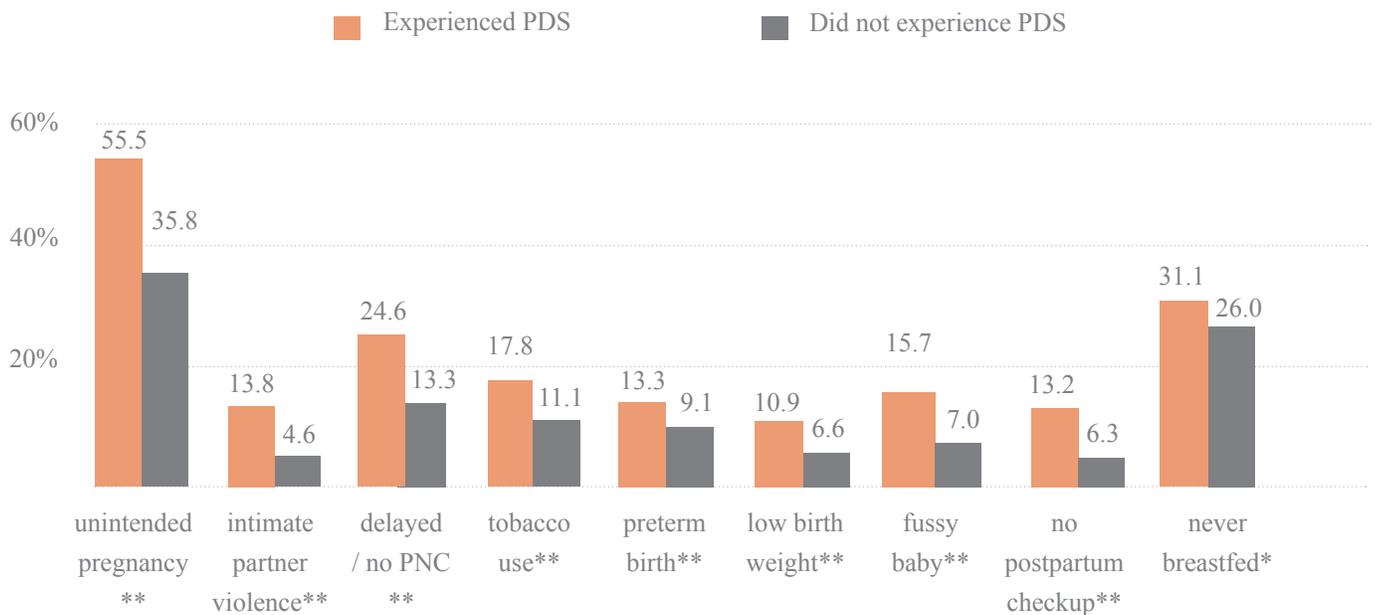
\*p-value < 0.001

# Risk Behaviors and Outcomes by Postpartum Depressive Symptoms, 2004-2008

Mothers who experienced **postpartum depressive symptoms (PDS)**, compared to mothers who did not experience PDS, were significantly (p-value less than 0.01) more likely to report that:

- » Their pregnancy was unintended (55.5% vs. 35.8%).
- » They experienced intimate partner violence during the 12 months before pregnancy or during pregnancy (13.8% vs. 4.6%).
- » They had delayed or no prenatal care (PNC) (24.6% vs. 13.3%).
- » They smoked during their pregnancy (17.8% vs. 11.1%).
- » They had a preterm birth (13.3% vs. 9.1%).
- » They had a low birth weight baby (10.9% vs. 6.6%).
- » They had a fussy baby (15.7% vs. 7.0%). (This question refers to a mother’s perception about how easy it is to calm her baby when the baby is crying or fussing.)
- » They did not have a postpartum checkup since the new baby was born (13.2% vs. 6.3%).
- » They never breastfed their baby (31.1% vs. 26.0%).

**FIGURE 9-5: RISK BEHAVIORS AND OUTCOMES BY POSTPARTUM DEPRESSIVE SYMPTOMS (PDS), RHODE ISLAND, 2004-2008**



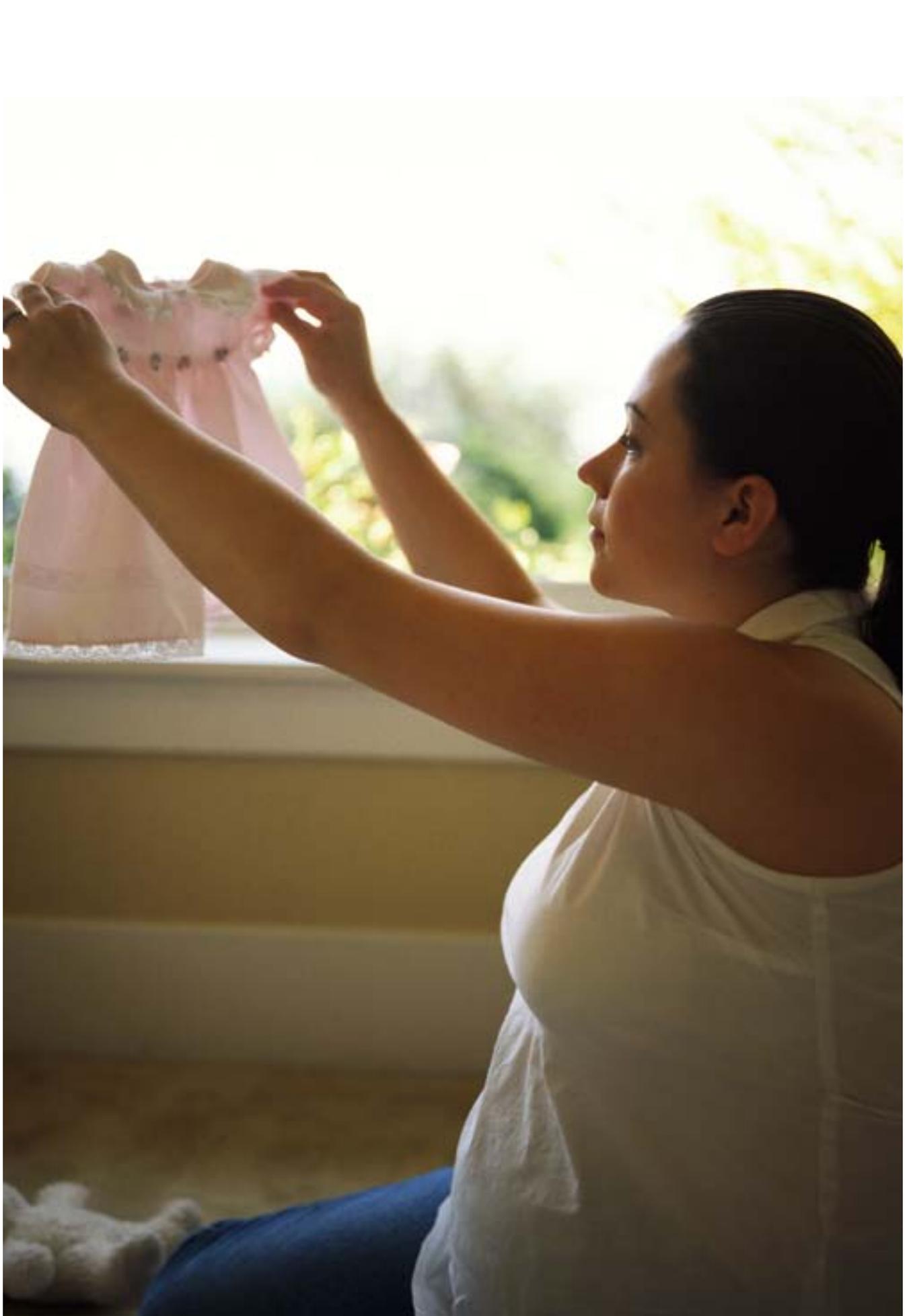
\*p-value < 0.01 \*\* p-value < 0.001

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4. Centers for Disease Control and Prevention (CDC). CPONDER—CDC's PRAMS On-line Data for Epidemiologic Research. Available from: <http://apps.nccd.cdc.gov/cPONDER>

## Related Publication

Viner-Brown S, Kim H, Cain R. *Perinatal Depression in Rhode Island*, *Medicine & Health / Rhode Island*, Vol. 90 (No. 10): 328-329, October 2007.



# 10. LOW BIRTH WEIGHT

## Definition and Significance

Babies born weighing less than 5 pounds 8 ounces (2,500 grams) are considered low birth weight.<sup>1,2</sup> Low birth weight is a major determinant of mortality, morbidity, and disability in infancy and childhood. It also has a long-term effect on health outcomes in adult life.<sup>3</sup> Low birth weight affects 1 in every 12 babies in the United States.<sup>1</sup> Two main reasons for low birth weight babies are premature birth and fetal growth restriction.<sup>1</sup> The birth weight of an infant in the PRAMS yearly file is collected from Vital Records and used to determine the low birth weight status of the infant.

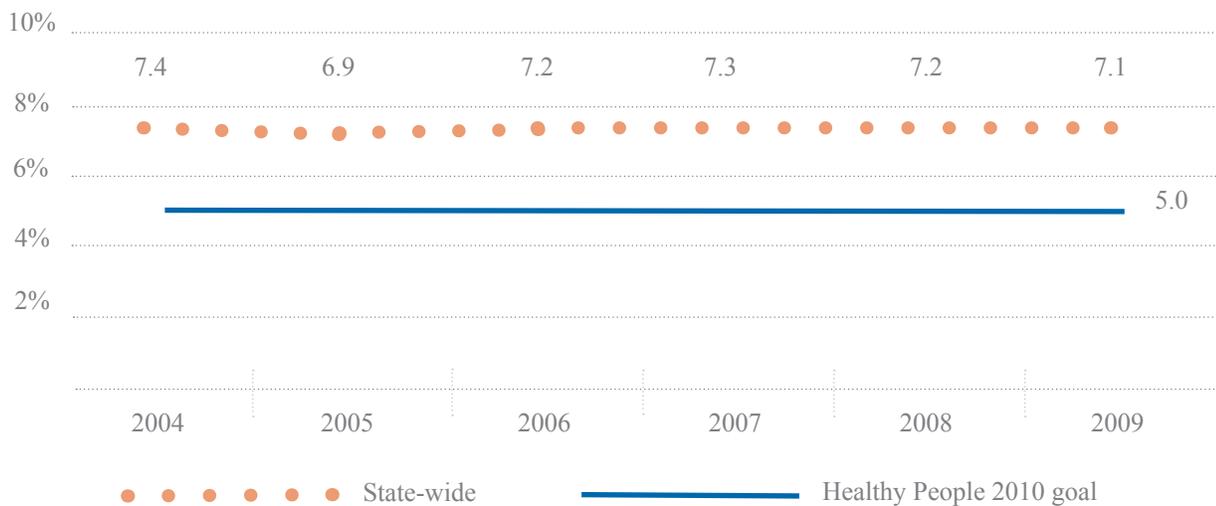
## Rhode Island Compared to Other PRAMS States, 2008

According to the PRAMS CPONDER report, the prevalence of mothers with a low birth weight baby ranged from 5.0% (best) to 10.8% (worst) in 2008.<sup>4</sup> Compared to the other 28 PRAMS states, Rhode Island ranked 15th (1st is the best) with 7.2% of mothers having a low birth weight baby.<sup>4</sup>

## Prevalence and Trends, 2004-2009

The proportion of Rhode Island mothers who had a low birth weight baby\* remained steady, ranging from 6.9% to 7.4% during 2004-2009. The Healthy People 2010 goal of reducing low birth weight to 5.0% of live births<sup>5</sup> was not achieved.

**FIGURE 10-1: MOTHERS WITH A LOW BIRTH WEIGHT BABY BY YEAR  
RHODE ISLAND, 2004-2009**

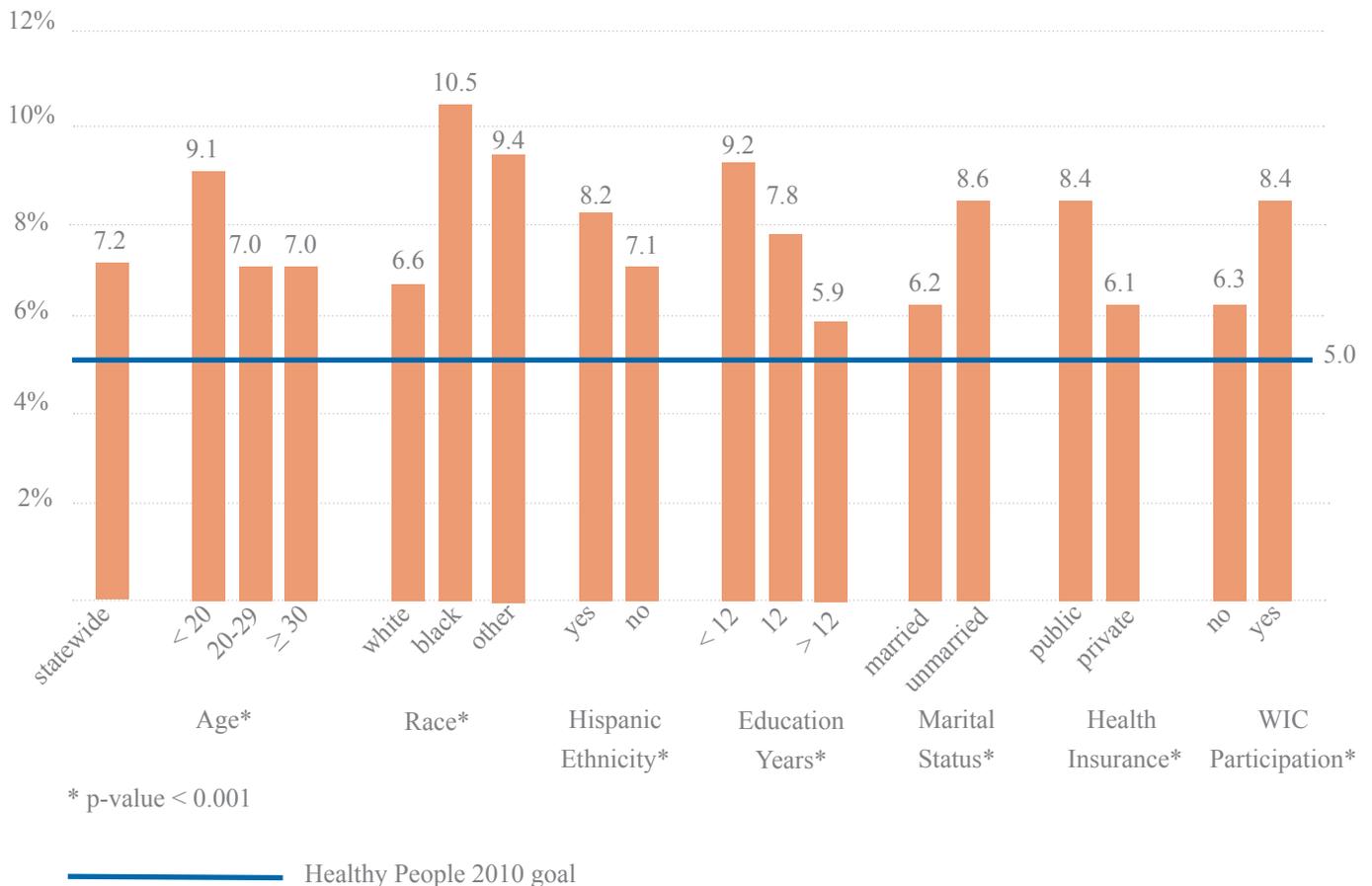


\* The data shown here reflect the proportion of mothers with a low birth weight baby, which differs from the proportion of low birth weight babies reported in Rhode Island Vital Records data. For example, a woman who delivers multiples (twins, triplets) is counted once in the PRAMS data file, and information on low birth weight and other measures is collected for only one of her babies.

## Demographic Characteristics, 2004-2008

- » The overall prevalence of Rhode Island mothers having a low birth weight baby was 7.2%.
- » Demographic characteristics that were significantly (p-value less than 0.001) associated with having a low birth weight baby included age, race, ethnicity, education level, marital status, health insurance type, and participation in the Women, Infants, and Children (WIC) program.
  - » Mothers who were younger than 20 years of age (9.1%), black (10.5%), Hispanic (8.2%), unmarried (8.6%), had less than 12 years of education (9.2%), had public health insurance (8.4%), and participated in the WIC program (8.4%) had a higher prevalence of having a low birth weight baby compared with their counterparts.
- » None of the demographic groups reported in Figure 10-2 achieved the Healthy People 2010 goal of reducing low birth weight to 5.0% of live births.

**FIGURE 10-2: MOTHERS WITH A LOW BIRTH WEIGHT BABY: DEMOGRAPHIC CHARACTERISTICS, RHODE ISLAND, 2004-2008**

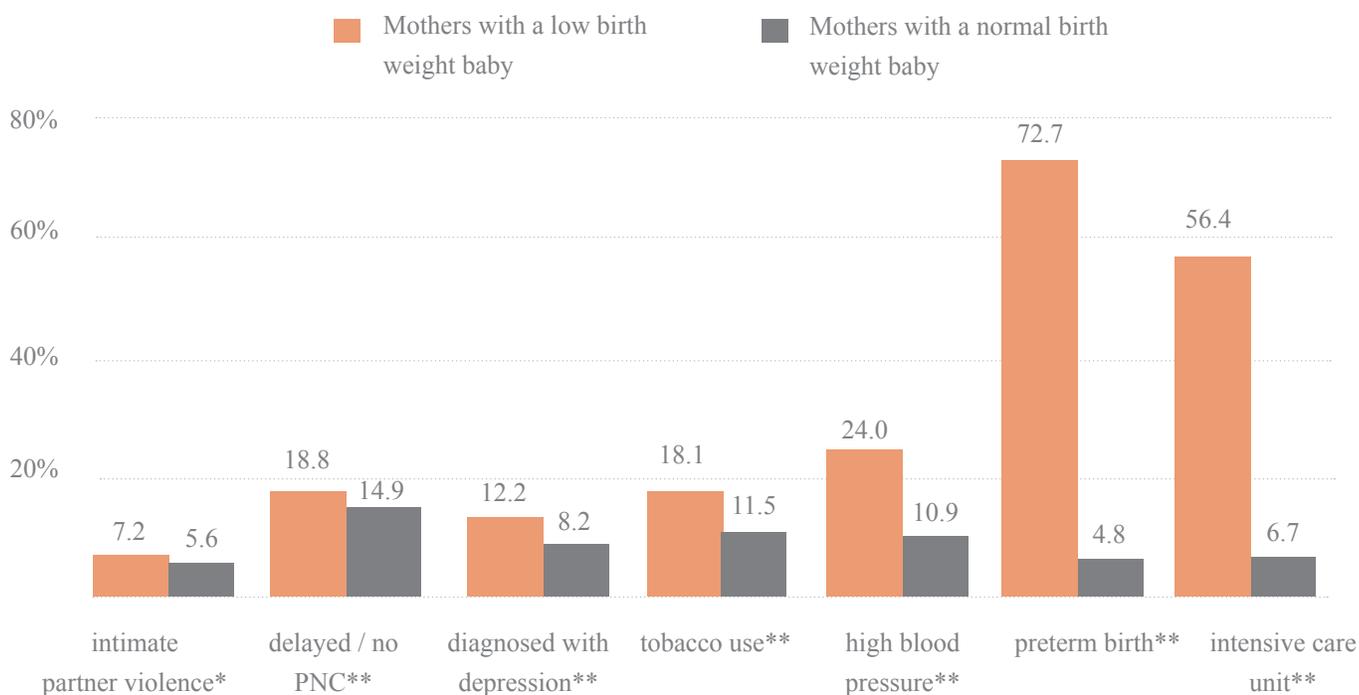


## Risk Behaviors and Outcomes by Birth Weight Status, 2004-2008

Mothers who had a low birth weight baby, compared to mothers who had a normal birth weight baby, were significantly ( $p$ -value less than 0.01) more likely to report that:

- » They experienced intimate partner violence during the 12 months before pregnancy or during pregnancy (7.2% vs. 5.6%).
- » They had delayed or no prenatal care (PNC) (18.8% vs. 14.9%).
- » They were diagnosed with depression during their pregnancy (12.2% vs. 8.2%).
- » They smoked during their pregnancy (18.1% vs. 11.5%).
- » They had high blood pressure, hypertension (including pregnancy-induced hypertension), preeclampsia, or toxemia during their pregnancy (24.0% vs. 10.9%).
- » They had a preterm baby (72.7% vs. 4.8%).
- » Their baby was put in an intensive care unit after the baby was born (56.4% vs. 6.7%).

**FIGURE 10-3: RISK BEHAVIORS AND OUTCOMES BY BIRTH WEIGHT STATUS  
RHODE ISLAND, 2004-2008**



\* $p$ -value < 0.01    \*\*  $p$ -value < 0.001



## References

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# 11. PRETERM BIRTH

## Definition and Significance

Preterm birth is the birth of an infant which occurs before 37 weeks of gestation.<sup>1,2</sup> Preterm babies are at an increased risk of death in the first few days of life, and of several adverse health outcomes including visual and hearing impairments, and intellectual and learning disabilities.<sup>1,2</sup> The Centers for Disease Control and Prevention (CDC) has reported that preterm-related deaths account for more than one third of all infant deaths during the first year of life.<sup>1</sup> The most significant risk factor for a preterm birth is a previous preterm pregnancy.<sup>1</sup> In the United States, preterm birth occurs in about 12 percent of all pregnancies.<sup>2</sup> The PRAMS dataset includes the physician’s estimate of gestational age of the infant, which is collected from Vital Records and used to determine preterm birth in this data book.

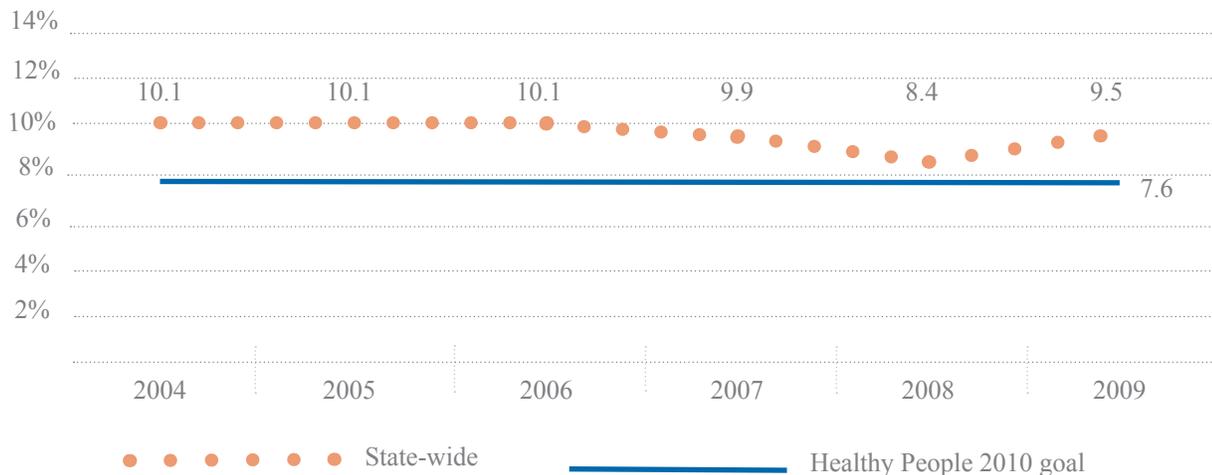
## Rhode Island Compared to Other PRAMS States, 2008

Preterm birth data are not available in the PRAMS CPONDER report.<sup>3</sup>

## Prevalence and Trends, 2004-2009

The proportion of Rhode Island mothers who had a preterm birth\* remained steady at approximately 10.0% from 2004 to 2007. The rate dropped to 8.4% in 2008, but increased to 9.5% in 2009. The Healthy People 2010 goal of reducing preterm births to 7.6% of live births<sup>4</sup> was not achieved.

**FIGURE 11-1: MOTHERS WITH A PRETERM BIRTH BY YEAR  
RHODE ISLAND, 2004-2009**

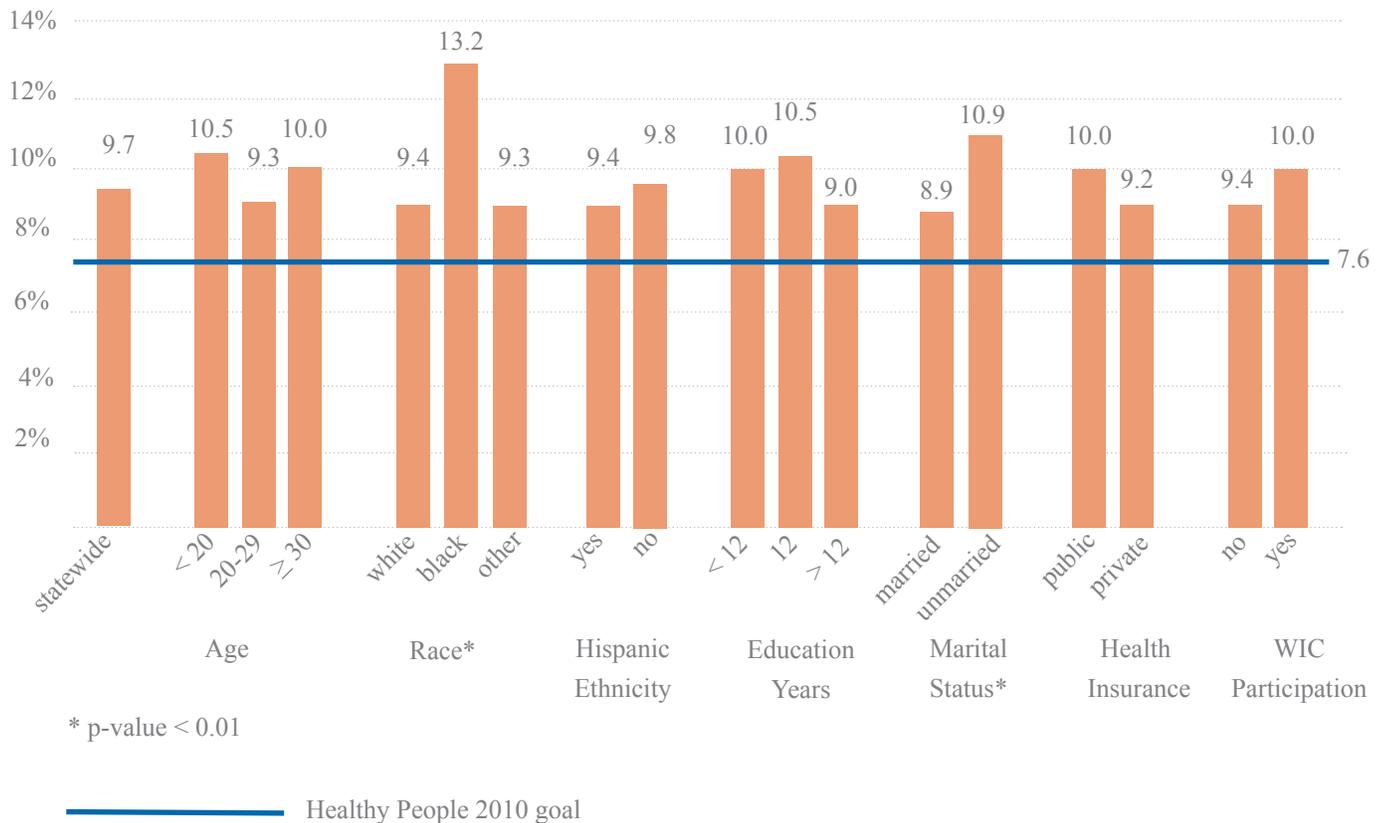


\* The data shown here reflect the proportion of mothers with a preterm birth, which differs from the proportion of preterm babies reported in Rhode Island Vital Records data. For example, a woman who delivers multiples (twins, triplets) is counted once in the PRAMS data file, and information on prematurity and other measures is collected for only one of her babies.

## Demographic Characteristics, 2004-2008

- » The overall prevalence of Rhode Island mothers having a preterm birth was 9.7%.
- » Demographic characteristics that were significantly (p-value less than 0.01) associated with having a preterm birth included race and marital status.
  - » Mothers who were black (13.2%) and unmarried (10.9%) had a higher prevalence of having a preterm birth compared with their counterparts.
- » None of the demographic groups reported in Figure 11-2 achieved the Healthy People 2010 goal of reducing preterm births to 7.6% of live births.

**FIGURE 11-2: MOTHERS WITH A PRETERM BIRTH: DEMOGRAPHIC CHARACTERISTICS RHODE ISLAND, 2004-2008**

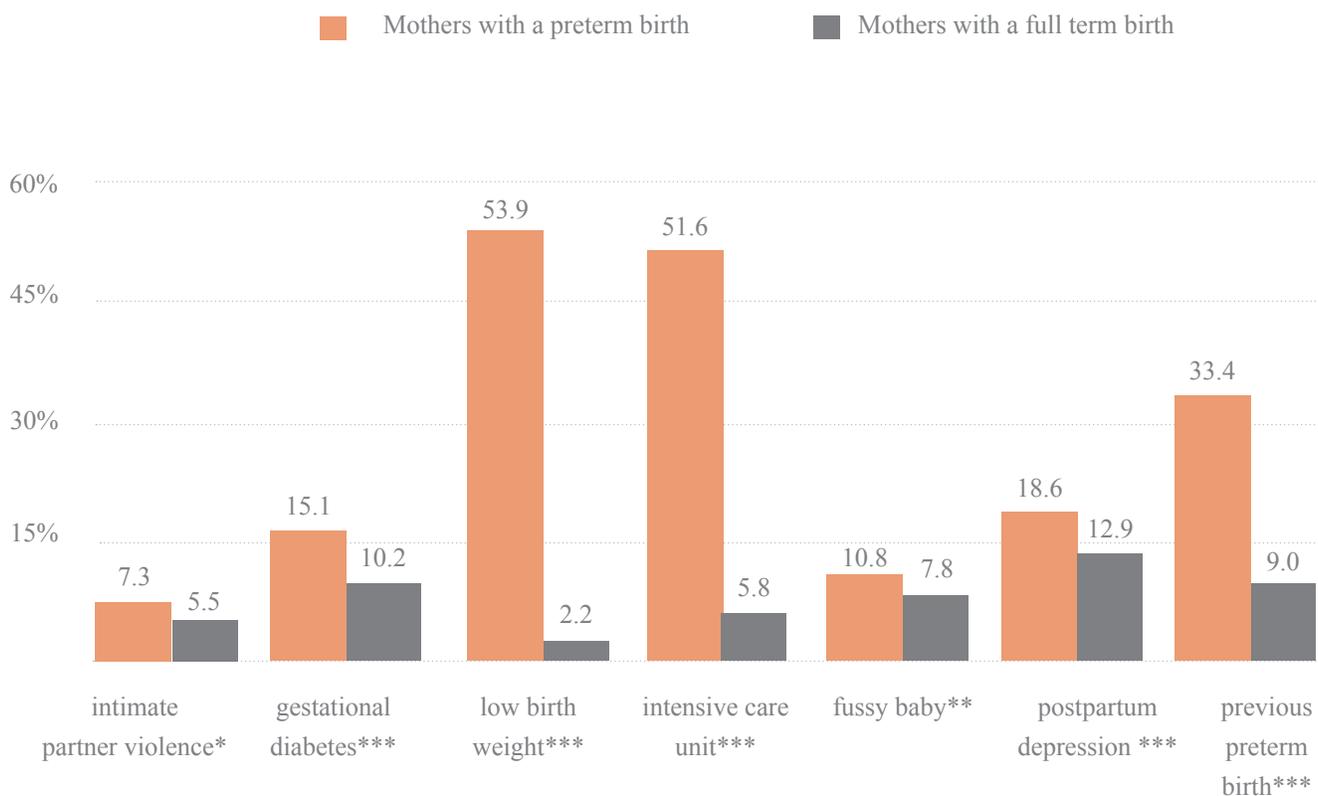


## Risk Behaviors and Outcomes by Birth Term Status, 2004-2008

Mothers who had a preterm birth, compared to mothers who had a full term birth, were significantly (p-value less than 0.05) more likely to report that:

- » They experienced intimate partner violence during the 12 months before pregnancy or during pregnancy (7.3% vs. 5.5%).
- » They had high blood sugar (diabetes) that started during this pregnancy (15.1% vs. 10.2%).
- » They had a low birth weight baby (53.9% vs. 2.2%).
- » Their baby was put in an intensive care unit after the baby was born (51.6% vs. 5.8%).
- » They had a fussy baby (10.8% vs. 7.8%). (This question refers to a mother's perception about how easy it is to calm her baby when the baby is crying or fussing.)
- » They had postpartum depressive symptoms (18.6% vs. 12.9%).
- » Their previous baby born just before this new one was a preterm birth (33.4% vs. 9.0%).

**FIGURE 11-3: RISK BEHAVIORS AND OUTCOMES BY BIRTH TERM STATUS  
RHODE ISLAND, 2004-2008**



\*p-value < 0.05 \*\* p-value < 0.01 \*\*\*p-value < 0.001



## References

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# 12. BREASTFEEDING

## Definition and Significance

The World Health Organization (WHO) recommends breastfeeding continue up to two years of age or beyond.<sup>1</sup> It is beneficial to both mothers and their babies.<sup>1,2</sup> Breastfeeding reduces the risk of babies getting various infectious diseases, including ear infections and diarrhea.<sup>2</sup> It also reduces the risk of overweight and obesity in children. Mothers who breastfeed their babies return to their pre-pregnancy weight faster, and breastfeeding also decreases the risk of breast and ovarian cancers.<sup>2</sup> Moreover, breastfeeding mothers experience less postpartum bleeding.<sup>2</sup> According to the Centers for Disease Control and Prevention (CDC), among infants born in 2008 in the United States, 74.6% were ever breastfed, and 44.3% were being still breastfed at six months of age.<sup>3</sup> The PRAMS survey asks mothers whether they ever breastfed or pumped breast milk to feed their baby after delivery. It also asks mothers about whether they were still breastfeeding at the time of the survey and about the barriers to breastfeeding.

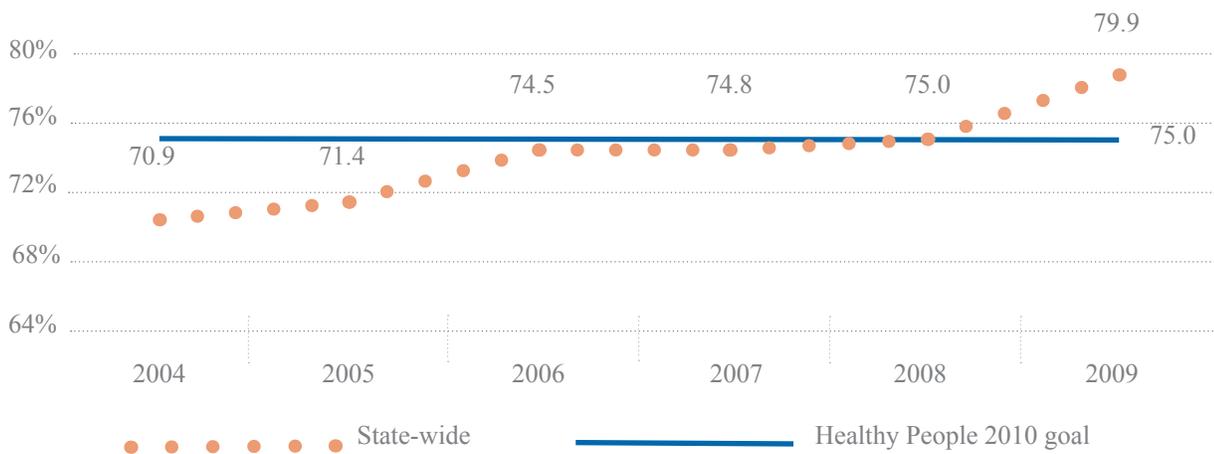
## Rhode Island Compared to Other PRAMS States, 2008

According to the PRAMS CPONDER report, the prevalence of mothers who ever breastfed or pumped breast milk to feed their new baby after delivery ranged from 93.8% (best) to 49.5% (worst) in 2008.<sup>4</sup> Compared to the other 28 PRAMS states, Rhode Island ranked 19th (1st is the best) with 75.0% of mothers having ever breastfed.<sup>4</sup> In Rhode Island, 61.4% of mothers were still breastfeeding four weeks after delivery, and 51.0% of mothers were still breastfeeding eight weeks after delivery.<sup>4</sup>

## Prevalence and Trends: Ever Breastfed, 2004-2009

The proportion of Rhode Island mothers who ever breastfed or pumped breast milk to feed their new baby after delivery increased from 70.9% in 2004 to 79.9% in 2009. The Healthy People 2010 goal of increasing the breastfeeding rate in the early postpartum period to 75.0%<sup>5</sup> was achieved in 2008 and 2009.

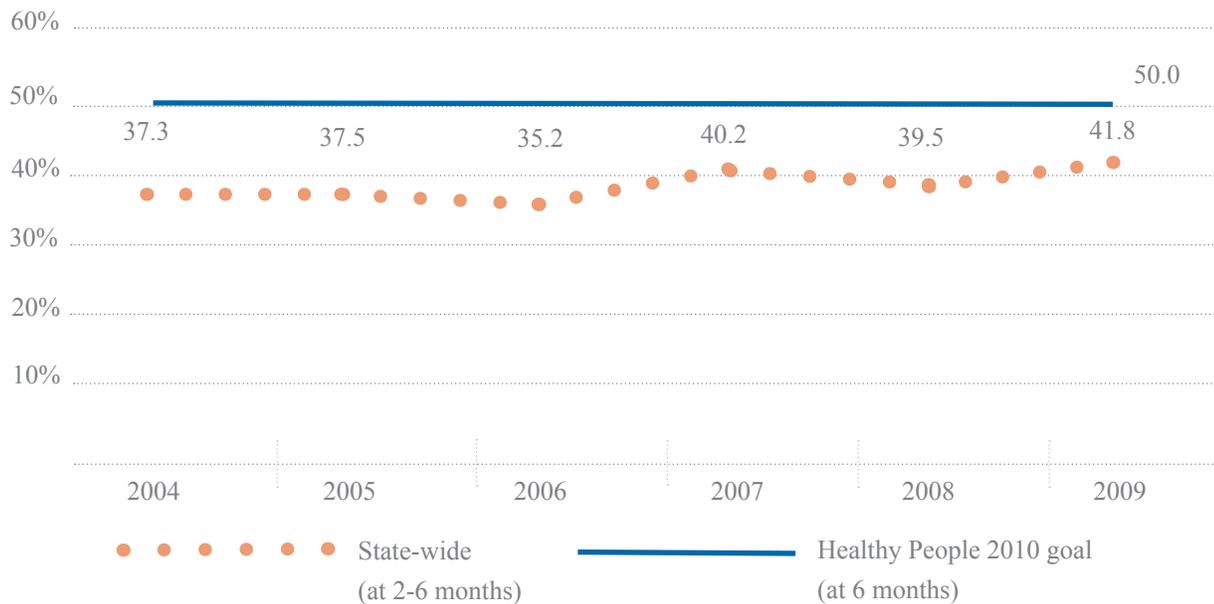
**FIGURE 12-1: EVER BREASTFED BY YEAR, RHODE ISLAND, 2004-2009**



## Prevalence and Trends: Current Breastfeeding, 2004-2009

The proportion of Rhode Island mothers who were still breastfeeding or pumping breast milk for their new baby at the time of the survey (usually two to six months postpartum) remained steady during 2004-2009, ranging from 35.2% to 41.8%. The Healthy People 2010 goal is to increase the proportion of mothers who breastfeed their babies at six months to 50.0%. (Note: The Healthy People 2010 objective has a different time frame from our measurement, and Figure 12-2 should not be considered an exact comparison.)

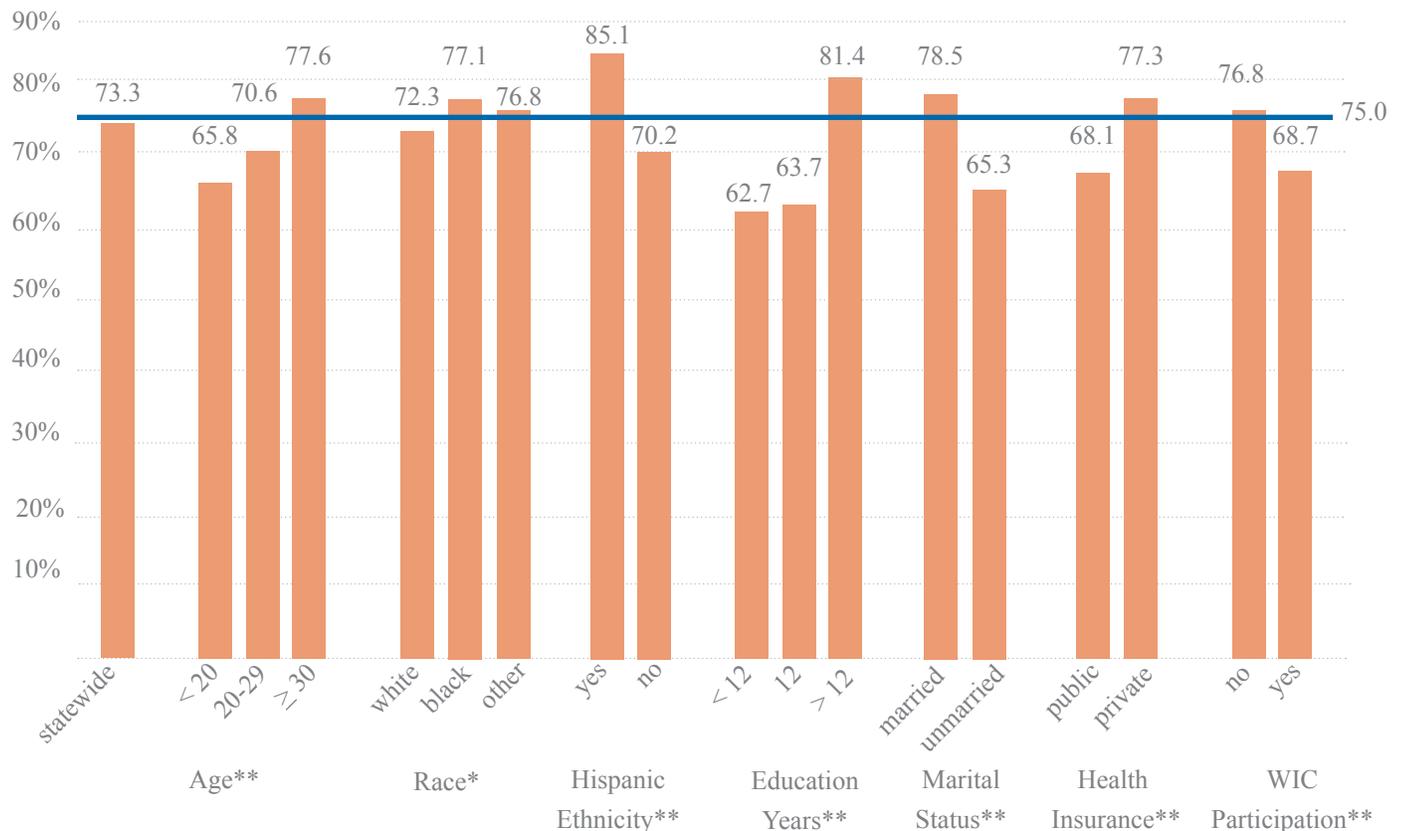
**FIGURE 12-2: CURRENT BREASTFEEDING BY YEAR, RHODE ISLAND, 2004-2009**



## Demographic Characteristics: Ever Breastfed, 2004-2008

- » The overall prevalence of Rhode Island mothers who ever breastfed or pumped breast milk to feed their new baby was 73.3%.
- » Demographic characteristics that were significantly (p-value less than 0.05) associated with ever breastfeeding included age, race, ethnicity, education level, marital status, health insurance type, and participation in the Women, Infants, and Children (WIC) program.
  - » Mothers who were younger than 20 years of age (65.8%), white (72.3%), non-Hispanic (70.2%), unmarried (65.3%), had less than 12 years of education (62.7%), had public health insurance (68.1%), and participated in the WIC program (68.7%) had a lower prevalence of ever breastfeeding compared with their counterparts.
  - » Several demographic groups reached the Healthy People 2010 goal of a 75% breastfeeding rate in the early postpartum period. They included mothers who were aged 30 or older, black, Hispanic, married, had more than 12 years of education, had private health insurance, and did not participate in the WIC program.

**FIGURE 12-3: EVER BREASTFED: DEMOGRAPHIC CHARACTERISTICS  
RHODE ISLAND, 2004-2008**



\* p-value < 0.05    \*\* p-value < 0.001

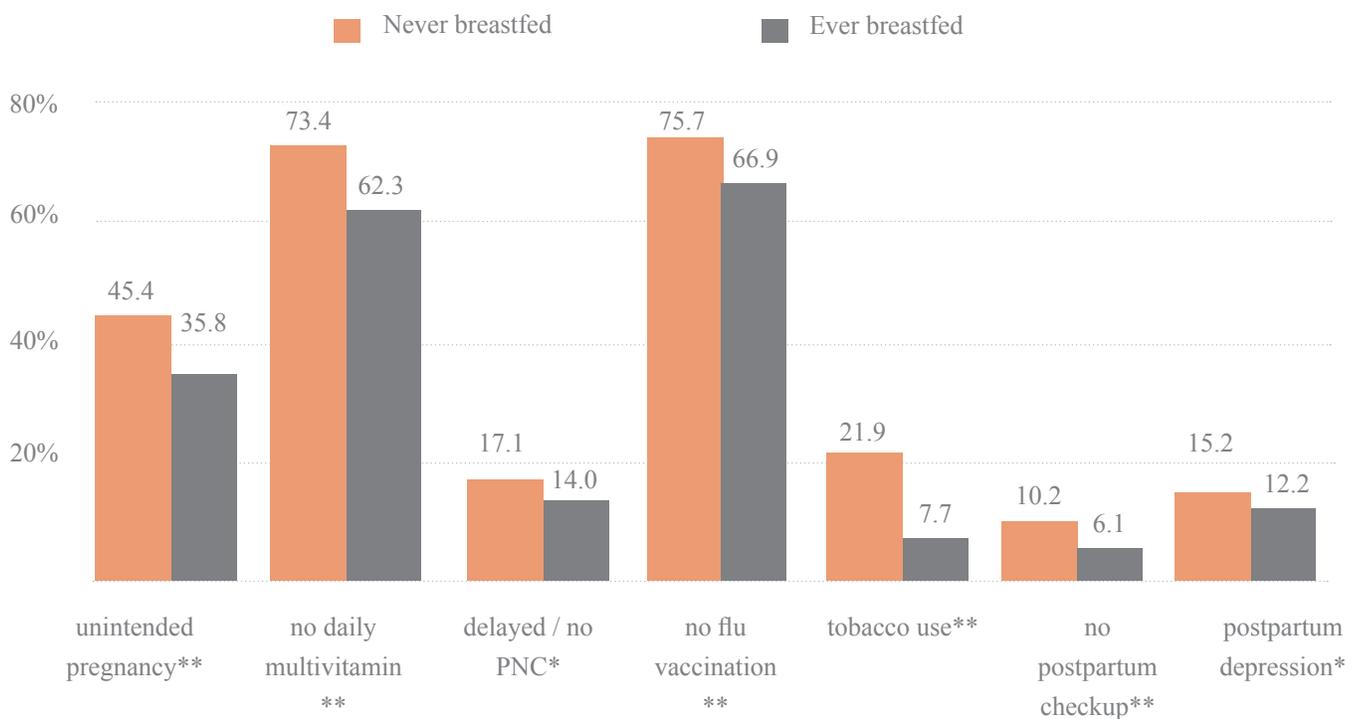
— Healthy People 2010 goal

## Risk Behaviors and Outcomes by Breastfeeding Status, 2004-2008

Mothers who never breastfed their new baby, compared to mothers who ever breastfed, were significantly (p-value less than 0.01) more likely to report that:

- » Their pregnancy was unintended (45.4% vs. 35.8%).
- » They did not take multivitamins daily prior to pregnancy (73.4% vs. 62.3%).
- » They had delayed or no prenatal care (PNC) (17.1% vs. 14.0%).
- » They did not get a flu vaccination during their pregnancy (75.7% vs. 66.9%).
- » They smoked during their pregnancy (21.9% vs. 7.7%).
- » They did not have a postpartum checkup since the new baby was born (10.2% vs. 6.1%).
- » They had postpartum depressive symptoms (15.2% vs. 12.2%).

**FIGURE 12-4: RISK BEHAVIORS AND OUTCOMES BY BREASTFEEDING STATUS RHODE ISLAND, 2004-2008**

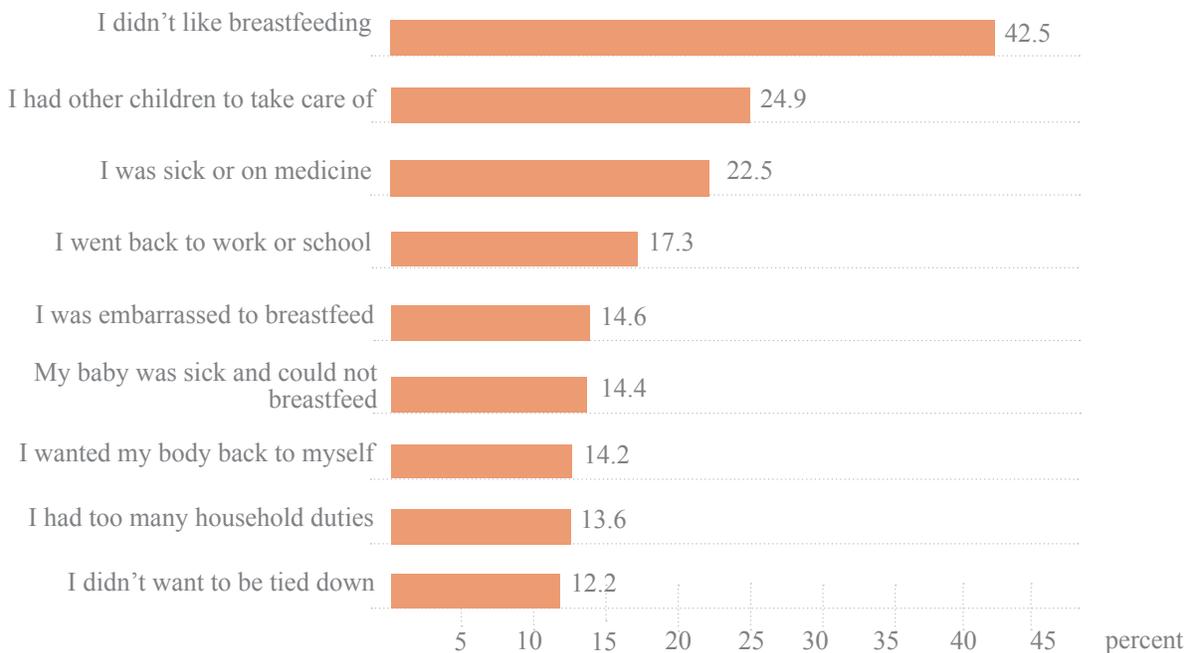


\*p-value < 0.01 \*\*p-value < 0.001

## Reasons for Not Breastfeeding, 2004-2008

The PRAMS survey asks a question about barriers to breastfeeding, which allows the mothers to select all barriers that applied. Among mothers who never breastfed, 42.5% reported that they did not like breastfeeding; 24.9% reported that they had other children to take care of; and 22.5% reported that they were sick or on medicine.

**FIGURE 12-5: REASONS FOR NOT BREASTFEEDING, RHODE ISLAND, 2004-2008**



## References

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2. American Academy of Pediatrics. Breastfeeding Initiatives, AAP Policy on Breastfeeding. Available from: [www.aap.org/breastfeeding/PolicyOnBreastfeeding.html](http://www.aap.org/breastfeeding/PolicyOnBreastfeeding.html)
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# 13. INFANT SLEEP POSITION

## Definition and Significance

Positioning a baby to sleep on the back (supine) has been recommended by the American Academy of Pediatrics (AAP) since 1996 to reduce the risk of Sudden Unexpected Infant Death (SUID).<sup>1,2</sup> SUID is one of the leading causes of death among infants aged 1-12 months.<sup>3</sup> It is also the third leading cause overall of infant mortality in the United States.<sup>3</sup> The PRAMS survey asks mothers about which position they most often lay their baby down to sleep. The response options include side, back, and stomach, with some mothers selecting more than one option.

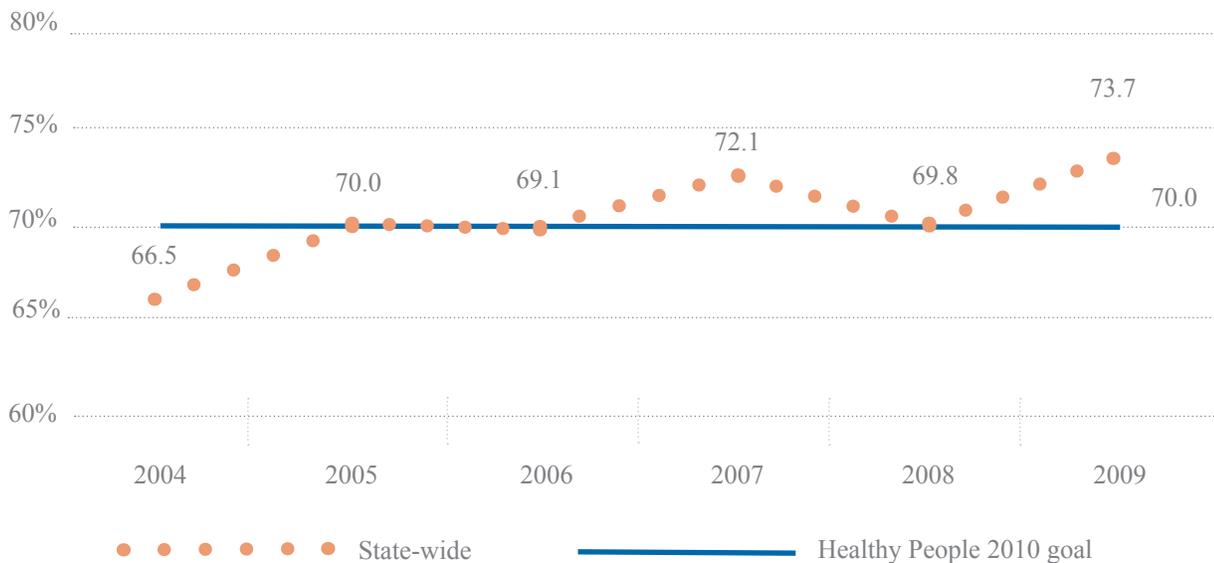
## Rhode Island Compared to Other PRAMS States, 2008

According to the PRAMS CPONDER report, the prevalence of mothers placing their infants to sleep on their ‘backs’ or ‘side and back’ ranged from 86.0% (best) to 55.9% (worst) in 2008.<sup>4</sup> Compared to the other 28 PRAMS states, Rhode Island ranked 16th (1st is the best) with 74.0% of mothers placing their infants to sleep on their backs or side and back.<sup>4</sup>

## Prevalence and Trends, 2004-2009

Rhode Island data reported in the rest of this section reflect respondents who reported placing their infants to sleep on their backs only, which differs from the CPONDER report. The proportion of Rhode Island mothers who placed their infants to sleep only on their backs increased from 66.5% in 2004 to 73.7% in 2009. The Healthy People 2010 goal of 70.0% of infants placed to sleep on their backs<sup>5</sup> was achieved in 2005, 2007, and 2009.

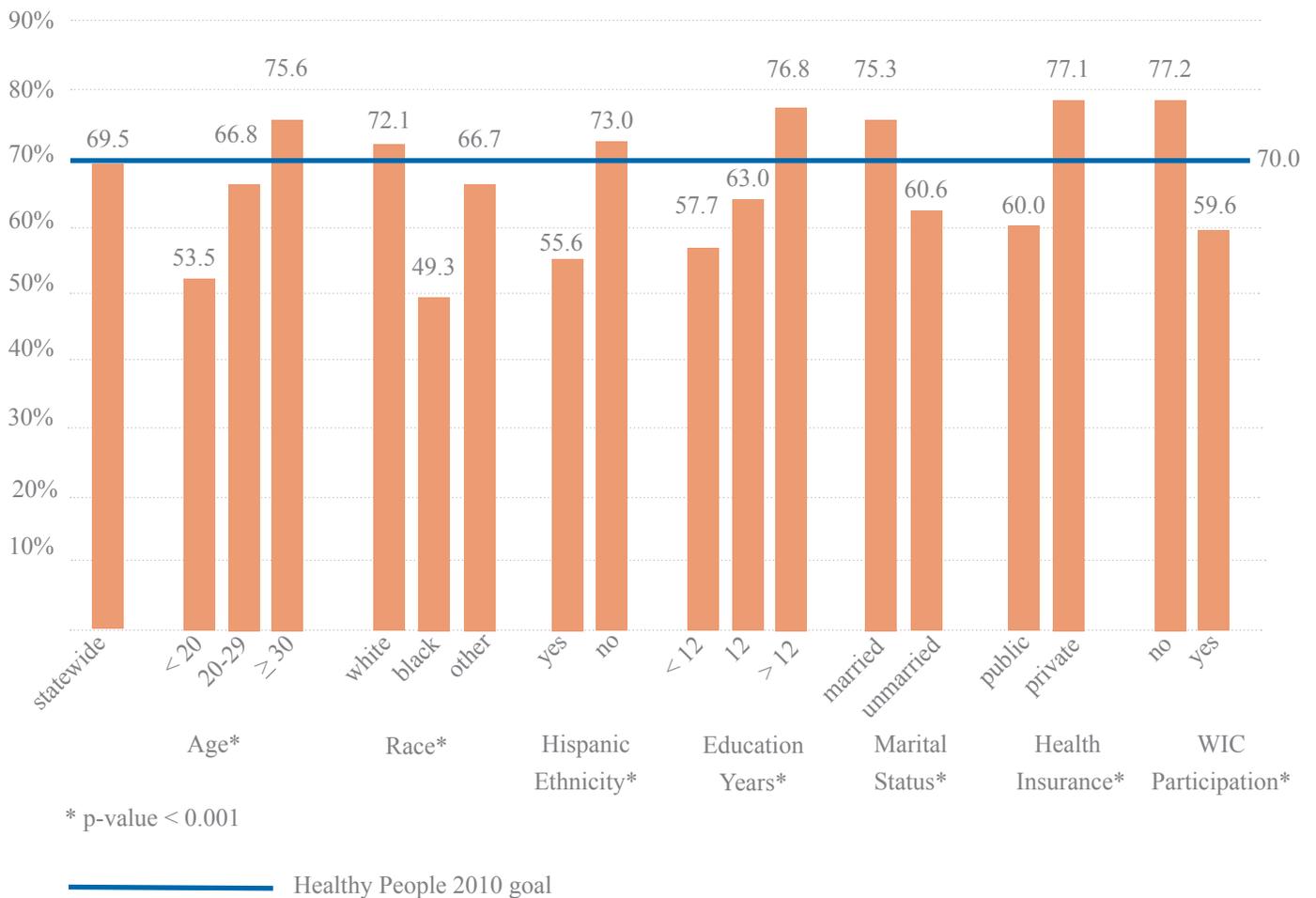
**FIGURE 13-1: INFANTS LAID TO SLEEP ON THEIR BACKS BY YEAR  
RHODE ISLAND, 2004-2009**



## Demographic Characteristics, 2004-2008

- » The overall prevalence of Rhode Island mothers placing their infants to sleep on their backs was 69.5%.
- » Demographic characteristics that were significantly (p-value less than 0.001) associated with placing infants to sleep on their backs included age, race, ethnicity, education level, marital status, health insurance type, and participation in the Women, Infants, and Children (WIC) program.
  - » Mothers who were aged 30 or older (75.6%), white (72.1%), non-Hispanic (73.0%), married (75.3%), had more than 12 years of education (76.8%), had private health insurance (77.1%), and did not participate in the WIC program (77.2%) had a higher prevalence of placing infants to sleep on their backs compared with their counterparts. These demographic groups achieved the Healthy People 2010 goal of 70.0%.

**FIGURE 13-2: INFANTS LAID TO SLEEP ON THEIR BACKS: DEMOGRAPHIC CHARACTERISTICS, RHODE ISLAND, 2004-2008**

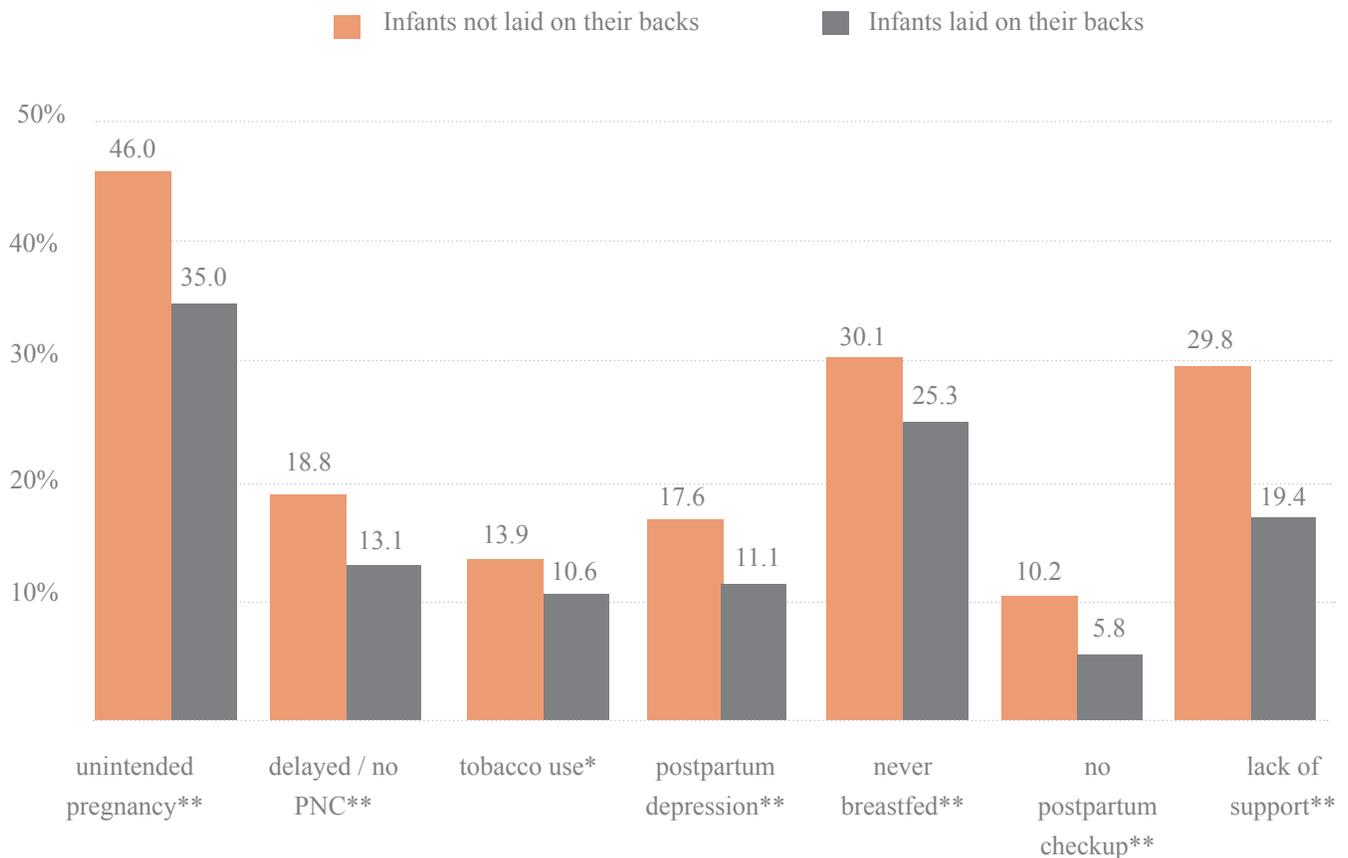


## Risk Behaviors and Outcomes by Infant Sleep Position, 2004-2008

Mothers who did not place their infants to sleep on their backs, compared to mothers who placed their infants to sleep on their backs, were significantly (p-value less than 0.01) more likely to report that:

- » Their pregnancy was unintended (46.0% vs. 35.0%).
- » They had delayed or no prenatal care (PNC) (18.8% vs. 13.1%).
- » They smoked during their pregnancy (13.9% vs. 10.6%).
- » They had postpartum depressive symptoms (17.6% vs. 11.0%).
- » They never breastfed their baby (30.1% vs. 25.3%).
- » They did not have a postpartum checkup since the new baby was born (10.2% vs. 5.8%).
- » They lacked some social support since delivery (29.8% vs. 19.4%)

**FIGURE 13-3: RISK BEHAVIORS AND OUTCOMES BY INFANT SLEEP POSITION RHODE ISLAND, 2004-2008**



\*p-value < 0.01 \*\*p-value < 0.001



## References

1. American Academy of Pediatrics Task Force on Infant Sleep Position and Sudden Infant Death Syndrome. *Changing concepts of sudden infant death syndrome: implications for infant sleeping environment and sleep position*. Pediatrics 2000; 105(3 Part 1):650–656.
2. Centers for Disease Control and Prevention (CDC). From Data to Action: Infant Sleep Position.
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4. Centers for Disease Control and Prevention (CDC). CPONDER—CDC’s PRAMS On-line Data for Epidemiologic Research. Available from: <http://apps.nccd.cdc.gov/cPONDER>
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# APPENDICES

## A. Rhode Island PRAMS Population, 2010

CHARACTERISTIC	POPULATION	
	SIZE	PERCENT
<b>Total</b>	<b>10,652</b>	<b>100</b>
<b>Age, Years</b>		
Younger than 20	880	8.3
20-24	2,274	21.3
25-34	5,728	53.8
35 or older	1,770	16.6
<b>Race / Ethnicity</b>		
White Non-Hispanic	6,348	61.0
Black Non-Hispanic	711	6.8
Hispanic	2,383	22.9
American Indian	50	0.5
Asian / Pacific Islander	430	4.1
Other / Mixed	479	4.6
<b>Hispanic Ethnicity</b>		
Yes	2,383	22.8
No	8,054	77.2
<b>Education, Years</b>		
Less than 12	1,610	16.3
12	2,682	27.1
Greater than 12	5,592	56.6
<b>Marital Status</b>		
Married	5,771	54.2
Unmarried	4,881	45.8
<b>Birth Weight</b>		
Low birth weight (less than 2500 g)	734	6.9
Normal birth weight (greater than or equal to 2500 g)	9,916	93.1
<b>Parity</b>		
1st birth	4,547	43.8
2nd or later	5,842	56.2

Data Source: Rhode Island Vital Records Birth File, 2010

## B. Acknowledgments

The authors of this data book would like to express their appreciation to the women who participated in the Rhode Island Pregnancy Risk Assessment Monitoring System (PRAMS) survey. The authors also would like to thank the Rhode Island PRAMS Steering Committee members who reviewed and provided invaluable comments on drafts of this data book.

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## C. Data Details

The PRAMS survey questionnaire and detailed data tables are hyperlinked below in the electronic version of this data book. Click on a name to go to the questionnaire or tables. Please note that each data table appears on a separate sheet in the hyperlinked worksheet. You can click the tabs at the bottom of the worksheet to move between tables.

- » Rhode Island PRAMS Phase 5 Questionnaire  
([www.health.ri.gov/data/pregnancyriskassessment/surveys/2004-2008.pdf](http://www.health.ri.gov/data/pregnancyriskassessment/surveys/2004-2008.pdf))
- » Detailed Data Tables for Each Topic (<http://bit.ly/AuKuHW>)

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