



Family Health
Services Division

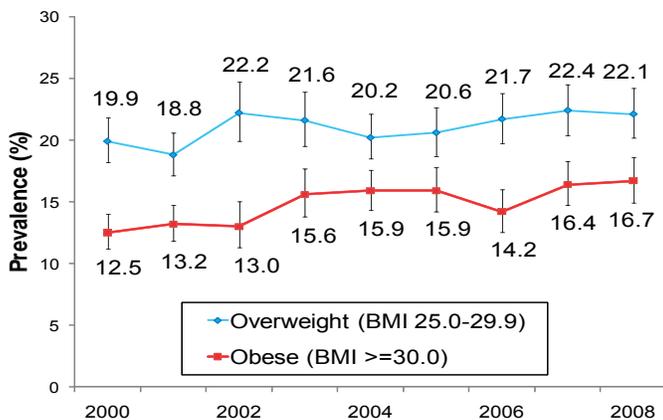
Overweight/Obesity and Pregnancy

Pregnancy Risk Assessment Monitoring System

Preconception Overweight/Obesity

Obesity is related to adverse health effects, particularly during pregnancy as it is associated with complications such as hypertension, diabetes, preeclampsia, fetal macrosomia, increased cesarean delivery rates, higher incidence of wound infections, and other adverse outcomes.^{1,2} Children born to obese mothers are also more susceptible to obesity in adolescence and adulthood, and are at risk for development of chronic disease. Daughters of obese mothers are more likely to be obese and have diabetes when they are pregnant, and thus may result in an inter-generational cycle of obesity.³ In addition to obesity, it is important to also focus on overweight due to its associated higher risks including the transition to obesity.

Preconception Obesity and Overweight, Hawai'i PRAMS 2000-2008



Trends in Obesity and Overweight

Preconception obesity among new mothers increased from 12.5% in 2000 to 16.7% in 2008 in Hawai'i, a relative increase of 34%. Similarly, being overweight prior to preconception increased from 19.9% in 2000 to 22.1% in 2008, a relative increase of 11%. From 2000 to 2008, there was a relative increase of 20% in being overweight or obese prior to conception.

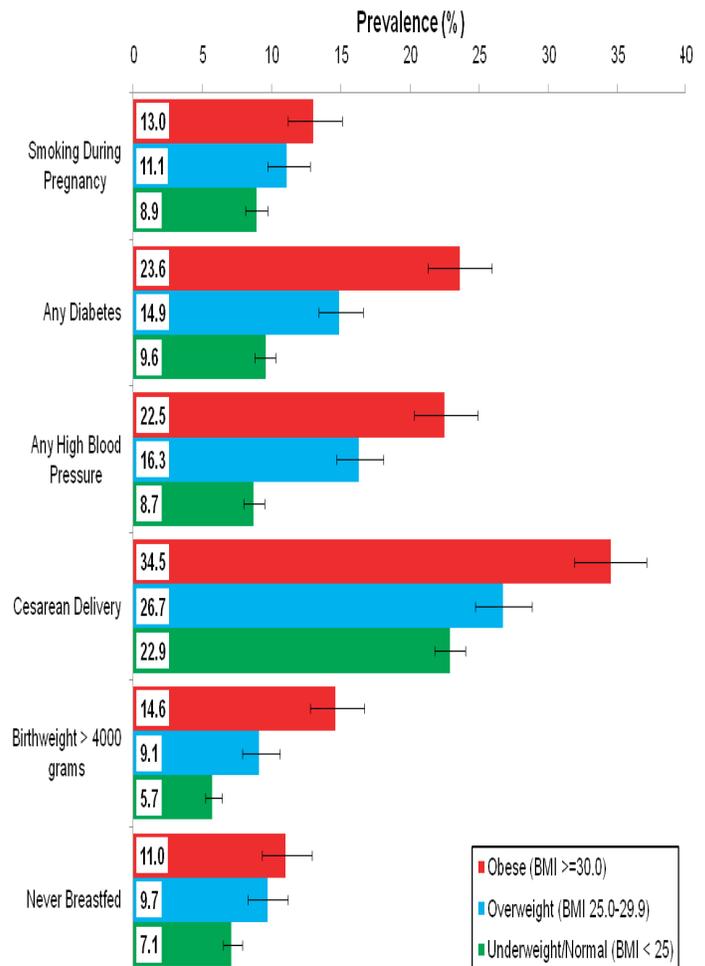
Outcomes Associated with Obesity and Overweight

Compared to those that were normal or underweight in the preconception period, mothers that were obese showed a greater than two fold increase in maternal hypertension and maternal diabetes during the pregnancy. Mothers with preconception obesity are more likely to smoke during the last 3 months of pregnancy, have a cesarean delivery, have a macrosomic (4000grams~8pounds,13oz) baby, and are less likely to breastfeed. Women who are overweight prior to conception show similar trends for risk factors and outcomes, but at slightly lower levels.

Data Highlights

- More than 1 in 3 were obese or overweight prior to conception
- Almost 1 in 6 were obese prior to conception
- More than 3 out of 4 Samoan women were obese or overweight prior to conception; almost one in two Hawaiian and Other Pacific Islander women were obese or overweight prior to conception
- Women more likely to be obese prior to conception were 25 to 34 years old of age, on Medicaid/QUEST, participated in WIC, smoked during pregnancy, never breastfed, and lived in Hawai'i County
- Women who were overweight or obese prior to conception had increased risk for hypertension and diabetes during the pregnancy, a cesarean delivery, and a macrosomic baby
- Women who were overweight or obese prior to conception were less likely to breastfeed and more likely to smoke during pregnancy

Outcomes Associated with Preconception Weight Status, Hawai'i PRAMS 2004-2008



Characteristics of Mothers with Preconception Overweight and Obesity, Hawai'i PRAMS 2004-2008

	Obese Prevalence (%) 95% CI*	Overweight Prevalence (%) 95% CI*
Maternal Race		
White	11.4 (10.0-12.9)	18.3 (16.6-20.1)
Black	16.5 (11.8-22.6)	32.4 (25.9-39.5)
Hispanic	13.2 (8.6-19.6)	24.4 (18.1-32.1)
Hawaiian	23.3 (21.5-22.6)	24.8 (22.9-34.8)
Samoan	50.2 (43.7-56.8)	28.4 (22.9-34.8)
Other Pacific Islander	27.7 (23.2-32.8)	22.3 (18.1-27.2)
Filipino	10.1 (8.7-11.5)	20.9 (19.1-22.9)
Japanese	9.1 (7.5-11.0)	20.3 (18.0-22.8)
Chinese	5.4 (4.2-6.8)	12.3 (10.6-14.3)
Korean	6.2 (4.4-8.7)	15.4 (12.5-18.7)
Other Asian	2.0 (0.7-5.7)	12.7 (8.1-19.5)
Maternal Age		
Under 20 years	7.0 (5.2-9.5)	17.2 (14.3-20.5)
20-24 years	14.7 (13.1-16.4)	21.8 (20.0-23.7)
25-34 years	17.9 (16.7-19.1)	21.6 (20.4-22.9)
35 or more years	15.5 (13.8-17.4)	22.3 (20.4-24.4)
Maternal Education		
<High School	15.0 (12.4-18.1)	20.3 (17.2-23.7)
High School	19.0 (17.6-20.4)	23.3 (21.8-24.8)
Some College	16.8 (15.3-18.4)	22.0 (20.3-23.7)
College Graduate	10.0 (8.9-11.3)	18.6 (17.1-20.2)
Marital Status		
Married	15.4 (14.5-16.4)	21.1 (20.1-22.2)
Other	16.5 (15.2-18.0)	22.0 (20.5-23.6)
Health Insurance Prior to Pregnancy		
None	12.1 (7.8-18.3)	20.1 (14.5-27.1)
QUEST/Medicaid	19.8 (18.1-21.6)	21.8 (20.1-23.7)
Private Insurance	14.3 (13.4-15.3)	21.2 (20.2-22.2)
County of Residence		
Hawaii	17.7 (15.4-20.2)	24.1 (21.5-26.9)
Honolulu	16.1 (15.2-17.1)	21.1 (20.1-22.2)
Kauai	9.8 (7.2-13.2)	21.3 (17.5-25.6)
Maui	14.2 (12.0-16.7)	20.1 (17.6-23.0)
Prenatal WIC Participation		
No	12.9 (12.0-13.9)	20.6 (19.5-21.8)
Yes	19.6 (18.3-21.0)	22.3 (20.9-23.7)
Parity		
First Birth	10.4 (9.4-11.5)	17.2 (16.0-18.5)
Second or Third Birth	16.9 (15.8-18.1)	23.4 (22.1-24.7)
Fourth or more Birth	31.3 (28.3-34.5)	28.8 (25.9-31.9)
Overall	15.8 (15.0-16.6)	21.4 (20.6-22.3)

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

Maternal Characteristics

In Hawai'i, almost 1 in 6 women (15.8%) are obese before conception and 1 in 5 women (21.4%) are overweight. Samoans have the highest estimate of preconception obesity (50.2%), followed by Other Pacific Islanders (27.7%) and Hawaiian mothers (23.3%). Mothers that are obese prior to conception were more likely to be 25-34 years old, on Medicaid/QUEST health insurance, participate in the Special Supplemental Nutritional Program for Women, Infants, and Children (WIC) prenatally, and live in Hawai'i County. Women who are Asian, college graduates, and have a higher annual income (>\$50,000) have the lowest estimates of preconception obesity. Similar patterns were seen in mothers who were overweight prior to conception.

For More Information Contact:

Hawai'i PRAMS Coordinator
Hawai'i Department of Health
PRAMS@doh.Hawaii.gov
(808) 733-4060

Discussion

About 1 in 3 women in Hawai'i were overweight or obese before conception. In general, preconception obesity and overweight status was associated with higher rates of poor outcomes and associated risk factors. Specific groups are likely to be at increased risk, for example nearly 80% of Samoan women were overweight or obese prior to conception. As weight increases, so does the need for healthcare due to increasing rates of diabetes, high blood pressure, heart disease, and other co-morbidities.²

The statewide WIC program serves nearly half of all women who give birth in Hawai'i. All these women meet eligibility guidelines related to nutritional risk. Many of these women have associated higher risks and WIC strives to emphasize nutrition through education, support, prenatal care referral and food.

The Hawai'i Department of Health Healthy Hawai'i Initiative (HHI) works with community stakeholders and developed the Physical Activity and Nutrition State Plan to increase awareness and promote weight loss through physical activity and nutrition. HHI has used media and other avenues to address behavior change for all people on topics such as encouraging regular exercise and improving consumption of fruits and vegetables.

Despite these efforts obesity continues to be a problem. Pre-pregnancy weight is important and efforts should be targeted to all women of reproductive age. Although many factors contribute to preconception body weight, early assessment of health status, dietary counseling, and monitoring women who are overweight or obese before and during pregnancy will promote healthy outcomes for both the mother and her child. Further, it is important to increase the awareness that being overweight and obese increases the risk for disease among all populations and that increased efforts are needed to decrease this burden on society.

References

- Satpathy HK, Fleming A, Frey D, Barsoom M, Satpathy C, Khandalavala J. Maternal Obesity and Pregnancy. *Postgraduate Medicine*. 2008; 120(3):E01-9.
- Kriebs JM. Obesity as a Complication of Pregnancy and Labor. *The Journal of perinatal & neonatal nursing*. 2009; 23(1):15-22.
- Oken E. Maternal and Child Obesity: The Causal Link. *Obstetrics and gynecology clinics of North America*. 2009; 36(2):361-77.

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 used the National Institutes of Health definition for overweight as a Body Mass Index (BMI) of 25.0–29.9, and obesity as a BMI of ≥ 30.0 based on the mother's self-reported information on the survey.

Suggested Citation

Zeng X, Hayes D, Shor R, Feigal D, Roberson E, Fuddy L. "Preconception Overweight/Obesity and Pregnancy Fact Sheet" Honolulu, HI: Hawai'i Department of Health, Family Health Services Division; August 2010.