

# Hawaii Pregnancy Risk Assessment Monitoring System (PRAMS)

**April 2019**



Family Health  
Services Division



STATE OF HAWAII PRAMS REPORT  
**2009-2015**





# Maternal Child Health Snapshot

**In an average year in the State of Hawaii,\*...**

**18,400 babies are born.**

**1 in 6 moms are obese before pregnancy.**

**1 in 20 moms have no medical insurance prior to pregnancy.**

**1 in 4 moms have a preconception healthcare visit.**

**1 in 2 moms have pre-pregnancy teeth cleaning.**

**2 in 3 moms do not take prenatal vitamins.**

**1 in 2 pregnancies are unintended.**

**1 in 6 moms report binge drinking prior to pregnancy.**

**1 in 12 moms report alcohol use during pregnancy.**

**1 in 20 moms smoke cigarettes during pregnancy.**

**1 in 15 moms report illicit drug use prior to pregnancy.**

**1 in 8 moms report multiple stressful life events.**

**1 in 30 moms report intimate partner violence.**

**1 in 8 moms develop gestational diabetes.**

**1 in 10 moms have high blood pressure during pregnancy.**

**2 in 5 moms participate in WIC program during pregnancy.**

**1 in 11 moms have a preterm delivery.**

**1 in 4 babies are delivered by cesarean section.**

**1 in 12 infants are admitted into a NICU.**

**8 in 9 moms have postpartum checkup.**

**4 in 5 moms report postpartum contraception use.**

**1 in 10 moms report postpartum depression.**

**3 in 4 infants are breastfed at least eight weeks.**

**4 in 5 infants sleep on their backs.**

**\*Based on aggregated data from 2012-2015**



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# Foreword

Since 2000, the Hawaii State Department of Health has been collecting important information from mothers about their experiences before pregnancy, during pregnancy, and in the first few months postpartum through the Pregnancy Risk Assessment Monitoring System (PRAMS) project. We are pleased to present the Hawaii PRAMS Trend Report 2009-2015, the second statewide report of maternal and infant health outcomes collected through PRAMS. This report is a follow-up to the Hawaii PRAMS Trend Report 2000-2008 released in 2010. This report includes 10 of the 16 indicators that were used in the first statewide report; eight of 10 indicators allow for long-term comparisons from 2000-2015. Unfortunately, due to changes in the survey questions since the first report not all indicators could be included. Additional indicators were added that reflect current areas of concern and availability, including preconception care and chronic disease prevention, bringing the total to 23 indicators. One goal of the report is to highlight the differences in various subpopulations in the state such as county of residence, maternal race, maternal age, and household federal poverty level. We hope that sharing this report and its data will generate ideas and develop solutions for some highly preventable health issues facing our families.

We believe this report will continue to be a valuable reference on maternal and infant health issues. Our aim is this report will be a useful source of quantitative information to health policy makers, planners, and community members who share a common desire to improve the health of our mothers, children, and families.

Matthew J. Shim, PhD MPH

Chief, Family Health Services Division

# Overview

**Overview:** The Pregnancy Risk Assessment Monitoring System (PRAMS) is a collaborative surveillance project conducted by the U.S. Centers for Disease Control and Prevention (CDC) and state and metropolitan area health departments. Developed in 1987, PRAMS collect state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy. PRAMS surveillance currently covers about 83% of all U.S. births through participation by 47 states, New York City, Puerto Rico, the District of Columbia, and the Great Plains Tribal Chairmen's Health Board. PRAMS provides data not available from other sources. These data can be used to identify groups of women and infants at high risk for health problems, monitor changes in health status, and measure progress towards goals in improving the health of mothers and infants. PRAMS data are used by researchers to investigate emerging issues in the field of reproductive health and by state and local governments to plan and review programs and policies aimed at reducing health problems among mothers and babies (<https://www.cdc.gov/prams/index.htm>).

**Survey Methodology:** The State of Hawaii started PRAMS in 1999 with the first full year of data collected in 2000. Hawaii PRAMS works in collaboration with the Hawaii State Department of Health (DOH) Office of Health Status Monitoring to identify women who have a live birth in Hawaii. A Hawaii PRAMS Steering Committee, consisting of DOH staff and community stakeholders, was created to provide oversight and guidance for the program. There are approximately 18,400 births in Hawaii each year and about 200 surveys are sent out each month to mothers two months after delivery, with regular follow-up by mail and telephone up to six months postpartum. Historically, the survey is completed by 70-75% of mothers contacted, but response rates can vary slightly year to year. Weighted estimates from Hawaii PRAMS are generalizable to all pregnant women who have a live birth in the state. The estimates are weighted based on information from the birth certificate such as maternal age, maternal race, and county of residence. This weighting accounts for differences in characteristics between those mothers that did and did not respond to develop estimates representative of the population. Due to some delays at the CDC level, data collection for the 2012 survey was only conducted among births that occurred from May to December. However, oversampling during this time was done to maintain the full annual sample. In all other years covered in this trend report, data was collected over the entire calendar year. The survey is revised every 3-5 years, consisting mostly of core questions required by CDC that are asked of all participating states. Additionally, on this same cycle, Hawaii and other states use feedback from local steering committees and other staff to select additional questions for the survey that are of interest in the state. The standard core questions allow comparability among states and the state added-questions may also allow comparison if the same question is asked in other states. This report is based on the last two survey cycles which includes information from births occurring in 2009-2011 and 2012-2015.

**Report Indicators:** This report describes data for 23 selected indicators of maternal and infant health risk factors and outcomes that were selected based on feedback from the Hawaii PRAMS steering committee. For ten of the 23 indicators, this report is a continuation of the Hawaii PRAMS Trend Report 2000-2008 as these indicators did not change over time (<http://health.hawaii.gov/fhsd/home/hawaii-pregnancy-risk-assessment-monitoring-system-prams/>) and comparisons of trends over the two reports can be made. Of note, one of these ten indicators, postpartum depression was assessed using a different question during 2009-2011, but reverted back to the original 2000-2008 question for the latest survey. Therefore, only 2012-2015 data on postpartum depression is shown in the current report, but this data is comparable to that shown in the previous trend report. Other indicators in the current report (i.e., unintended pregnancy, binge drinking prior to pregnancy, and intimate partner violence) were also included in the original trend report, but due to a substantial change in the survey questions the data is not directly comparable between the two trend reports. Some of the indicators from the previous report (i.e., infant exposure to secondhand smoke, illicit drug use during pregnancy, first trimester prenatal care) were not included as the questions were no longer asked or the way the data was collected changed. Some were also replaced by new indicators (i.e., pre-pregnancy teeth cleaning, illicit drug use before pregnancy) while others represent additional priority topics identified for maternal and infant health (i.e., no health insurance prior to pregnancy, preconception health visit, gestational diabetes, high blood pressure during pregnancy, WIC program participation, preterm delivery, infant NICU admission, and postpartum checkup). Lastly, due to changes in the birth certificate in 2014,

maternal education could not be aggregated for the 2012-2015 period in the subgroup estimates and was replaced by a socioeconomic measure based on percent of the federal poverty level based on income and household size.

**Confidence Intervals:** In this report, we included the 95% confidence intervals (95% CI) for the prevalence estimates in all the graphs and tables to demonstrate the differences between the population subgroups. Confidence intervals demonstrate the precision of the estimate and depends on both the sample size and the variability of responses. The 95% CI means that within an error of 5%, the true value will be within the boundaries of the interval. The 95% CI can be used to compare different populations. For example, if the interval of the two groups overlap, it can be inferred that there is unlikely to be a statistical difference between the estimates, and therefore 'not significant'. Conversely, if there is no overlap for the two groups, it can be concluded that the estimates are statistically different from each other and can be recognized as 'significant'. Caution must be used in interpretation of those estimates with wide confidence intervals due to lack of precision of the estimate. If there was more than 10% standard error in the estimate, it was considered unreliable and suppressed as noted by an asterisk (\*) in graphs.

For each indicator, subgroup analyses were performed to examine differences in prevalence estimates by demographic groups (i.e., maternal race, maternal age, and federal poverty level) and geographic groups (i.e., county of residence). The overall state estimate for each indicator is based on the calculation of all available data for that group which was the same estimate for maternal race, maternal age, and county of residence. The overall state estimate based on federal poverty level for each indicator may differ slightly from the other groups due to missing data (10.9%) as those that declined to answer the questions about income or number of people in the household dependent on the income could not be included in the calculation.

**Layout:** In this report, the layout was designed to provide a 2-page snapshot for each indicator that includes visualized charts and corresponding narrative to portray the observed differences. It could be printed out and used to provide a snapshot of the indicator to help raise awareness of the issue and encourage discussion of differences.

To highlight the groups with estimates that were of concern compared to the overall rate, this report includes a red line on each chart showing the overall state estimate for each indicator, an inset box that highlights those at-risk groups, and a conclusion type statement. The "At-risk Groups" inset was provided to highlight those groups that had a significantly different adverse prevalence estimate compared to the overall state estimate based on the conservative approach from review for overlapping confidence intervals. The conclusion statement is provided to highlight the overall state estimate for the 2012-2015 aggregate and those groups of concern.

Additionally, to illustrate how much we value the thoughts and feelings of mothers who participate in our survey, we have embedded topic-specific comments to accompany each indicator. These comments and others provide a human element represented by the numbers in this report, allowing for impactful understanding of the mothers and infants represented by PRAMS data. Finally, summary tables were added to the end of the report to provide that actual prevalence estimate and 95% CI for each indicator by year and by the 2012-2015 aggregated subgroups.

**Impact:** PRAMS data is used in various ways in Hawaii. In addition to the prior trend report, other products include county trend reports, peer-reviewed manuscripts, poster and oral presentations, and fact sheets on various perinatal issues. Some of these reports are used to inform legislation, included in grant reports, used for surveillance of maternal and infant health topics, used to apply for grant opportunities, used to evaluate the needs of communities, and used to assist in the development of policies. Hawaii PRAMS data is included in several national reports and analyses are published in peer reviewed journal articles highlighting issues such as postpartum depression, oral health utilization surrounding pregnancy, diabetes, and substance use in the population. Hawaii PRAMS is committed to provide valuable data and promote awareness of issues facing mothers, children, and their families.

# Population Characteristics

The following table highlights some of the basic characteristics of women and their perinatal outcomes in the State of Hawaii. The annual estimated births and the prevalence estimate for the entire population of women having a live birth in the county are shown. In addition, the 95% CI for each estimate is provided to demonstrate the precision of the estimate, which is partly dependent on the number of respondents who complete the survey and variability in their responses. Data from 2012-2015 was aggregated to generate more stable estimates than could be obtained from a single year of data. However, even with this aggregation of data, estimates are unreliable from some subpopulations due to small sample size and cannot be reported. For example, prevalence estimates for maternal race cannot be reported for many of the racial groups classified as Other Asian and All Others because of small sample size.

**Summary:** During 2012-2015, an average annual estimate of 18,400 births occurred to residents in the State of Hawaii. Nearly three-quarters of all births occurred to women ages 20-34 years. Approximately 18.8% of births were to mothers ages 35 years and older, while 4.8% were to mothers ages 19 years or younger.

The Office of Health Status Monitoring assigns all people that report more than one race group to a single group for reporting purposes. Therefore, this single race group is all that is available in the PRAMS data for analysis. Among racial groups in the state, 27.5% of all births occurred to mothers who reported being of Native Hawaiian or part-Hawaiian, followed by White (24.1%), Filipino (17.0%), Japanese (9.2%), Other Pacific Islander (5.2%), Chinese (5.1%), Other Asian (3.7%), All Others (3.4%), Black (3.0%), and Samoan (1.7%). Classifications of Other Pacific Islander, Other Asian, or All Others were defined to aggregate mothers into larger racial groupings because of the low number of mothers who reported a specific race. Mothers in the Other Pacific Islander group consisted of those who reported being Guamanian (n=17) or other type of Pacific Islander (n=253). Mothers in the Other Asian group included those who reported being Korean (n=69), Vietnamese (n=37), Asian Indian (n=6), and other Asian race (n=48). The All Others group consisted of mothers who reported being of Hispanic descent (Puerto Rican [n=15], Cuban [n=4], Mexican [n=79]), Native American (n=91), and those in which race was unknown or not reported (n=3).

Most births occurred to mothers that reported living in Honolulu County (72.0%), followed by those who reported living in Hawaii County (12.8%), Maui County (10.5%), and Kauai County (4.7%). The majority of births were to married (68.6%) mothers with another status (31.4%) making up the remainder which would include all others with a known marital status.

Percent of federal poverty level (FPL) was estimated based on reported household income and number of dependents relying on that income using federal poverty guidelines with Hawaii specific cut points (<https://aspe.hhs.gov/poverty-guidelines>). We found that 29.9% of mothers reported incomes that put them at or below 100% FPL, 25.7% were at 101-185% FPL, 14.4% were at 186-300% FPL, and 30.0% were at 301% and greater FPL.

A small percentage of mothers (5.4%) reported not having health insurance before pregnancy. Of mothers who reported having health insurance before pregnancy, we found that 67.7% reported private insurance (which also included military) and 26.9% reported Medicaid/QUEST. About 2 in 5 mothers (42.1%) reported participating in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) during pregnancy.

About 1 in 3 pregnancies that resulted in a live birth were to first time mothers (34.5%). For about half (51.2%) it was their second or third live birth, and 14.3% it was their fourth live birth. Overall, 7.2% of the deliveries resulted in a low birthweight infant, defined as birthweight less than 2,500 grams.



# Population Characteristics

	Estimated Annual Births (N)*	Weighted Percent Estimate* (%)	95% Confidence Interval*	Respondents (n)*
<b>Maternal Age</b>				
19 years and younger	900	4.8	4.0-5.5	277
20-24 years	3,750	20.3	18.9-21.8	1,087
25-34 years	10,300	56.1	54.4-57.9	3,105
35 years and older	3,450	18.8	17.4-20.2	1,103
<b>Maternal Race</b>				
White	4400	24.1	22.6-25.6	1,303
Native Hawaiian	5050	27.5	26.0-29.0	1,693
Chinese	950	5.1	4.3-6.0	238
Filipino	3100	17.0	15.7-18.3	1,025
Japanese	1700	9.2	8.1-10.2	466
Black	550	3.0	2.4-3.7	126
Samoan	300	1.7	1.2-2.2	67
Other Pacific Islander	950	5.2	4.4-6.0	270
Other Asian	650	3.7	3.0-4.4	160
All Others	650	3.4	2.8-4.1	224
<b>County</b>				
Hawaii	2,350	12.8	12.7-12.9	1,134
Honolulu	13,200	72.0	71.8-72.1	2,513
Maui	1,950	10.5	10.4-10.6	1,062
Kauai	850	4.7	4.6-4.7	863
<b>Marital Status</b>				
Married	11,600	68.6	67.0-70.2	3,286
Unmarried	5,300	31.4	29.8-33.0	1,831
Missing				455
<b>Percent of Federal Poverty Level</b>				
0-100%	4,950	29.9	28.2-31.6	1,565
101-185%	4,250	25.7	24.1-27.3	1,284
186-300%	2,400	14.4	13.1-15.7	754
301% and greater	4,950	30.0	28.3-31.7	1,404
Missing				565
<b>Insurance Coverage Before Pregnancy</b>				
No coverage	1,000	5.4	4.6-6.1	328
Medicaid/QUEST	4,950	26.9	25.4-28.4	1594
Military	2,900	15.9	14.4-17.3	562
Private Insurance	9,550	51.9	50.1-53.6	3086
Missing				2
<b>WIC Participation During Pregnancy</b>				
No	10,550	57.9	56.2-59.7	3,106
Yes	7,650	42.1	40.3-43.8	2,412
Missing				54
<b>Low Birth Weight</b>				
No	17,000	92.8	92.5-93.0	1,218
Yes	1,350	7.2	7.0-7.5	4,331
Missing				23
<b>Parity</b>				
First Birth	5,700	34.5	32.8-36.2	1,777
Second or Third Birth	8,500	51.2	49.4-53.0	2,548
Fourth or more Birth	2,350	14.3	13.0-15.5	729
Missing				518
<b>Overall</b>	<b>18,400</b>	<b>100</b>		<b>5,572</b>

\*Aggregated data from 2012-2015

# Preconception Obesity

**Background:** Obesity is associated with multiple health consequences, including the leading causes of death such as coronary heart disease, stroke, cancers of the breast and colon, and type 2 diabetes. Obesity is also associated with poor female reproductive health, with pre-pregnancy obesity being an independent risk factor for adverse pregnancy and neonatal outcomes<sup>1,2</sup>. Pregnancy complications associated with obesity include gestational diabetes, gestational hypertension, pre-eclampsia, and cesarean delivery.

**Indicator Definition:** Self-reported height and weight prior to pregnancy was used to calculate a body mass index (BMI), defined as weight in kilograms divided by the height in meters squared. A BMI level of 30.0 or higher was considered preconception obesity. Since these are based on self-reported information several months after the pregnancy about her weight before the pregnancy, these estimates may be somewhat underestimated.

**Trends Over Time:** In 2015, 19.3% of mothers in the State of Hawaii reported being obese prior to conception. While Hawaii's prevalence of preconception obesity appeared to increase slightly from 2009 (17.3%), the prevalence in 2015 was significantly higher when compared to 2011 (13.9%).

**Differences by County of Residence:** During 2012-2015, 18.2% of mothers in the state reported preconception obesity. Those living in Hawaii County reported the highest estimate of preconception obesity (21.4%), while those in Kauai County reported lowest estimate (15.0%). However, neither estimate was significantly different from the state overall or any other counties. Mothers in Maui and Honolulu Counties (18.1% and 17.9%, respectively) reported similar estimates of preconception obesity when compared with the overall state estimate.

**Differences by Maternal Race:** The prevalence of preconception obesity was significantly higher for Samoan (55.5%) and Native Hawaiian (27.8%) mothers compared to most other racial groups and the state overall. Mothers classified as Other Pacific Islander and All Others had similarly higher, but not significantly, prevalence of preconception obesity at 23.0% and 21.7%, respectively. Japanese (11.2%), Filipino (13.0%), White (13.8%), and Black (16.4%) mothers had similar estimates of preconception obesity. Chinese and Other Asian mothers were significantly less likely to report preconception obesity (7.8% and 4.8%, respectively) compared to the state overall.

**Differences by Maternal Age:** A significantly lower percentage of women ages 19 years and younger (7.4%) reported preconception obesity compared to other age groups and the state overall. Women ages 20-24 years (18.7%), 25-34 years (18.9%), and 35 years and older (18.4%) were similar (and not significantly different) from the state overall.

**Differences by Federal Poverty Level (FPL):** During 2012-2015, preconception obesity was significantly higher among mothers at or below 100% FPL (23.5%) compared to those at 186-300% (15.8%), 301% or greater (12.5%), and the state overall (18.3%); there was a downward trend in preconception obesity with higher FPL.

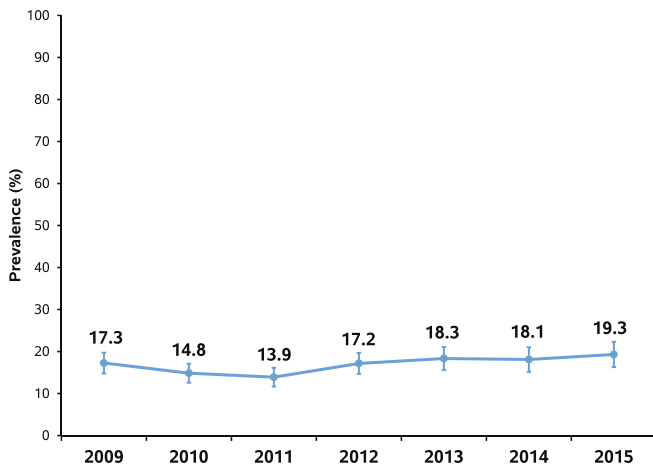
**In the State of Hawaii, roughly 18% of women who had a live birth reported preconception obesity. Compared to all mothers in the state, preconception obesity was significantly higher among Samoan and Native Hawaiian mothers, and those at or below 100% of the federal poverty level.**

“So many women are over weight before they get pregnant, Like me, I was --- when I found out.... it caused me to have really high blood pressure. So I had to stay in the hospital some extra days.”

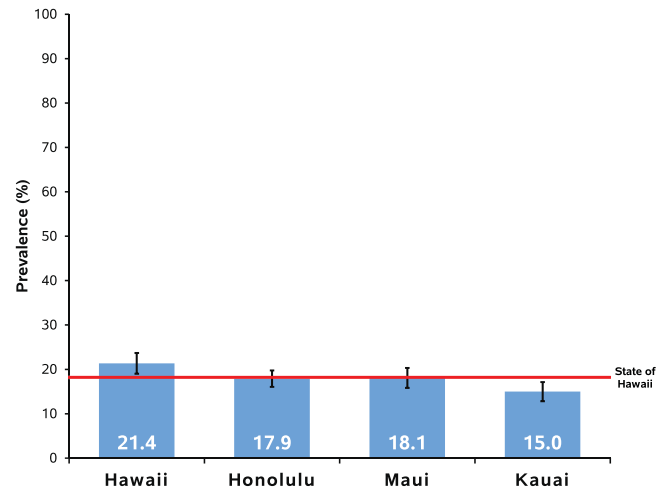
“Should have asked about weight gain and weight of baby. Postpartum weight retention (maternal BMI) is big risk factor for overweight children-as big as sedentary lifestyle.”

# Preconception Obesity

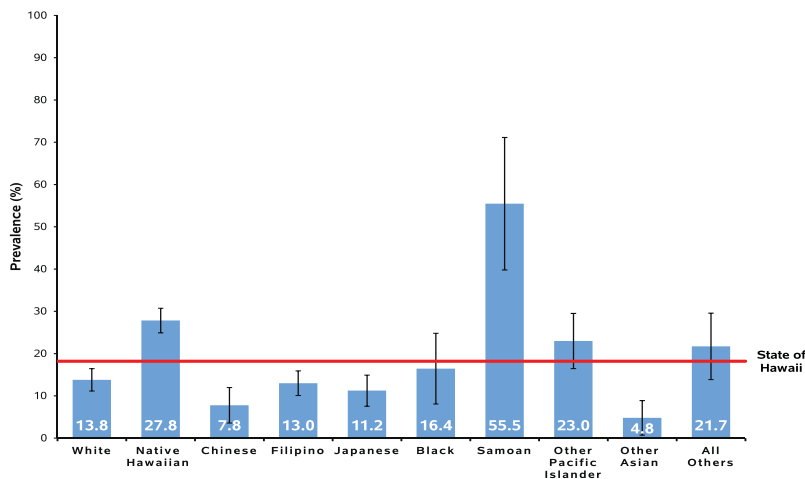
Preconception Obesity over Time, 2009-2015



Preconception Obesity by County, 2012-2015



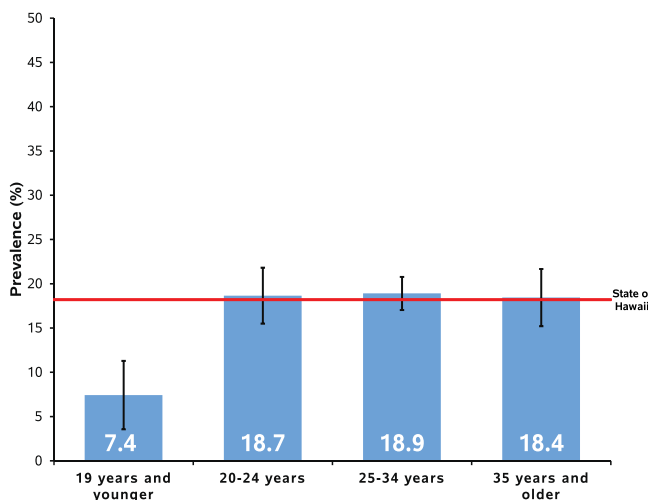
Preconception Obesity by Maternal Race, 2012-2015



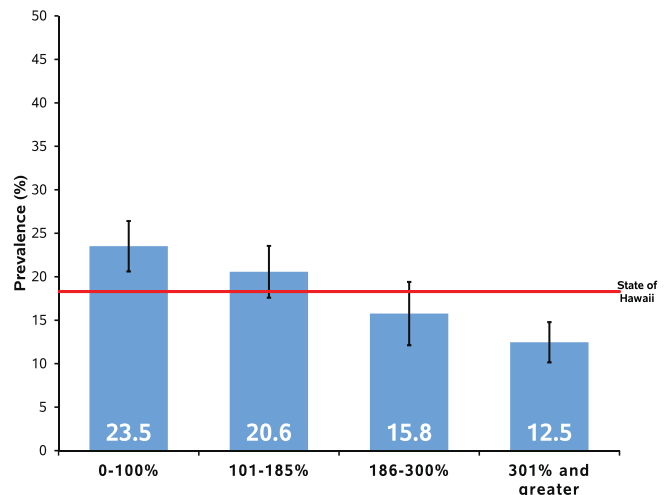
## At-risk Groups

- Samoan and Native Hawaiian mothers
- Mothers who are at or below 100% of the federal poverty level

Preconception Obesity by Maternal Age, 2012-2015



Preconception Obesity by Federal Poverty Level, 2012-2015



# No Health Insurance Prior to Pregnancy

**Background:** Health insurance is important to help a person pay for medical care, which is especially important if a woman is planning to be pregnant. It is important to receive medical care before pregnancy for some health conditions, such as high blood pressure and diabetes, which can cause problems during pregnancy. However, some women may be uninsured because they cannot afford coverage offered through a family member's employer but are also ineligible for state health insurance coverage through Medicaid/QUEST.

**Indicator Definition:** 'No insurance prior to pregnancy' was determined by those who responded "I did not have any health insurance during the month before I got pregnant" to the question on the type of health insurance before pregnancy.

**Trends Over Time:** In 2015, 4.7% of mothers in the State of Hawaii reported not having health insurance prior to pregnancy. There was a steady decline in women reporting not having insurance prior to pregnancy over time, with a significant decrease from 2009 (8.0%) to 2015.

**Differences by County of Residence:** During 2012-2015, 5.4% of mothers reported having no health insurance prior to pregnancy. Those living in Maui County had the highest prevalence (8.1%) compared to Honolulu County (4.6%) and the state overall. Residents of Kauai and Hawaii Counties had similar estimates of no insurance prior to pregnancy (6.5% and 6.7%, respectively) that were not significantly different from the state overall.

**Differences by Maternal Race:** The highest prevalence of no health insurance prior to pregnancy was among Samoan (17.7%), which was significantly higher than Filipinos (4.2%), Native Hawaiians (4.9%), Japanese (2.8%), and the state overall. Mothers classified as Other Asian (11.4%), All Others (9.5%), Chinese (7.0%), and Other Pacific Islander (6.8%) had higher estimates compared to the state estimate, but none were significantly different. The prevalence among Japanese mothers was significantly lower than Hawaii overall. An estimate for Black mothers could not be reported due to small sample size.

**Differences by Maternal Age:** Prevalence estimates for not having insurance prior to pregnancy were similar across all age groups, with mothers ages 25-34 years (4.9%) having a slightly lower estimate, but not significantly, than the other age groups or the state overall.

**Differences by Federal Poverty Level (FPL):** Mothers at or below 100% FPL (8.9%) had the highest prevalence of not having health insurance prior to pregnancy compared to those between 186-300% FPL or higher and the state estimate (5.2%). There was a steady decline in the estimate of no insurance prior to pregnancy with increasing FPL, with those at 301% FPL and greater reporting the lowest estimate (1.6%).

**A small percentage (5.4%) of mothers in the State of Hawaii reported not having health insurance prior to pregnancy. The prevalence of not having health insurance was highest among mothers living in Maui County, Samoans, and those at or below 100% of the federal poverty level.**

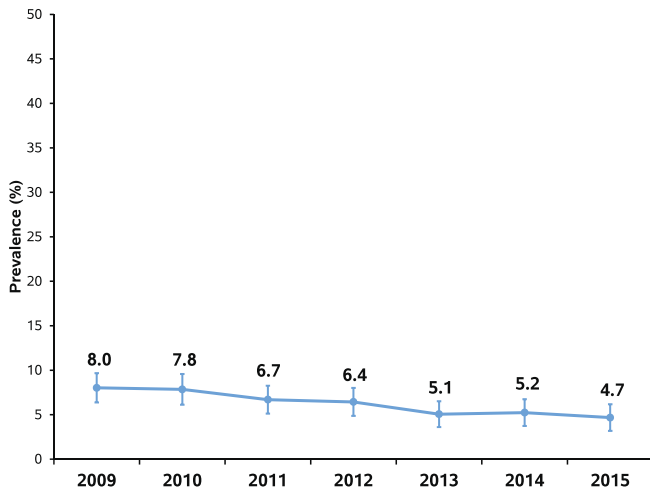
"It was a struggle when I first found out I was pregnant because I wasn't aware that my former insurance didn't cover pregnancy, but as I moved to quest it was such a relief."

"I had a difficult time receiving health insurance, because they looked at my parent's income. I had no insurance. I was also unaware of the programs available to me."

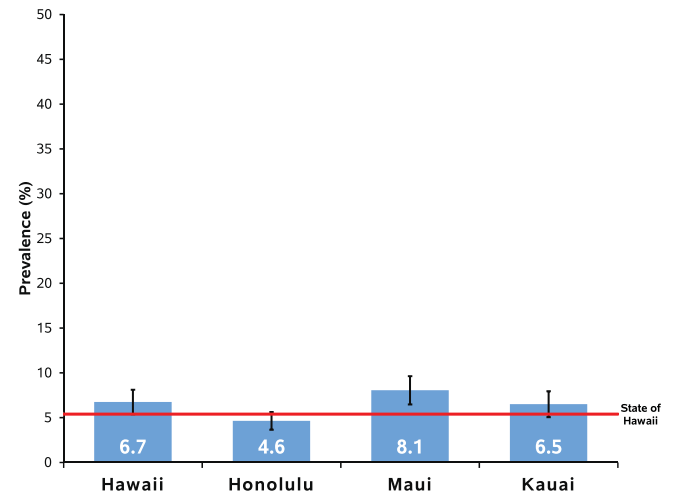


# No Health Insurance Prior to Pregnancy

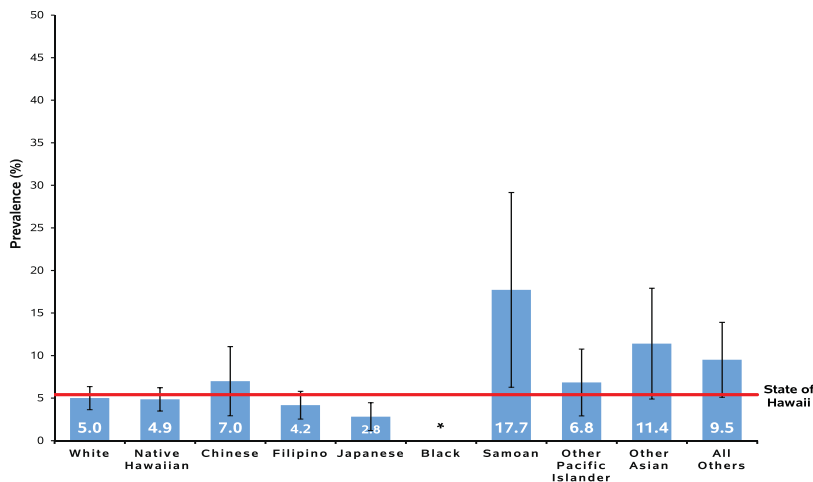
No Health Insurance Prior to Pregnancy over Time, 2009-2015



No Health Insurance Prior to Pregnancy by County, 2012-2015



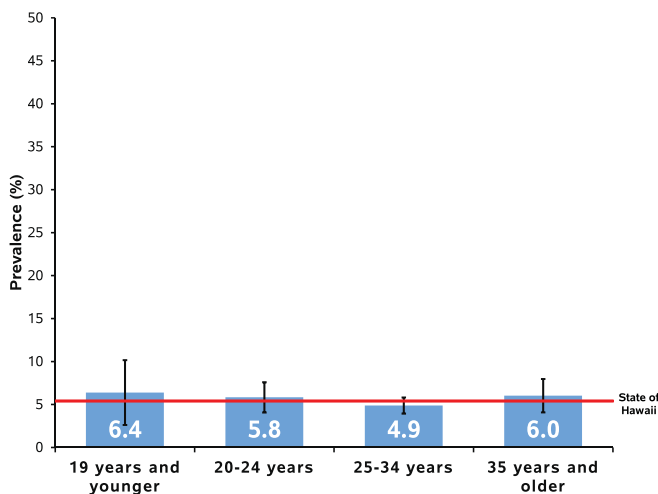
No Health Insurance Prior to Pregnancy by Maternal Race, 2012-2015



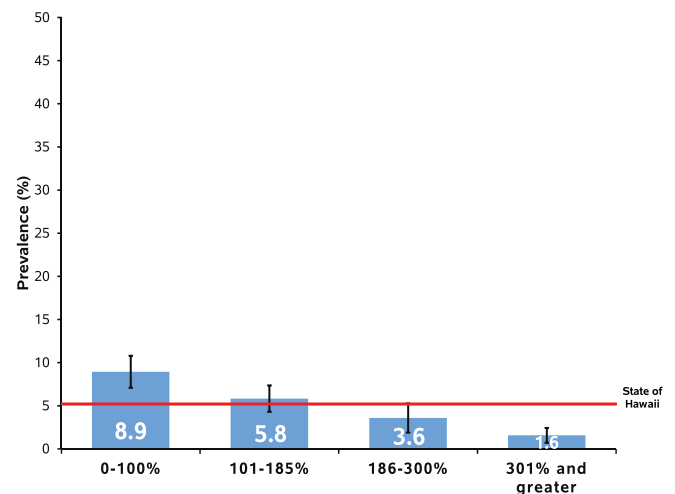
## At-risk Groups

- Mothers living in Maui County
- Samoan mothers
- Mothers who are at or below 100% of the federal poverty level

No Health Insurance Prior to Pregnancy by Maternal Age, 2012-2015



No Health Insurance Prior to Pregnancy by Federal Poverty Level, 2012-2015



# Preconception Healthcare Visit

**Background:** Preconception care involves a set of interventions that aim to identify and modify biomedical, behavioral, and social risks to the woman's health or pregnancy outcome through prevention and management. The American College of Obstetricians and Gynecologists recommend that all health encounters during a woman's reproductive years, particularly those that are a part of preconception care, should include counseling on appropriate health behaviors to optimize pregnancy outcomes and prevent maternal mortality<sup>3</sup>. To emphasize its importance of the national level, one Healthy People 2020 objective aims to increase the proportion of women with a recent live birth who discuss preconception health with a healthcare worker prior to pregnancy to 27.0%<sup>4</sup>.

**Indicator Definition:** 'Preconception healthcare visit' was defined by a question "Before you got pregnant with your new baby, did a doctor, nurse, or other health care worker talk to you about how to improve your health before pregnancy?" This question changed significantly in the 2012 PRAMS survey, thus only data from 2012 to 2015 are presented here.

**Trends Over Time:** In the State of Hawaii, 26.3% of mothers reported having a preconception healthcare visit in 2015. From 2012 to 2015, estimates of preconception healthcare visits were similar and not significantly different.

**Differences by County of Residence:** During 2012-2015, 25.8% of mothers in the State of Hawaii reported having a preconception healthcare visit. Mothers in Kauai County (27.1%) were significantly less likely to have a preconception healthcare visit compared to the state overall. Estimates for mothers living in Hawaii (23.6%), Honolulu (26.7%), and Maui (24.5%) Counties were not significantly different between counties or the state overall.

**Differences by Maternal Race:** Mothers classified as Black, White, and All Others had the lowest estimates for preconception healthcare visits at 20.9%, 21.4%, and 22.0%, respectively, but none of these estimates were significantly different from the state overall. Other Pacific Islander mothers (38.3%) were significantly more likely to have a preconception healthcare visit compared to the state overall. All other racial groups reported estimates of preconception healthcare visits that were not significantly different than the state overall.

**Differences by Maternal Age:** Women ages 19 years and younger (15.7%) were significantly less likely to have a preconception healthcare visit compared to the state overall. Those ages 20-24 years (24.4%), 25-34 years (25.5%), and 35 years and older (31.0%) had higher preconception healthcare visit estimates, but these estimates were not significantly higher than each other or the state overall.

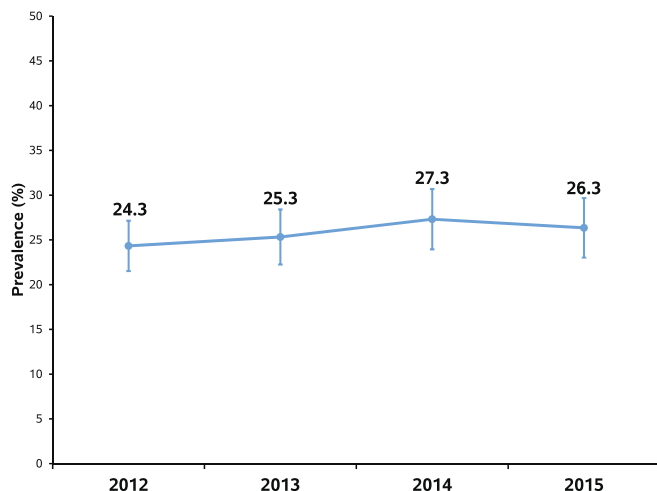
**Differences by Federal Poverty Level (FPL):** Women between 0-100% FPL (25.1%), 101-185% (25.2%), and 186-300% (23.5%) had similar estimates for preconception healthcare visit, but none were significantly different from those with 301% and greater in FPL (29.3%) or the state overall (26.1%).

**Over a quarter (26.3%) of mothers in the State of Hawaii reported having a preconception healthcare visit; however, it was significantly lower among mothers in Kauai County and ages 19 years and younger.**

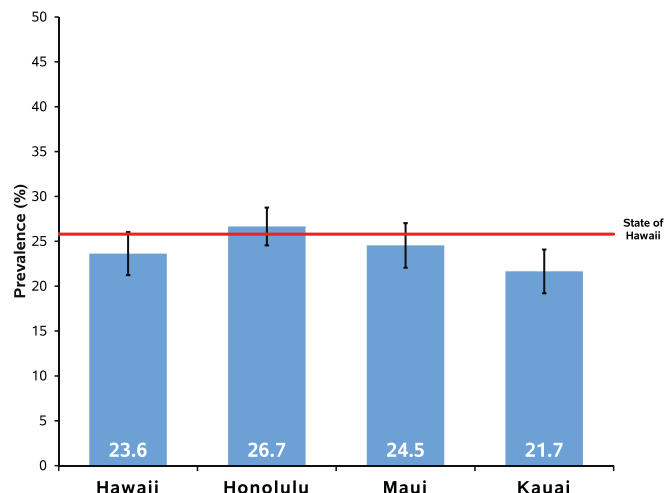
"Take care yourself and your baby. Get rest or help. An exercise program and healthy diet was put into place 1 year before pregnancy and seemed to make a big difference. Pregnancy went well and delivery was easy and uneventful. Recovery was quick and went back to pre-pregnancy weight 3 weeks after birth. (without dieting!)"

# Preconception Healthcare Visit

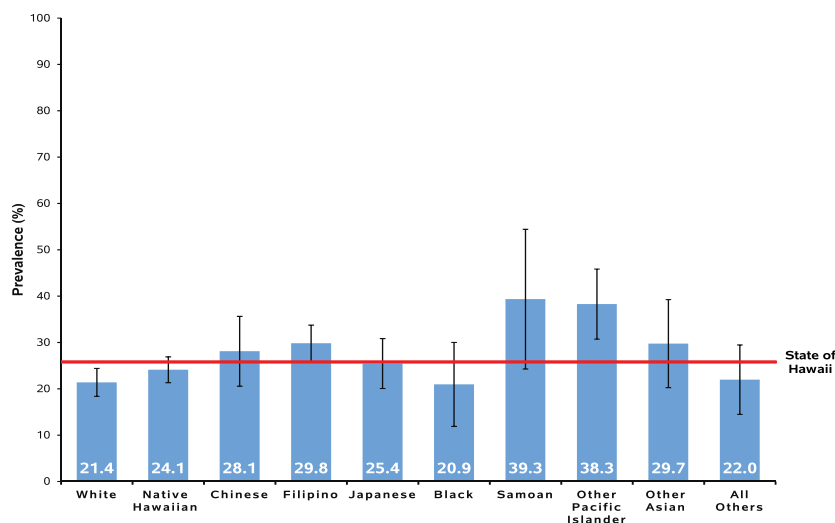
**Preconception Healthcare Visit over Time, 2012-2015**



**Preconception Healthcare Visit by County, 2012-2015**



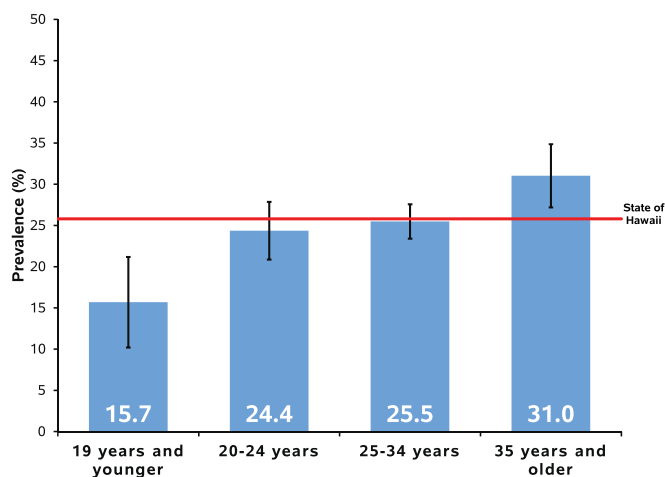
**Preconception Healthcare Visit by Maternal Race, 2012-2015**



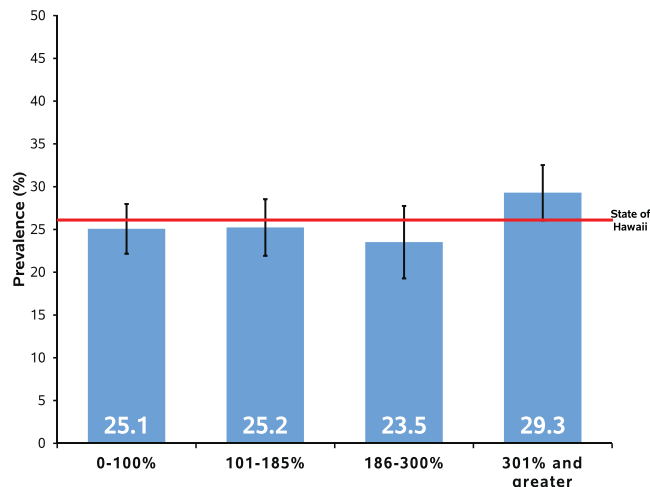
## At-risk Groups

- Mothers living in Kauai County
- Mothers ages 19 years and younger

**Preconception Healthcare Visit by Maternal Age, 2012-2015**



**Preconception Healthcare Visit by Federal Poverty Level, 2012-2015**



# Pre-Pregnancy Teeth Cleaning

**Background:** Oral health is an essential and integral component of health throughout life. Poor oral health is associated with increased healthcare costs, decreased productivity, increased absenteeism, and can result in significant illness, and death<sup>5</sup>. Regular teeth cleaning and dental care provide an opportunity for early diagnosis, prevention, and treatment of oral and associated disease among persons of all ages. During pregnancy, hormonal changes increase the risk of gum disease, which can affect the health of developing baby<sup>6</sup>. It is important to have routine teeth cleaning and treatment of oral health conditions before pregnancy to improve the health of both the mother and infant.

**Indicator Definition:** ‘Pre-pregnancy teeth cleaning’ was defined as a self-reported visit to a dentist or dental hygienist for teeth cleaning 12 months before pregnancy.

**Trends Over Time:** In 2015, 61.9% of mothers in the State of Hawaii reported pre-pregnancy teeth cleaning. Despite some fluctuations in pre-pregnancy teeth cleaning estimates over time, there was a significant increase in pre-pregnancy teeth cleaning from 2009 (52.3%) to 2015.

**Differences by County of Residence:** An estimated 56.2% of mothers in the state reported pre-pregnancy teeth cleaning during 2012-2015. Compared to the state estimate, mothers who reported living in Hawaii County and Maui County were significantly less likely to have pre-pregnancy teeth cleaning at 48.3% and 50.9%, respectively. Mothers living in Honolulu County (58.6%) and Kauai County (53.4%) reported the highest estimates of pre-pregnancy teeth cleaning, but not significantly higher than the state overall.

**Differences by Maternal Race:** The lowest estimates of pre-pregnancy teeth cleaning were among Other Pacific Islander and Native Hawaiian (35.4% and 48.3%, respectively), which were statistically different from the state overall. Pre-pregnancy teeth cleaning was significantly higher among Japanese (69.5%) and White (66.1%) mothers compared to the state estimate. The prevalence of pre-pregnancy teeth cleaning varied across all other racial groups but were not significantly different from each other or the state prevalence.

**Differences by Maternal Age:** Women ages 20-24 years had the lowest estimate of pre-pregnancy teeth cleaning at 43.7%, which was significantly lower than the state overall. Mothers ages 19 years and younger (47.4%) were less likely to have pre-pregnancy teeth cleaning compared to those ages 25-34 years (58.9%) and ages 35 years or older (63.8%).

**Differences by Federal Poverty Level (FPL):** Pre-pregnancy teeth cleaning was less likely among mothers at or below 100% FPL (36.4%); this estimate was significantly lower than the state overall (56.1%). There was a significant increase in pre-pregnancy teeth cleaning with increasing FPL, with those in the 301% and greater group having the highest estimate at 77.2%.

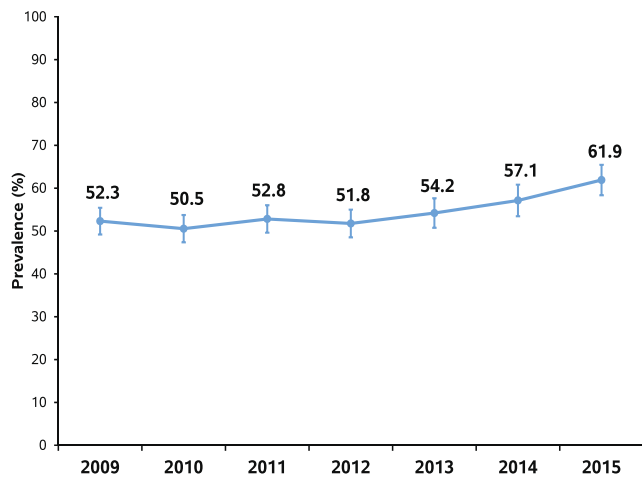
**More than half (56.2%) of mothers in the State of Hawaii reported pre-pregnancy teeth cleaning. Pre-pregnancy teeth cleaning was lowest among mothers living in Hawaii and Maui Counties, Other Pacific Islander and Native Hawaiian mothers, mothers ages 20-24 years, and those at the lowest federal poverty level.**

“I feel it is important for pregnant mothers to be provided dental insurance if they do not have any. Many may not be able to afford to pay out of pocket for annual teeth cleaning/dental check ups which are so very important during pregnancy. Also to provide pregnant mothers with the information about the importance of taking care of their teeth during pregnancy.”

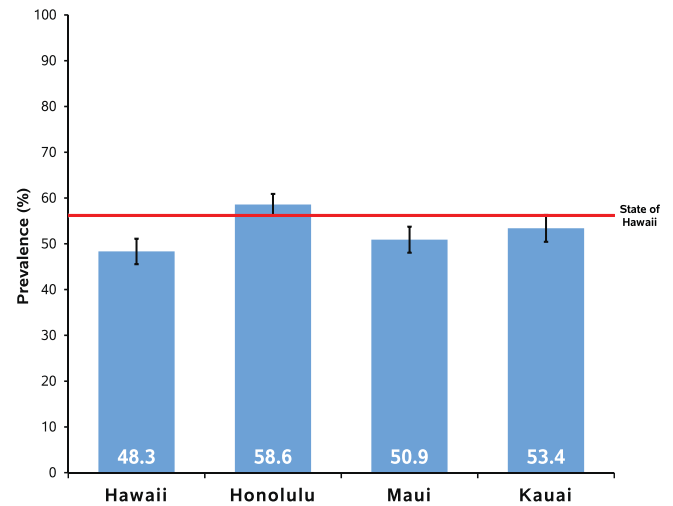


# Pre-Pregnancy Teeth Cleaning

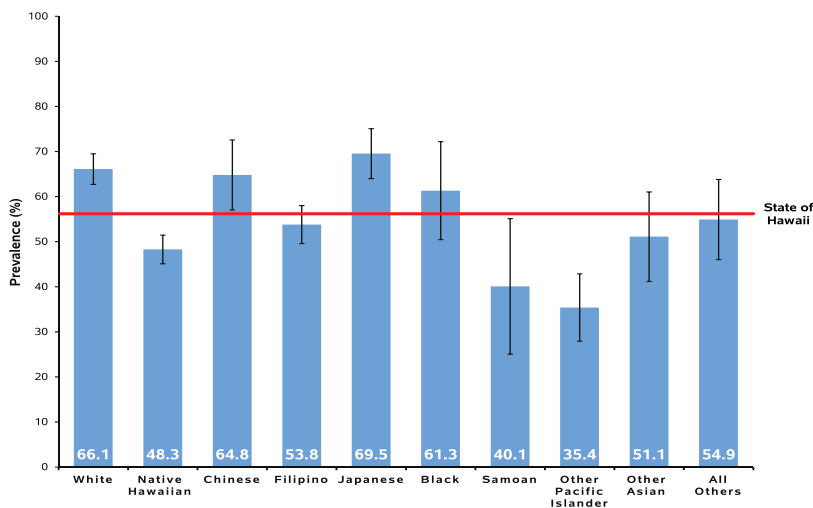
Pre-Pregnancy Teeth Cleaning over Time, 2009-2015



Pre-Pregnancy Teeth Cleaning by State and County, 2012-2015



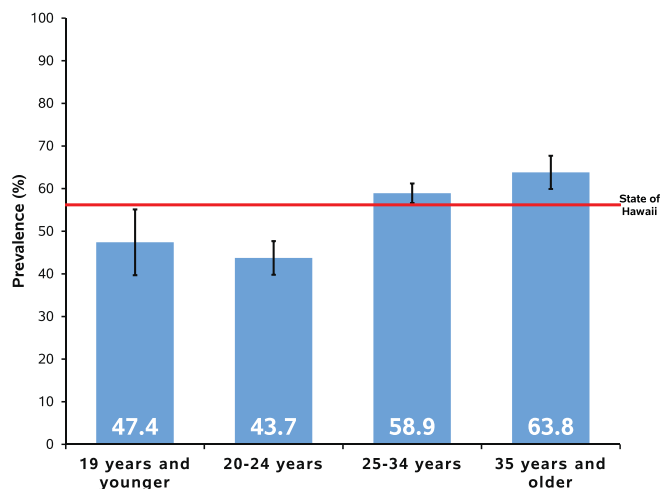
Pre-Pregnancy Teeth Cleaning by Maternal Race, 2012-2015



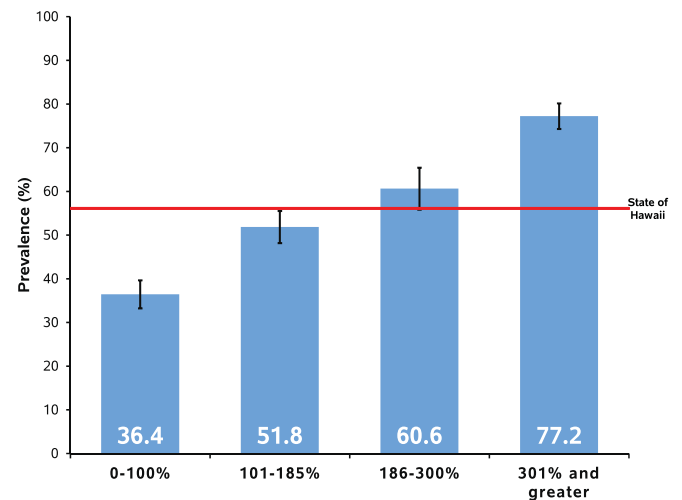
## At-risk Groups

- Mothers living in Hawaii and Maui Counties
- Other Pacific Islander and Native Hawaiian mothers
- Mothers ages 20-24 years
- Mothers who are at or below 100% of the federal poverty level

Pre-Pregnancy Teeth Cleaning by Maternal Age, 2012-2015



Pre-Pregnancy Teeth Cleaning by Federal Poverty Level, 2012-2015



# Preconception Vitamin Intake

**Background:** Multivitamins or prenatal vitamins enriched with folic acid can reduce the risk of neural tube defects (NTD) in a developing fetus, particularly spina bifida and anencephaly. Studies have shown that taking 400 micrograms of folic acid daily before pregnancy can help can reduce the risk of having a child with a NTD by 50%<sup>7</sup>. One of the national Healthy People 2020 objective is to increase the proportion of women of childbearing potential with intake of at least 400 micrograms of folic acid daily from fortified foods or dietary supplements<sup>4</sup>.

**Indicator Definition:** ‘Inadequate preconception vitamin intake’ was defined as intake of multivitamins or prenatal vitamins of less than 4 times a week in the month before pregnancy.

**Trends over Time:** From 2009 to 2015, there appears to be a decrease in inadequate preconception vitamin intake (66.3% to 63.9%), but this trend was steady, and not significantly different, over the period.

**Differences by County of Residence:** In the State of Hawaii, 63.6% of mothers did not take an adequate amount of preconception vitamins in the month before pregnancy during 2012-2015. Mothers living in Hawaii County (71.0%) had the highest prevalence of inadequate preconception vitamin intake, which was significantly higher the state overall. Maui, Kauai, and Honolulu County residents reported estimates of inadequate preconception vitamin intake that were lower than Hawaii County residents, but not statistically different from the state overall.

**Differences by Maternal Race:** Native Hawaiian (75.2%), Other Pacific Islander (76.0%), and Samoan (79.1%) mothers reported significantly higher estimates of inadequate preconception vitamin intake than the state overall. Inadequate preconception vitamin intake was significantly lower among Japanese and White mothers at 53.1% and 54.8%, respectively, compared to the state overall. Other Asian (56.2%), Filipino (57.9%), Chinese (61.4%), and All Others (64.8%) mothers had varied estimates of inadequate intake of preconception vitamins, but none were significantly different for each other or the state overall.

**Differences by Maternal Age:** Mothers ages 19 years and younger (89.3%) and ages 20-24 years (77.8%) were significantly more likely to report inadequate amount of preconception vitamins compared to those ages 25-34 years (60.0%), 35 years and older (52.4%), and the state overall.

**Differences by Federal Poverty Level (FPL):** The highest estimates of inadequate preconception vitamin were reported among mothers between 0-100% FPL (77.3%) and 101-185% FPL (69.4%); these estimates were significantly higher than the overall state estimate. There was a steady decline in the estimate of inadequate preconception vitamins with increasing FPL, with those at 301% and greater FPL (44.7%) having a significantly lower prevalence of inadequate preconception vitamin intake compared to the state overall.

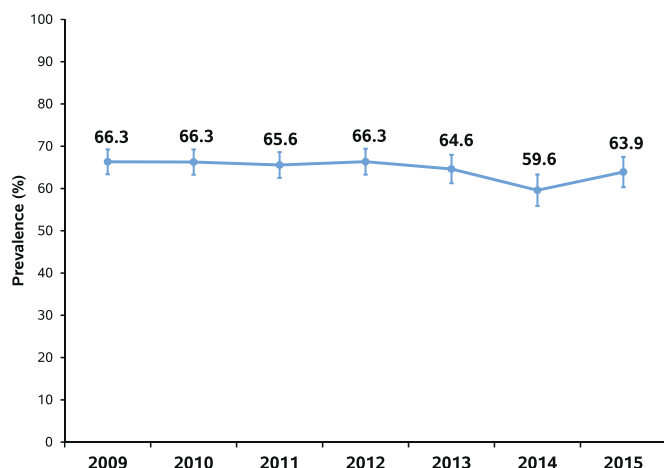
**In the State of Hawaii, 63.6% of mothers reported inadequate intake of preconception vitamins, which was significantly higher among mothers living in Hawaii County, Samoans, Native Hawaiians, Other Pacific Islanders, those ages 24 years and younger, and those less than 186% of the federal poverty level.**

“...take prenatal vitamins, especially folic acid 1 year before pregnancy”

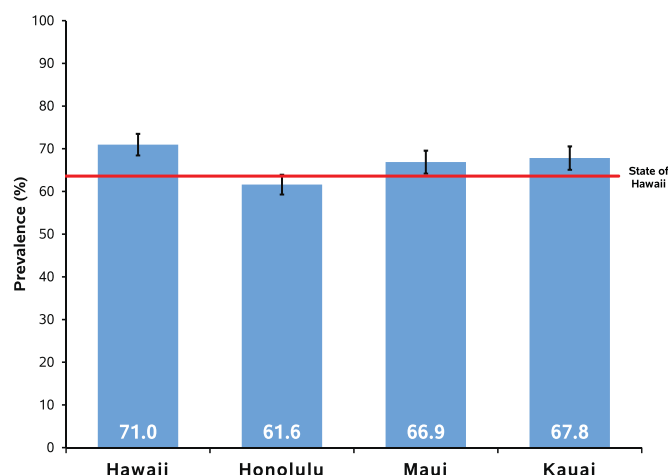
“I always (every single day) take my prenatal vitamins since its very important for you and especially for the baby that you’re carrying inside. She/he needs all the vitamins or nutrients inside the womb.”

# Preconception Vitamin Intake

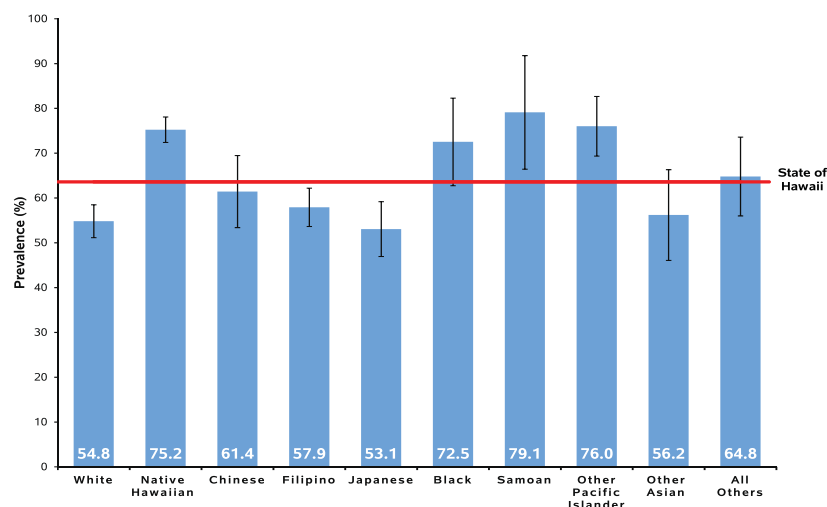
**Inadequate Preconception Vitamin Intake over Time, 2009-2015**



**Inadequate Preconception Vitamin Intake by State and County, 2012-2015**



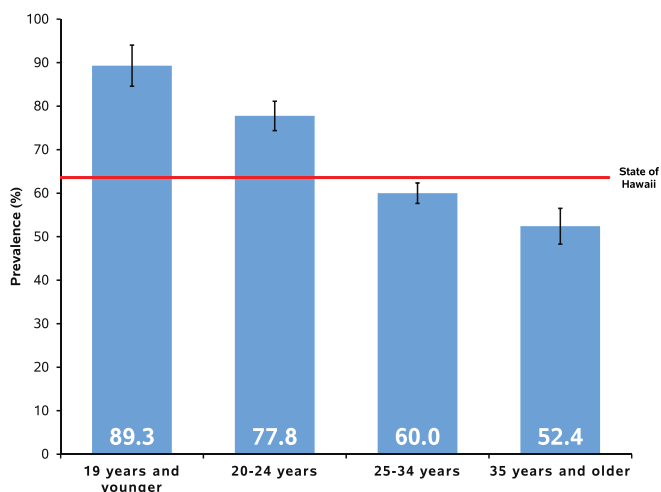
**Inadequate Preconception Vitamin Intake by Maternal Race, 2012-2015**



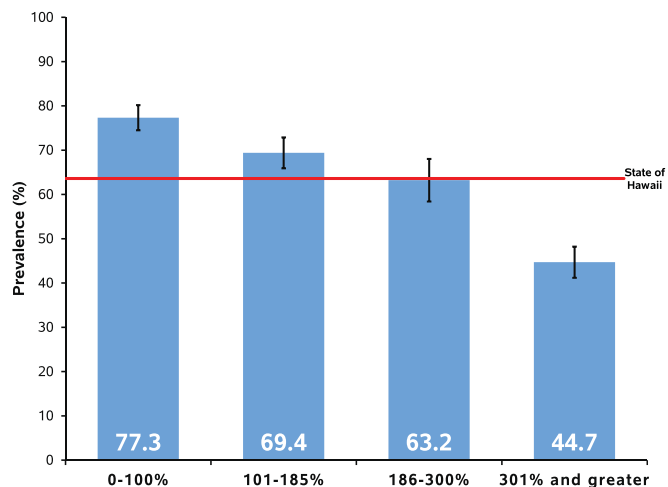
## At-risk Groups

- Mothers living in Hawaii County
- Samoan, Native Hawaiian, and Other Pacific Islander mothers
- Mothers ages 24 years and younger
- Mothers who are less than 186% of the federal poverty level

**Inadequate Preconception Vitamin Intake by Maternal Age, 2012-2015**



**Inadequate Preconception Vitamin Intake by Federal Poverty Level, 2012-2015**



# Unintended Pregnancy

**Background:** When pregnancies are intended and planned, there is greater opportunity and motivation for women and their partners to adopt positive health behaviors, often leading to improved infant outcomes. Unintended pregnancies are associated with inadequate prenatal care, low birthweight, intimate partner violence, and other adverse outcomes to the mother and her infant<sup>8,9</sup>. Factors that contribute to unintended pregnancy are complex, but often associated with ineffective family planning or substance use (i.e., alcohol or illicit drug use)<sup>10,11</sup>. Healthy People 2020 has set a national objective to increase the proportion of intended pregnancies to 56.0%<sup>4</sup>.

**Indicator Definition:** ‘Unintended pregnancy’ is based on a question about the woman’s feelings about the timing of her most recent pregnancy that resulted in a live birth. A response of wanting to be pregnant “then” or “sooner” was considered an intended pregnancy, whereas a response of “later” or “did not want then or at any time in the future” or “I wasn’t sure what I wanted” was considered an unintended pregnancy. This question changed in the 2012 PRAMS survey; therefore, only data from 2012 to 2015 are presented in this report.

**Trends over Time:** In 2015, 48.4% of mothers in the State of Hawaii reported having an unintended pregnancy. There appears to be an improvement in unintended pregnancy from 51.1% in 2012 to 2015, but estimates were not significantly different across the 4-year span.

**Differences by County of Residence:** In the State of Hawaii, 47.8% of mothers reported an unintended pregnancy during 2012-2015. Mothers living in Hawaii County (55.0%) reported a significantly higher prevalence of unintended pregnancy compared to all mothers in the state. Estimates of unintended pregnancy for those living in Honolulu (45.7%), Kauai (51.1%), and Maui (51.7%) Counties were not significantly different from the state overall.

**Differences by Maternal Race:** Samoan (66.6%), Other Pacific Islander (64.0%), and Native Hawaiian (59.8%) mothers had the highest estimates of unintended pregnancy, which were statistically different from the state overall. White (33.3%) and Japanese (34.2%) mothers were significantly less likely to have an unintended pregnancy when compared to the state overall. Estimates of unintended pregnancy in all other racial groups varied, but not significantly, from the state overall.

**Differences by Maternal Age:** Unintended pregnancy was significantly higher among women ages 19 years and younger (86.0%) and 20-24 years (66.5%) compared to women in older age groups and the state overall. Women ages 35 years and older (36.9%) had a significantly lower estimate compared to the state overall.

**Differences by Federal Poverty Level (FPL):** Unintended pregnancy was highest among women at or below 100% FPL (69.1%), which was significantly different from the state overall (47.0%). Decreasing estimates of unintended pregnancy was associated with increasing FPL, with those at 301% and greater (28.1%) significantly less likely to have an unintended pregnancy when compared to the state overall.

**In the State of Hawaii, 47.8% of mothers had an unintended pregnancy. The prevalence of unintended pregnancy was highest among mothers living in Maui County, Samoans, Other Pacific Islanders, Native Hawaiians, those ages 24 years and younger, and those at the lowest federal poverty level.**

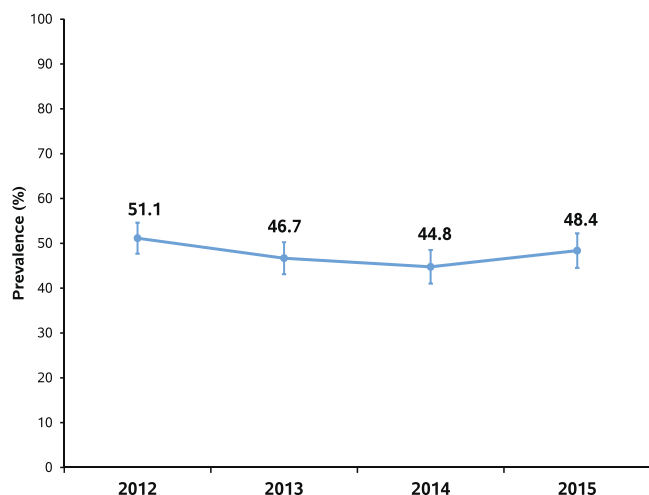
“Becoming a first time mother has been an amazing experience, although my pregnancy wasn’t planned it has been a blessing from the start.”

“Dear mothers, Teens and adults, never put yourself down. There is nothing wrong with having a baby. Just time wise. But having a baby makes you a better person. You have someone who loves you back so keep smiling. He changed my life and I never regret it.”

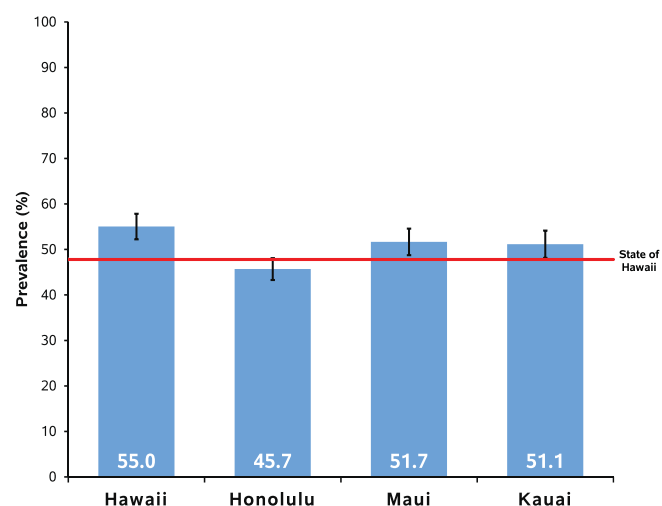


# Unintended Pregnancy

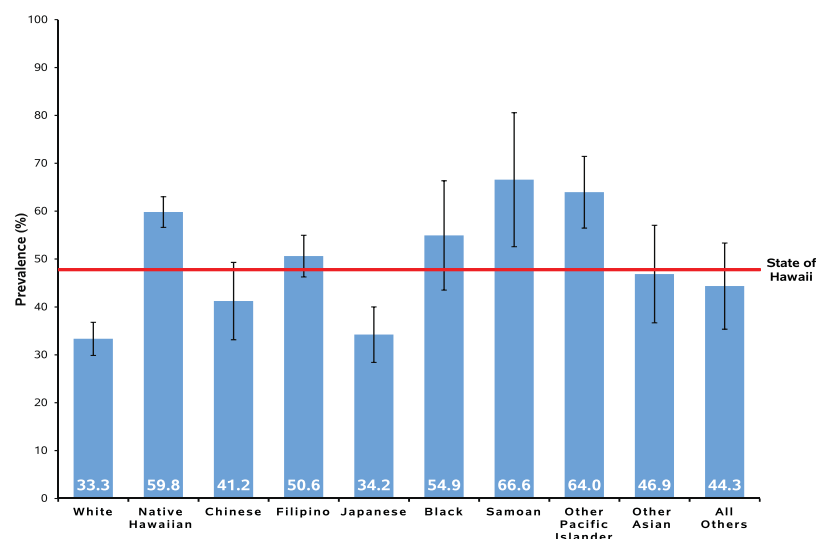
Unintended Pregnancy over Time, 2012-2015



Unintended Pregnancy by State and County, 2012-2015



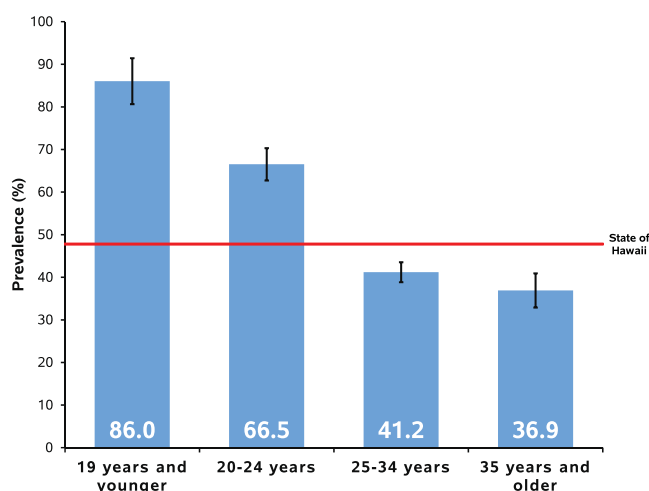
Unintended Pregnancy by Maternal Race, 2012-2015



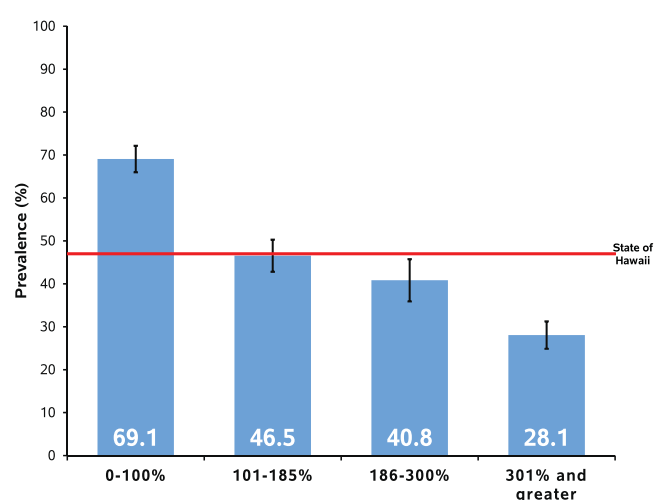
## At-risk Groups

- Mothers living in Hawaii County
- Samoan, Other Pacific Islander, and Native Hawaiian mothers
- Mothers ages 24 years and younger
- Mothers who are at or below 100% of the federal poverty level

Unintended Pregnancy by Maternal Age, 2012-2015



Unintended Pregnancy by Federal Poverty Level, 2012-2015



# Binge Drinking Prior to Pregnancy

**Background:** Any consumption of alcohol during the conception period or pregnancy is considered unsafe to the developing fetus. Studies show that binge drinking during early pregnancy is harmful to fetal development<sup>12,13</sup>. Binge drinking before pregnancy may overlap with the critical exposure period for birth defects including those related to alcohol in the first trimester. Binge drinking may also be related to having an unintended pregnancy and the consequent impact on the mother, families, and society.

**Indicator Definition:** ‘Binge drinking’ was defined by the reported intake of four or more drinks in a 2-hour time span at least once in the three months before becoming pregnant. This question changed in the 2012 PRAMS survey, so this report only includes data from 2012 to 2015.

**Trends Over Time:** In 2015, 19.2% of mothers in the State of Hawaii reported binge drinking prior to pregnancy. Despite some fluctuation over time, there was very little change in reported binge drinking prior to pregnancy from 2012 (19.8%) to 2015.

**Differences by County of Residence:** In the State of Hawaii, 18.6% of mothers reported binge drinking prior to pregnancy. The prevalence of binge drinking prior to pregnancy among mothers who lived in Hawaii (19.1%), Honolulu (18.0%), Maui (20.7%), and Kauai (21.8%) Counties were similar (and not statistically different) from each other or the state overall.

**Differences by Maternal Race:** The highest prevalence of binge drinking prior to pregnancy was reported among Native Hawaiian (23.7%) and the lowest prevalence among Filipino (12.2%); these estimates were significantly different from the state overall. Mothers classified as All Others (25.9%) and White (20.8%) had higher, but not significantly, estimates of binge drinking prior to pregnancy than the state overall. Prevalence estimates for Chinese (13.1%), Other Pacific Islander (13.4%), and Other Asian (13.8%) mothers were among the lowest estimates among racial groups, but not significantly different from the state overall. An estimate for Samoan mothers could not be reported due to small sample size.

**Differences by Maternal Age:** Mothers ages 19 years and younger (7.3%) and 35 years and older (12.2%) were significantly less likely to binge drink prior to pregnancy compared to those ages 20-24 years (22.1%), 25-34 years (20.4%), and the state overall.

**Differences by Federal Poverty Level (FPL):** Prevalence of binge drinking prior to pregnancy were very similar across FPL. Mothers at 101-185% and 186-300% FPL had slightly higher estimates of binge drinking prior to pregnancy at 20.6% and 19.3%, respectively, but not significantly different from the state estimate (18.9%).

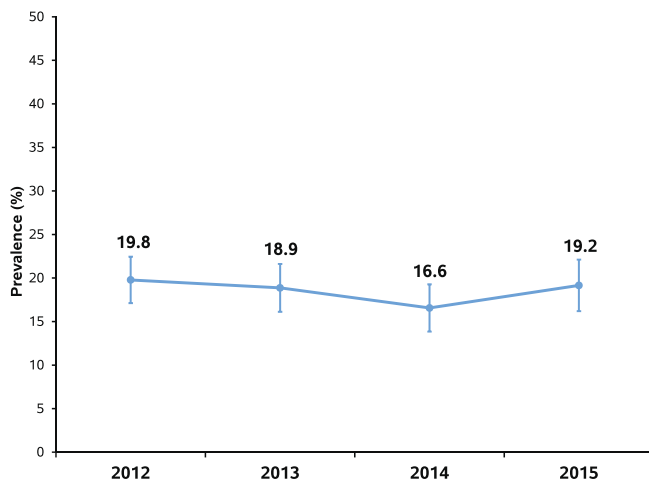
**In the State of Hawaii, 19.2% of mothers reported binge drinking prior to pregnancy, with a significantly higher prevalence among Native Hawaiian mothers compared to the state overall.**

“Didn’t know I was pregnant until I was about one month in. That is the reason for my drinking alcohol. If I had known I was pregnant I would not have drank.”

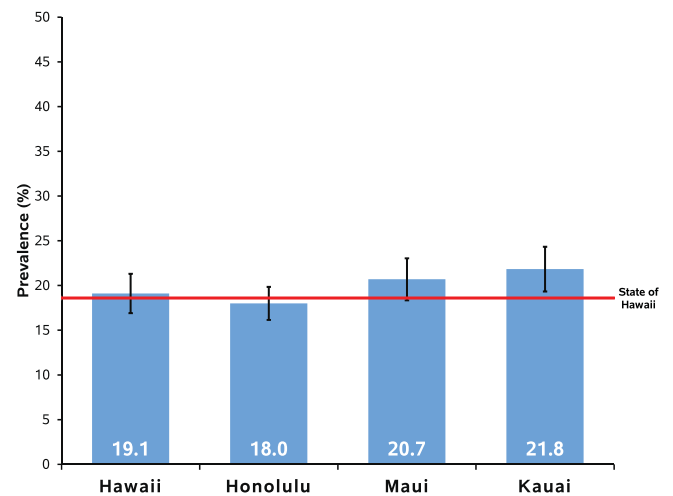
“If you want to get pregnant, quit doing the bad things you do to yourself, such as drugs, alcohol, etc. If you want to have a healthy baby, be careful of what you put in your mouth or what you do, because truly baby’s health depends on you.”

# Binge Drinking Prior to Pregnancy

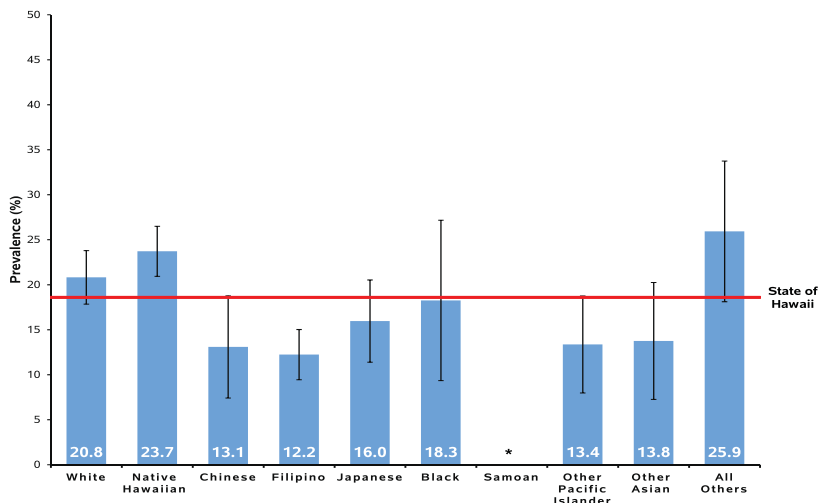
**Binge Drinking Prior to Pregnancy over time, 2012-2015**



**Binge Drinking Prior to Pregnancy by County, 2012-2015**



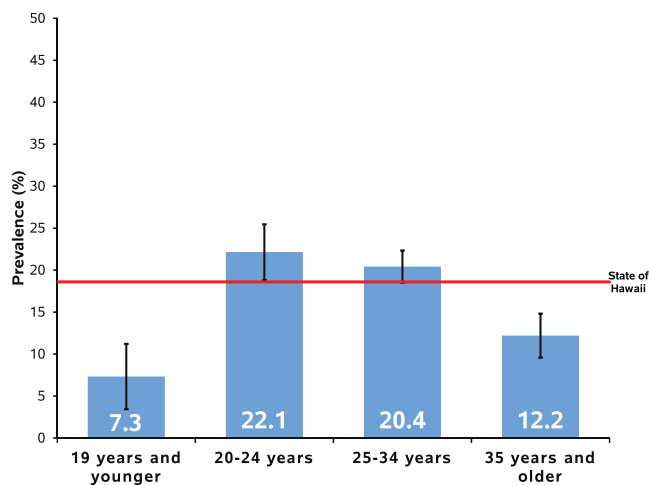
**Binge Drinking Prior to Pregnancy by Maternal Race, 2012-2015**



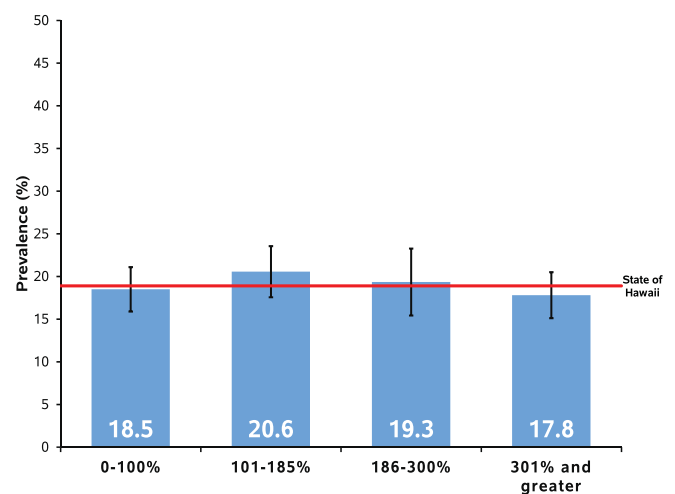
## At-risk Groups

- Native Hawaiian mothers

**Binge Drinking Prior to Pregnancy by Maternal Age, 2012-2015**



**Binge Drinking Prior to Pregnancy by Federal Poverty Level, 2012-2015**



# Alcohol Use During Pregnancy

**Background:** Any consumption of alcohol during any stage of pregnancy is unsafe to the developing fetus. Research shows that any amount of alcohol could pass through the mother's placenta to the fetus, potentially damaging physical and cognitive development<sup>14</sup>. Despite studies that suggest the consumption of infrequent and minimal amounts of wine is not detrimental to the fetus, the topic remains unclear and controversial<sup>15,16</sup>. Alcohol use during pregnancy might increase the risk of miscarriage, premature birth, birth defects, low birthweight, stillbirth, and fetal alcohol spectrum disorders. In recognition of this issue, one objective of Healthy People 2020 is to increase abstinence from alcohol among pregnant women to 98.3% nationally<sup>4</sup>.

**Indicator Definition:** 'Alcohol use during pregnancy' was defined by self-reported drinking at least one alcoholic beverage in the last three months of the pregnancy.

**Trends Over Time:** In 2015, 8.7% of mothers in the State of Hawaii reported alcohol use during pregnancy. Although there is some variation over time from 6.7% in 2009 to 2015, there was no significant change in alcohol use during pregnancy during this period.

**Differences by County of Residence:** During 2012-2015, 8.2% of mothers in the State of Hawaii reported consuming alcohol during pregnancy. Kauai County residents were most likely to report alcohol use during pregnancy at 11.5%, which was significantly higher than the state overall. Mothers living in Honolulu, Hawaii, and Maui Counties had increasing high estimates of alcohol use during pregnancy at 7.6%, 9.0%, and 9.7%, respectively, but none were significantly different from each other or the state overall.

**Differences by Maternal Race:** White mothers were significantly more likely to report alcohol use during pregnancy at 12.1% compared to the state overall. Alcohol use during pregnancy varied greatly for Japanese (5.5%), Filipino (6.6%), All Others (6.8%), Native Hawaiian (7.4%), Other Asian (8.2%), and Chinese (9.5%) mothers, but these estimates were not significantly different from each other or the state overall. Estimates of alcohol use during pregnancy for Black, Samoan, and Other Pacific Islander mothers could not be reported due to small sample size.

**Differences by Maternal Age:** Although there appears to be an increase in alcohol use during pregnancy with increasing maternal age, no significant difference in prevalence existed across maternal age group. Alcohol use during pregnancy was not reportable for women ages 19 years and younger could not be reported due to small sample size.

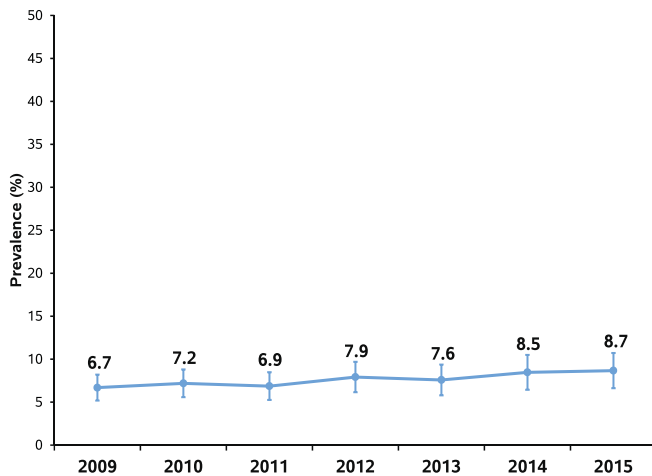
**Differences by Federal Poverty Level (FPL):** Alcohol use during pregnancy was most prevalent among mothers with FPL of 301% and greater (12.5%) compared to all other FPL groups and the state overall (8.3%). There appeared to be an upward trend in alcohol use during pregnancy with increasing FPL, but it was only significantly different at the highest FPL.

**Overall, 8.2% of mothers in the State of Hawaii reported alcohol use during pregnancy, which was significantly higher among mothers living in Kauai County, White mothers, and those with a federal poverty level of 301% or greater.**

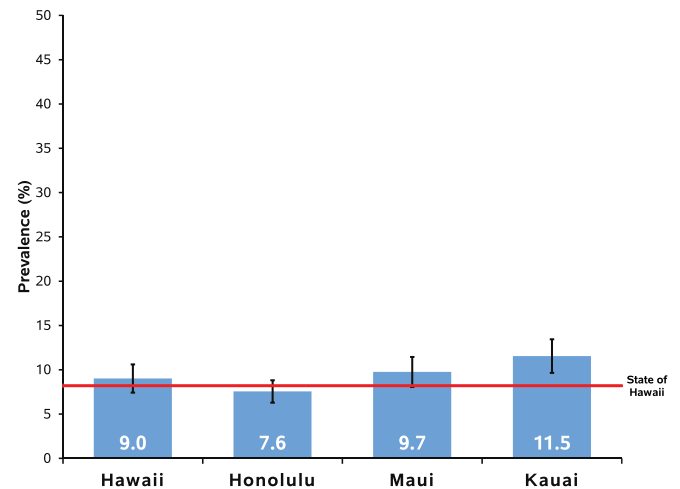
"It's a shame to see so many Hawaiian mothers smoking and drinking during pregnancy. I'm a bartender and pregnant mothers actually order alcoholic beverages. It should be illegal (not a choice) for expectant moms to purchase alcohol! It's not for me to say they can't have the drinks. I feel so terrible when I serve them. I always tell them that they shouldn't drink while pregnant."

# Alcohol Use During Pregnancy

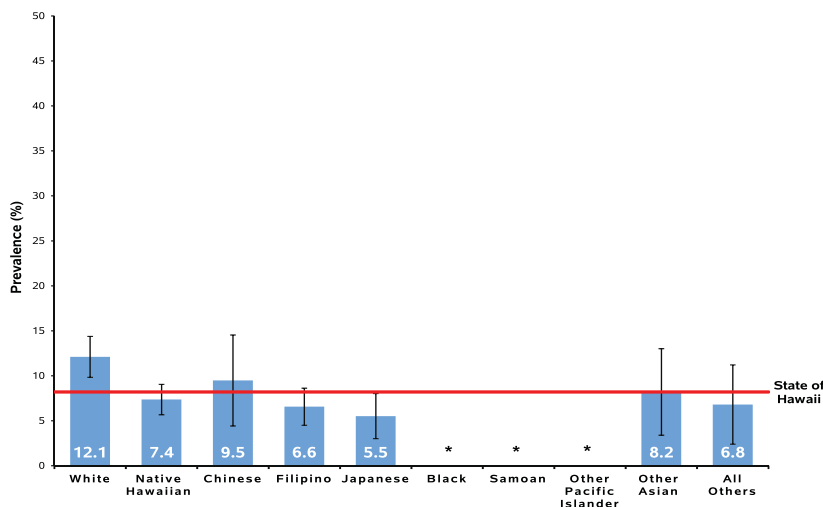
Alcohol Use During Pregnancy over Time, 2009-2015



Alcohol Use During Pregnancy by State and County, 2012-2015



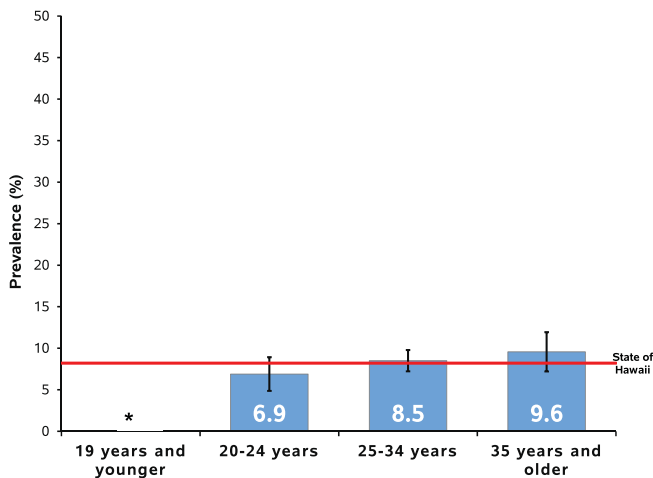
Alcohol Use During Pregnancy by Maternal Race, 2012-2015



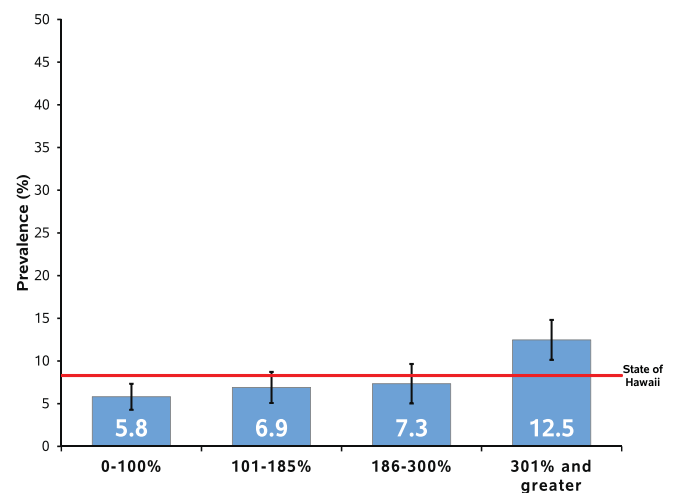
## At-risk Groups

- Mothers living in Kauai County
- White mothers
- Mothers with a federal poverty level of 301% or greater

Alcohol Use During Pregnancy by Maternal Age, 2012-2015



Alcohol Use During Pregnancy by Federal Poverty Level, 2012-2015



# Cigarette Smoking During Pregnancy

**Background:** Smoking is one of the most preventable causes of neonatal morbidity and mental retardation in developed countries<sup>17</sup>. Studies show that cigarette smoking during pregnancy is associated with premature delivery, low birthweight, and other adverse perinatal outcomes<sup>18</sup>. Cigarette smoking is typically underreported due to societal perceptions; underreporting is likely higher for women who smoke while pregnant. In Hawaii, there is significant legislation to create smoke-free workplaces and restaurants and increase taxation to reduce the overall rate of smoking. Healthy People 2020 set a national objective for women who reported abstaining from smoking during pregnancy to increase from 89.6% to 98.6%<sup>4</sup>.

**Indicator Definition:** ‘Cigarette smoking during pregnancy’ was defined by the self-reported smoking of at least one cigarette per day in the last three months of the pregnancy.

**Trends Over Time:** In 2015, 4.9% of mothers in the State of Hawaii reported cigarette smoking during pregnancy. The trend suggests a decrease in smoking during pregnancy from 9.6% in 2009 to 2015, but no significant difference in cigarette smoking prevalence occurred over time.

**Differences by County of Residence:** During 2012-2015, 4.8% of mothers reported cigarette smoking during pregnancy in the State of Hawaii. Mothers living in Hawaii County (7.6%) were significantly more likely to report cigarette smoking during pregnancy compared to the state overall. Although mothers living in Kauai County (7.0%) had a similar estimate to those in Hawaii County, the Kauai County estimate was not significantly different from the state overall. The prevalence of cigarette smoking during pregnancy among those in Maui (5.0%) and Honolulu (4.1%) Counties were not significantly different from each other or the state overall.

**Differences by Maternal Race:** Native Hawaiian (8.7%) mothers had the highest estimate of cigarette smoking during pregnancy, while White (2.6%) mothers had the lowest estimate; both were significantly different from the state overall. Japanese (3.1%), Filipino (3.6%), Other Asian (4.8%) and All Other (5.5%) mothers had varied estimates, but not significantly different from each other or the state overall. Estimates for cigarette smoking during pregnancy for Chinese, Black, Samoan, and Other Asian mothers could not be reported due to small sample size.

**Differences by Maternal Age:** There appears to be a steady decline in cigarette smoking during pregnancy with increasing maternal age, but there was no significant difference across age groups or with the state overall. For mothers ages 19 years and younger, an estimate for cigarette smoking during pregnancy could not be reported due to small sample size.

**Differences by Federal Poverty Level (FPL):** Mothers at or below 100% FPL (9.9%) had the highest prevalence of cigarette smoking during pregnancy compared to all other FPL groups and the state overall. A downward trend in cigarette smoking during pregnancy occurred as FPL increases, with those between 186-300% FPL (2.2%) and 301% and greater FPL (2.0%) reporting the significantly lower estimates compared to the state overall.

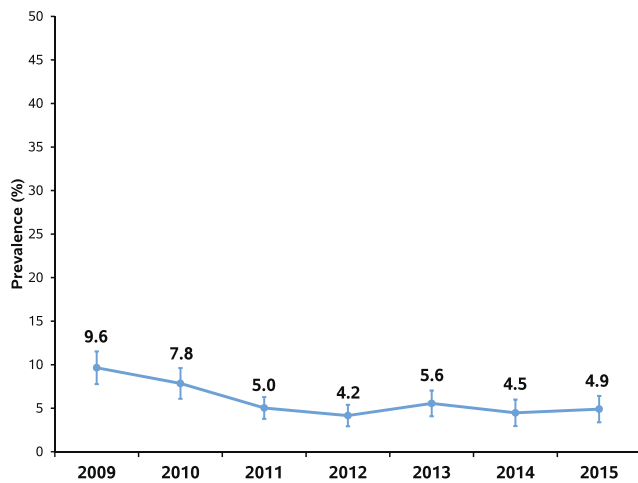
**In the State of Hawaii, 4.8% of mothers reported cigarette smoking during pregnancy, with mothers living in Maui County, Native Hawaiians, and those at the lowest federal poverty level having the highest prevalence.**

“I quit smoking as soon as I found out I was pregnant, and so did my husband. I did not want our child to have breathing problems as I did since my parents smoked before, during & after I was born. We continue to not smoke & will continue to do that for our health and our child's. There is never enough emphasis on how this can affect your child & I feel that doctor's should make mothers/fathers quit smoking, or at least help them with methods of doing so.”

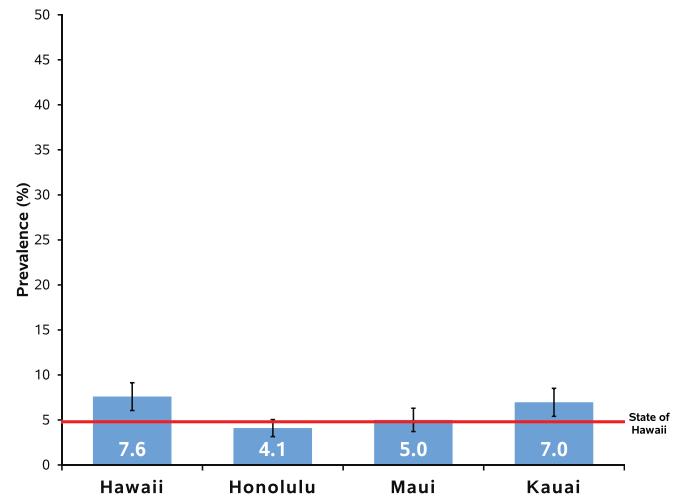


# Cigarette Smoking During Pregnancy

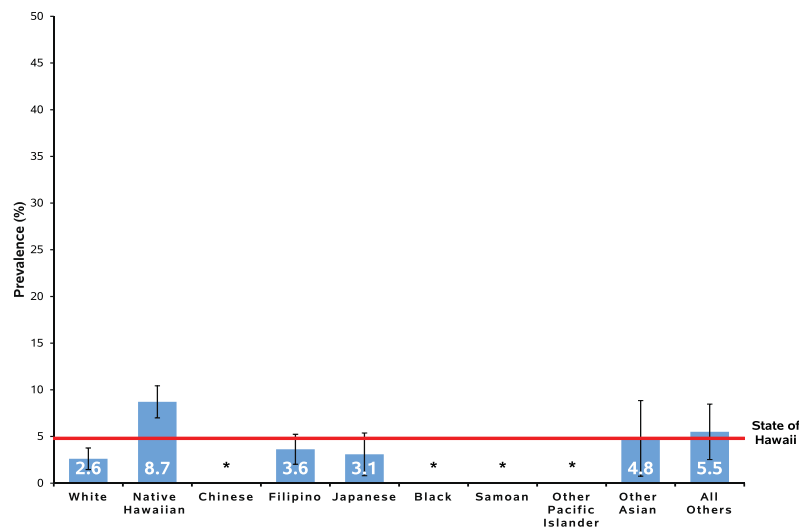
**Cigarette Smoking During Pregnancy over Time, 2009-2015**



**Cigarette Smoking During Pregnancy by State and County, 2012-2015**



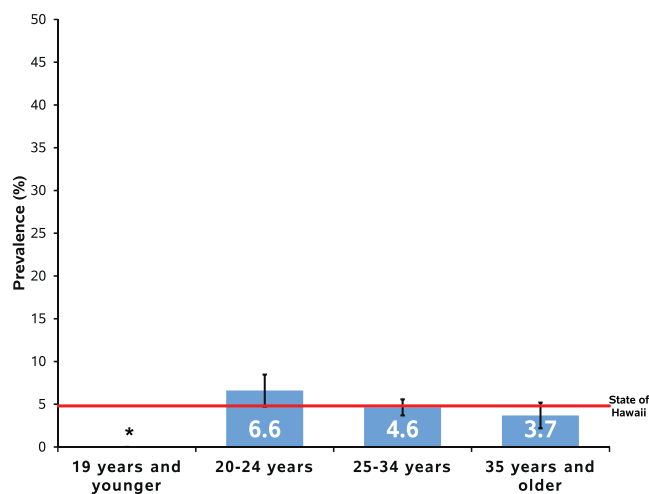
**Cigarette Smoking During Pregnancy by Maternal Race, 2012-2015**



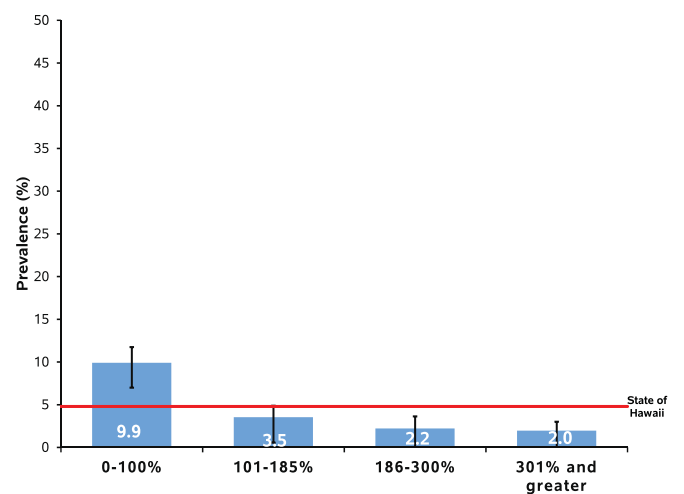
## At-risk Groups

- Mothers living in Hawaii County
- Native Hawaiian mothers
- Mothers who are at or below 100% of the federal poverty level

**Cigarette Smoking During Pregnancy by Maternal Age, 2012-2015**



**Cigarette Smoking During Pregnancy by Federal Poverty Level, 2012-2015**



# Illicit Drug Use Before Pregnancy

**Background:** The use of illicit drugs before pregnancy can have significant impacts on the developing fetus and cause adverse birth outcomes including prematurity, low birthweight, birth defects, and developmental delays<sup>19</sup>. Women who use drugs often have other pre-existing conditions and negative environmental factors that may place their infant and families at increased risks for poor health outcomes. Illicit drug use is often underreported due to societal perceptions and is likely even greater among women prior to or during pregnancy.

**Indicator Definition:** ‘Drug use before pregnancy’ was defined by the report of using “marijuana”, “amphetamines”, “cocaine”, “tranquilizers or hallucinogens”, or “sniffing products such as gasoline, glue, hairspray, or other aerosols” at least one time in the month before pregnancy.

**Trends Over Time:** In 2015, 5.4% of mothers in the State of Hawaii reported using illicit drugs prior to pregnancy. Although there is some variation over time, there was some decline, but not significantly, in the overall state prevalence of mothers reporting illicit drug use before pregnancy from 2009 (7.2%) to 2015.

**Differences by County of Residence:** During 2012-2015, 6.2% of mothers in the State of Hawaii reported drug use before pregnancy. Mothers living in Kauai and Maui Counties reported the highest estimates of illicit drug use before pregnancy at 10.1% and 10.7%, respectively, which was significantly higher than Honolulu County (4.9%) and the state overall. The estimate in Hawaii County (8.5%) was also significantly higher than in Honolulu County, but not significantly different from state overall.

**Differences by Maternal Race:** While Native Hawaiian (8.6%) and Other Asian (9.3%) mothers reported the highest estimates of drug use before pregnancy, these estimates were not significantly different from the state overall. Chinese (2.8%) and Filipino (2.5%) mothers were significantly less likely to report illicit drug use before pregnancy. Among all other racial groups, the prevalence of illicit drug use before pregnancy varied, but were not significantly different from each other or the state overall. Estimates for Black, Samoan, and Other Pacific Islander could not be reported due to small sample size.

**Differences by Maternal Age:** Mothers ages 19 years and younger had the highest estimate of drug use before pregnancy at 14.5%, while those ages 35 years and older had the lowest estimates at 2.4%; both age groups were significantly different from the state overall. Mothers ages 25-34 years (6.1%) were more likely to report drug use before pregnancy than the oldest age group, illustrating a decline in prevalence with increasing age.

**Differences by Federal Poverty Level (FPL):** The highest prevalence of illicit drug use before pregnancy was among mothers at or below 100% FPL (10.1%), which was significantly higher than the state overall (6.1%). The remaining three FPL had significantly lower estimates, but there was an upward, non-significant trend among these groups, with those at 101-185% FPL reporting the lowest estimates at 3.8%.

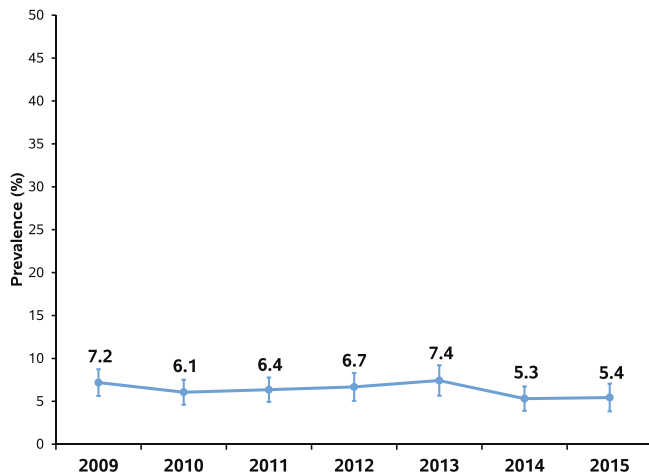
**Illicit drug use before pregnancy was reported by 6.2% of mothers in the State of Hawaii. Among these mothers, those living in Kauai and Maui Counties, ages 19 years and younger, and those at the lowest federal poverty level reported the highest prevalence of illicit drug use before pregnancy.**

“I think mothers should be more informed of what prescription drugs and pain relievers can do to a baby.”

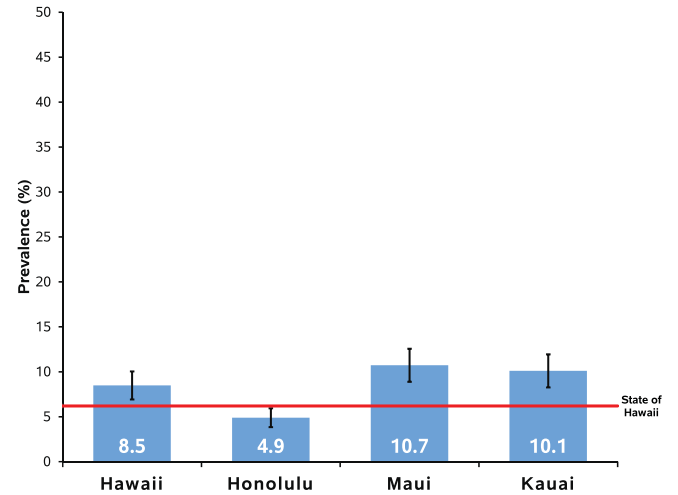
“Mothers in Hawaii need to focus more on their bodies and their babies than on drugs!”

# Illicit Drug Use Before Pregnancy

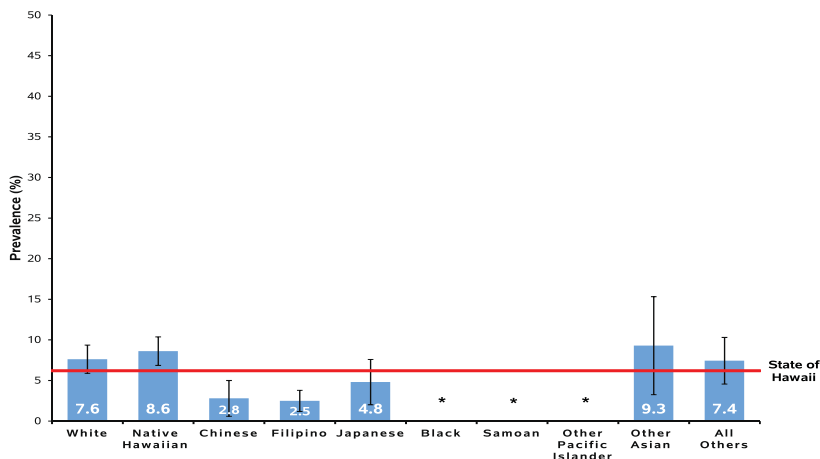
**Illicit Drug Use Before Pregnancy over Time, 2009-2015**



**Illicit Drug Use Before Pregnancy by County, 2012-2015**



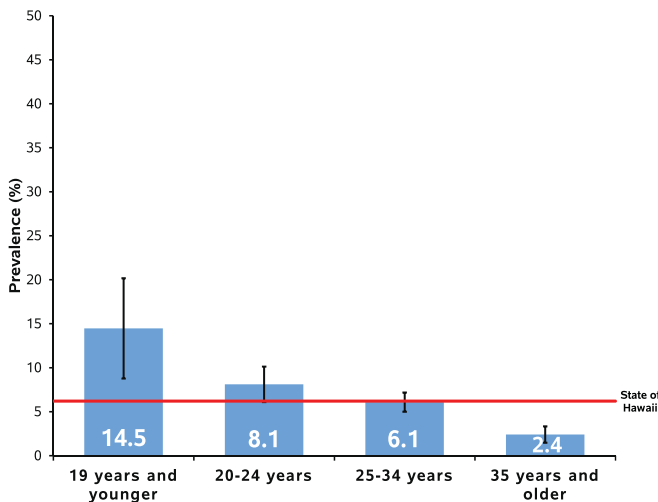
**Illicit Drug Use During Pregnancy by Maternal Race, 2012-2015**



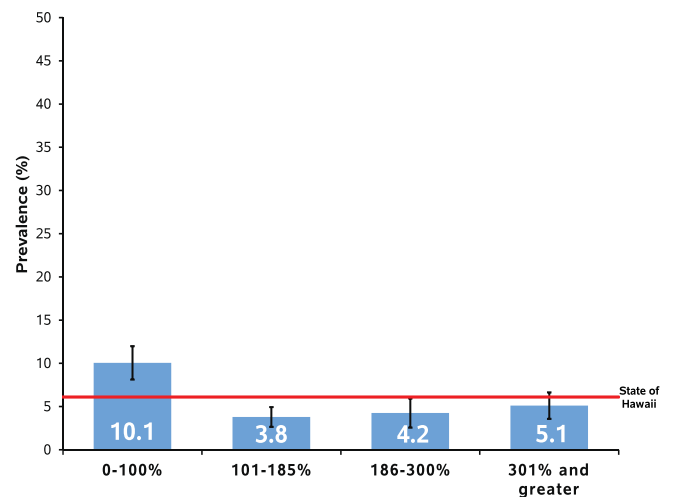
## At-risk Groups

- Mothers living in Kauai and Maui Counties
- Mothers ages 19 years and younger
- Mothers who are at or below 100% of the federal poverty level

**Illicit Drug Use Before Pregnancy by Maternal Age, 2012-2015**



**Illicit Drug Use Before Pregnancy by Federal Poverty Level, 2012-2015**



# Stressful Life Events

**Background:** Experiencing stressful life events can affect a woman's health and result in poor health practices to reduce the stress. Poor health practices such as smoking, drinking, poor diet, lack of exercise, and unsafe sexual activity can adversely affect an unborn child. In addition, there are several theories that stress may be biologically linked with prematurity and other negative outcomes. Stress can impact children during all phases of life, particularly during early childhood, when they are dependent on the family environment for physical and cognitive development.

**Indicator Definition:** 'Stressful life events' was defined by the occurrence of at least four of the following self-reported situations during the 12 months before the baby was born: "close family member hospitalized", "separation/divorce", "moved to a new address", "was homeless", "husband/partner lost job", "lost my job", "husband/partner/I had work hours or pay cut", "apart from husband/partner due to military deployment or work-related travel", "argued with husband/partner more than usual", "husband/partner said he did not want me to be pregnant", "couldn't pay bills", "husband/partner went to jail", "someone close had bad problem with drinking or drugs", or "someone very close died".

**Trends over Time:** Although there is some variation over time, there was a significant decline, but not significantly, in stressful life events reported by mothers the state of Hawaii from 16.3% in 2009 to 11.4% in 2015.

**Differences by County of Residence:** During 2012-2015, 13.1% of mothers reported stressful life events in the State of Hawaii. Hawaii and Kauai County residents had highest estimates, both at 17.2%, and significantly different from the state overall. The prevalence of stressful life events among mothers living in Honolulu (11.8%) and Maui (15.1%) Counties were not significantly different from the state overall.

**Differences by Maternal Race:** Mothers of Samoan (29.9%) and Native Hawaiian (18.1%) race reported the significantly higher estimates of stressful life events compared to the state overall. Stressful life events were significantly less likely to be reported among Chinese (6.7%) and Japanese (7.2%) mothers. Estimates for all other racial groups reported experiencing stressful life events were not significantly different from each other or the state overall.

**Differences by Maternal Age:** While women ages 20-24 years reported the highest estimate of stressful life events at 17.2%, it was not significantly different from the state overall. Across age groups, there was no significant difference between age groups or the state overall.

**Differences by Federal Poverty Level (FPL):** Experiencing stressful life events was significantly more likely among women at or below 100% FPL at 20.0%, which was statistically higher than the state estimate (13.3%). There was a consistent decline in the estimates of stressful life events with increasing FPL. Mothers at 301% and greater FPL (6.7%) reported a significantly lower estimate of stressful life events compared to the state overall.

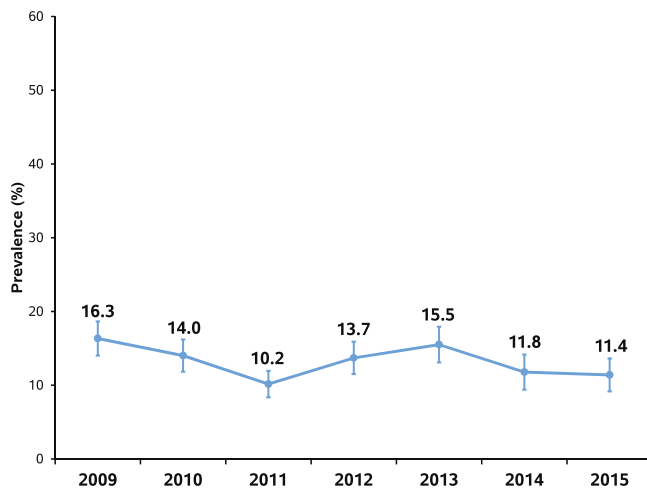
**Experiencing stressful life events before pregnancy was reported by 13.1% of mothers in the State of Hawaii, but was most reported by those living in Hawaii and Kauai Counties, Samoans and Native Hawaiian mothers, and those at or below 100% of the federal poverty level.**

"Don't ever stress out, overthinking, or feel bad for yourself. Just be you and stay happy. Whatever you feel, the baby can feel the same way too."

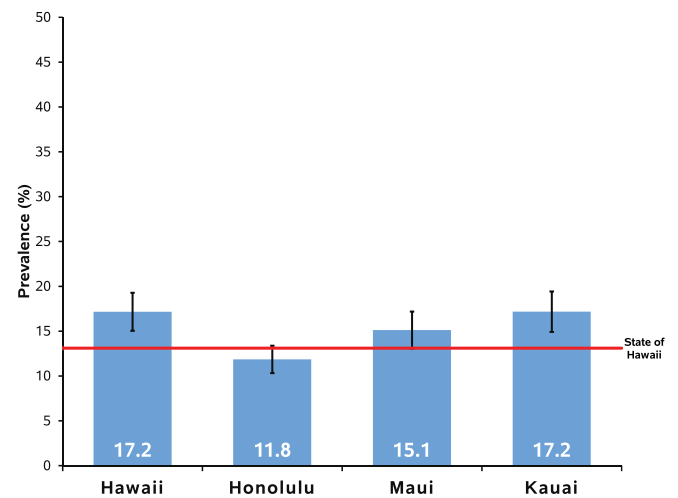
"To the mothers who wants a healthy baby, if you decided to have a baby start taking good care of yourself by stopping any vices you have and start eating healthy diet. Keep in mind that your baby will be on your womb so whatever you do to yourself you are doing it to your baby"

# Stressful Life Events

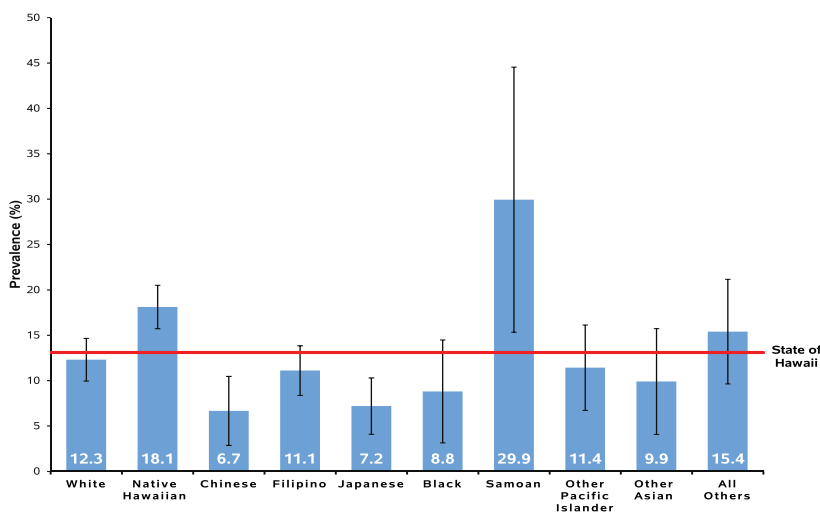
Stressful Life Events over Time, 2009-2015



Stressful Life Events by State and County, 2012-2015



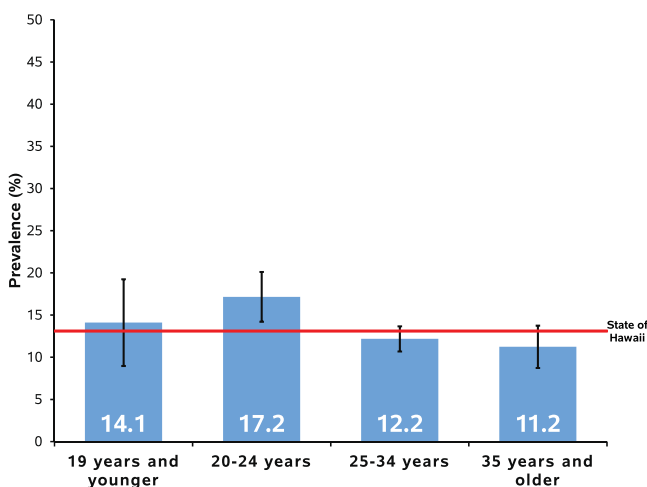
Stressful Life Events by Maternal Race, 2012-2015



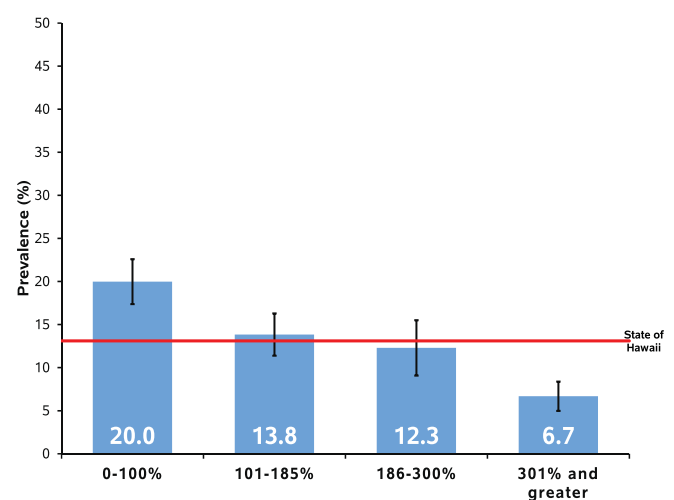
## At-risk Groups

- Mothers living in Hawaii and Kauai Counties
- Samoan and Native Hawaiian mothers
- Mothers who are at or below 100% of the federal poverty level

Stressful Life Events by Maternal Age, 2012-2015



Stressful Life Events by Federal Poverty Level, 2012-2015



# Intimate Partner Violence

**Background:** Violence between intimate partners whether physical and psychological has important health consequences. Intimate partner violence (IPV) is related to adverse outcomes such as depression, premature labor, and low birthweight infants<sup>20</sup>. IPV is often underreported due to societal perceptions; this underreporting is likely even greater among women that are pregnant.

**Indicator Definition:** ‘Intimate partner violence’ was defined by self-report from a mother who recently had a live birth that her husband or partner ever “push, hit, slap, kick, choke, or physically hurt you in any other way?” in the 12 months before getting pregnant or during the most recent pregnancy. The question changed in the 2012 PRAMS survey, so this report only includes data from 2012 to 2015. This question only refers to the physical nature of IPV and does not include the physiological aspect of this type of violence, which can have a greater, long-term impact.

**Trends Over Time:** Although there is some variation over time, no significant change in IPV in the year before or during pregnancy occurred among mothers in the State of Hawaii from 2012 (3.0%) to 2015 (3.2%).

**Differences by County of Residence:** During 2012-2015, 3.2% of mothers reported experiencing IPV in the State of Hawaii. These estimates were similar (and not significantly different) across all four counties.

**Differences by Maternal Race:** White mothers had a significantly lower IPV estimate at 1.5% compared to the state overall. Mothers classified as Native Hawaiian (5.3%) and All Others (5.8%) reported the high estimates of IPV, but neither was significantly different from the state overall. IPV prevalence for Other Pacific Islander and Japanese were similar (2.5% for both groups), while for Filipino mothers, the prevalence was slightly higher (3.6%); however, it was not significantly different from the state overall. IPV estimates for Chinese, Black, Samoan, and Other Asian mothers could not be reported due to small sample size.

**Differences by Maternal Age:** There was no significant difference in the prevalence of IPV across maternal age groups from the state overall.

**Differences by Federal Poverty Level (FPL):** The highest IPV estimate was among mothers at or below 100% FPL (5.7%), while those between 101-185% FPL (1.5%) reported the lowest estimate; both estimates were significantly different from the state overall (3.1%). IPV appeared to be lower among mothers at 301% or greater FPL (2.1%) than those between 186-300% FPL (2.9%), but there was no true difference.

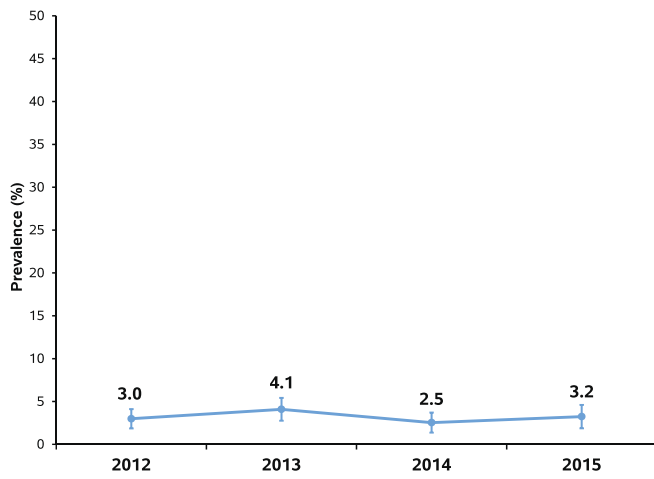
**Intimate partner violence in the year before or during pregnancy was reported by 3.2% of mothers in the State of Hawaii. Mothers at the lowest federal poverty level were most likely to report intimate partner violence.**

“My partner and [I] met exactly a year prior to baby being born. It was a quick relationship; but felt right. My partner struggles with some emotional issues from his past, so this pregnancy was stressful at times- I felt it was very important for the health of my baby that I remained calm. My partner would pack up his belongings and threaten to leave me, but I always stayed strong because I knew I would be okay, either way. I have and had family support (emotional) but not always from my partner. Things seem to be okay for now, as he is going to therapy.”

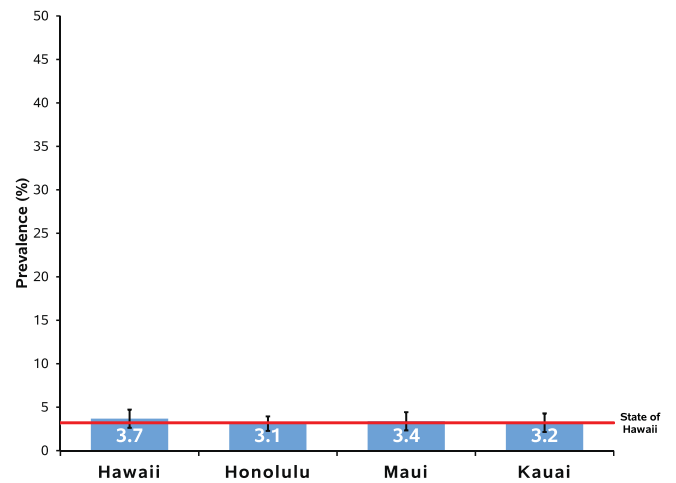


# Intimate Partner Violence

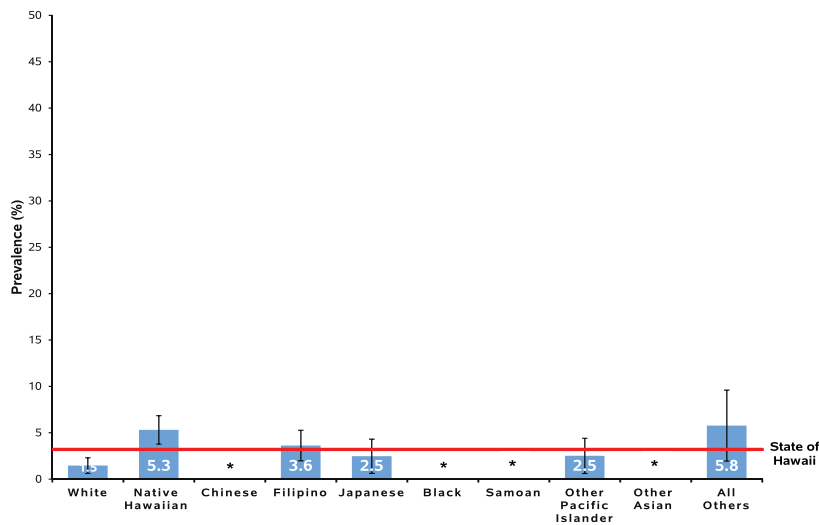
Intimate Partner Violence over Time, 2012-2015



Intimate Partner Violence by State and County, 2012-2015



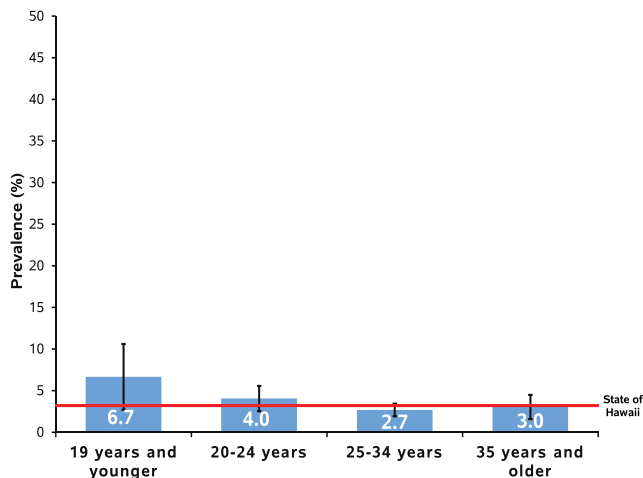
Intimate Partner Violence by Maternal Race, 2012-2015



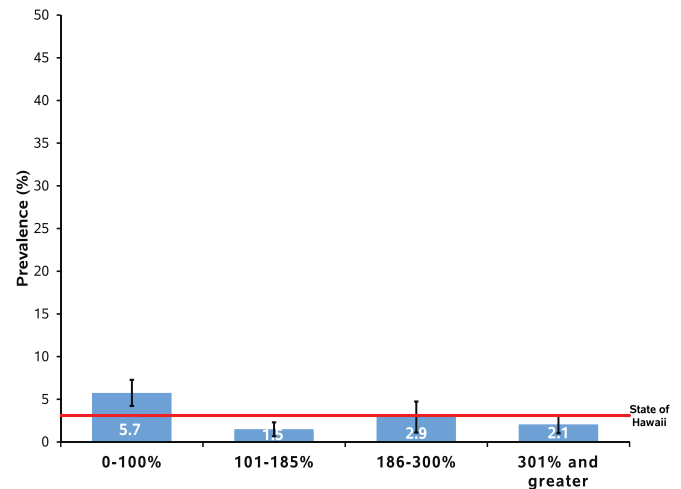
## At-risk Groups

- Mothers who are at or below 100% of the federal poverty level

Intimate Partner Violence by Maternal Age, 2012-2015



Intimate Partner Violence by Federal Poverty Level, 2012-2015



# Gestational Diabetes

**Background:** Having high blood sugar, also known as diabetes, is a common chronic condition with significant health effects. Infants of diabetic mothers might face serious health consequences, such as low birthweight, preterm delivery, macrosomia, and increased risk for congenital anomalies. Additionally, mothers with diabetes are more likely to have complications necessitating a cesarean delivery during childbirth<sup>21</sup>. Women diagnosed with the development of diabetes during pregnancy (gestational diabetes) have a seven-fold greater risk of developing chronic diabetes later in life compared to those who did not have gestational diabetes<sup>22</sup>.

**Indicator Definition:** ‘Gestational diabetes’ was determined by self-report from a mother with a recent live birth whether she was told by a doctor, nurse, or other healthcare worker that she had gestational diabetes during her most recent pregnancy.

**Trends Over Time:** In 2015, 14.4% of mothers in the State of Hawaii reported a diagnosis of gestational diabetes during their most recent pregnancy. Estimates appeared to suggest an increase in gestational diabetes from 2009 (12.2%) to 2015, but these estimates were not significantly different from over this period.

**Differences by County of Residence:** During 2012-2015, 12.4% of mothers reported having gestational diabetes. These estimates differed slightly (and not significantly different) across all four counties.

**Differences by Maternal Race:** Samoan and Filipino mothers reported the highest estimates of gestational diabetes at 27.1% and 20.2%, respectively. The gestational diabetes estimate for Filipino mothers was significantly higher than the state overall, but for Samoan mothers, it was not significantly different from the state overall. White mothers (6.6%) were significantly less likely to report a diagnosis of gestational diabetes compared to the state overall. Gestational diabetes prevalence varied greatly among all other racial groups, but none of the estimates were significantly different from the state overall.

**Differences by Maternal Age:** Mothers ages 35 years and older (20.3%) were most likely to report a diagnosis of gestational diabetes compared to other age groups and the state overall. There appeared to be a steady decline of gestational diabetes with decreasing age, but this decline was only significantly lower among women ages 20-24 years (8.4%) when compared to the state overall.

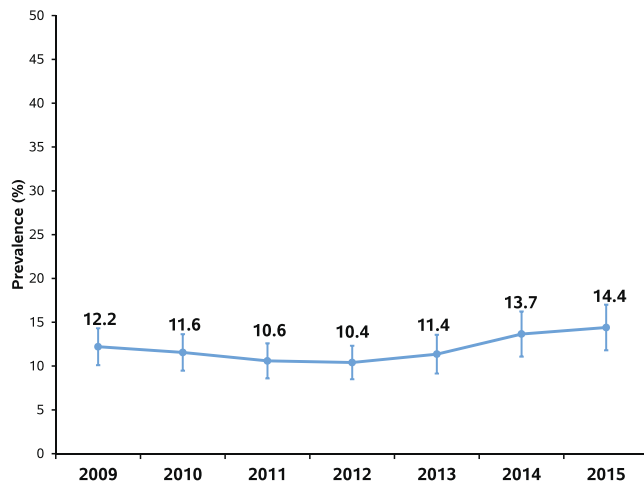
**Differences by Federal Poverty Level (FPL):** The estimates of gestational diabetes were similar across all FPLs. Women at 101-185% FPL (13.5%) and 186-300% FPL (13.7%) had slightly higher estimates of gestational diabetes compared to those at 0-100% FPL (11.7%) and 301% and greater FPL (12.1%), but none of these estimates were significantly different from each other or the state overall (12.6%).

**In the State of Hawaii, 12.4% of mothers was reported being diagnosed with gestational diabetes during their most recent pregnancy. Compared to all mothers in the state, prevalence of gestational diabetes was highest among Samoan and Filipino mothers and those ages 35 years and older.**

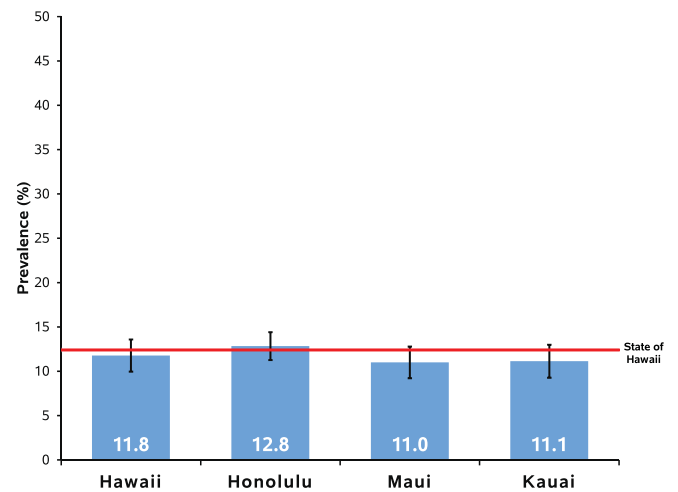
“Being diagnosed with gestational diabetes, mid pregnancy, I was surprised, as I am not overweight, I am, and eat, healthy and don’t have diabetes in my family. Although I appreciate that they test for it, I’d of wished there would’ve been more information and education offered about the importance and risks of diet and diabetes. I was, however, grateful for the help & information I got through the health management program....I have a feeling it may be more common than thought to be and educational programs, awareness and support groups would be beneficial.”

# Gestational Diabetes

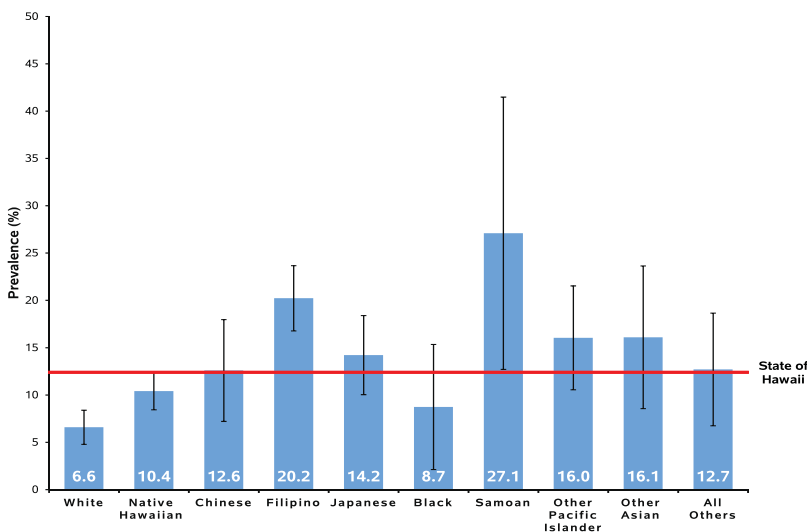
Gestational Diabetes over Time, 2009-2015



Gestational Diabetes by State and County, 2012-2015



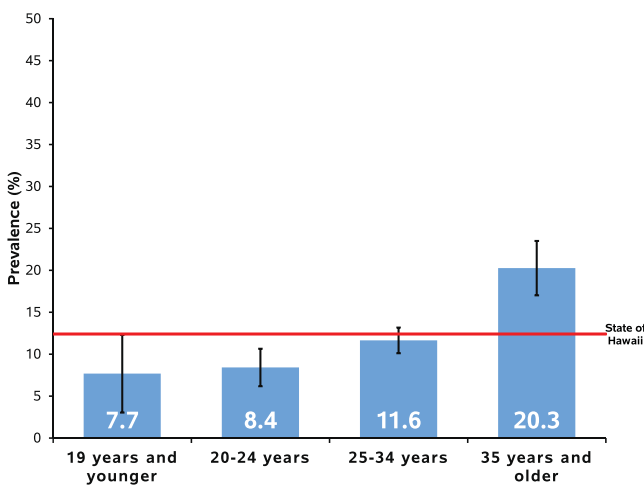
Gestational Diabetes by Maternal Race, 2012-2015



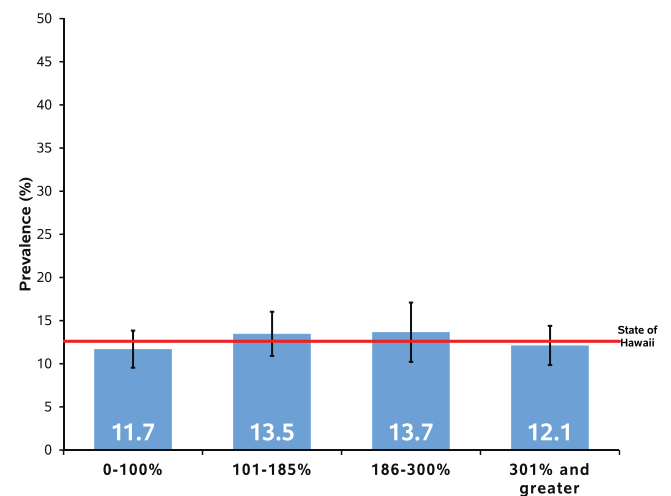
## At-risk Groups

- Filipino mothers
- Mothers ages 35 years and older

Gestational Diabetes by Maternal Age, 2012-2015



Gestational Diabetes by Federal Poverty Level, 2012-2015



# High Blood Pressure During Pregnancy

**Background:** High blood pressure, also known as hypertension, is a common medical condition that can become a major complication during pregnancy. Chronic hypertension before pregnancy as well as pregnancy-induced hypertension (pre-eclampsia) can cause adverse outcomes for the mothers (e.g., stroke, heart and kidney failure) and the fetus (e.g., preterm delivery, intrauterine growth retardation)<sup>23</sup>. High blood pressure identified during pregnancy appears to be an early clinical marker of the mother's lifetime risk of developing cardiovascular disease<sup>24</sup>, suggesting the need for postpartum checkups to decrease the risk of heart disease, stroke, kidney disease, and other related cardiovascular conditions.

**Indicator Definition:** 'High blood pressure during pregnancy' was defined by a question among women who had a live birth on whether they had "high blood pressure, hypertension, pre-eclampsia, or toxemia" during their most recent pregnancy.

**Trends Over Time:** In 2015, 11.8% of mothers in the State of Hawaii reported high blood pressure during pregnancy. Despite some fluctuation over time, there was no significant change in reported high blood pressure during pregnancy from 2009 (9.5%) to 2015.

**Differences by County of Residence:** During 2012-2015, 11.0% of mothers reported having high blood pressure during pregnancy. Although mothers living in Maui and Kauai Counties appeared to have the lowest estimates of high blood pressure during pregnancy at 9.9% and 9.2%, respectively; there was no significant difference with those living in Honolulu and Hawaii Counties or the state overall.

**Differences by Maternal Race:** Compared to the state overall, mothers classified as Other Asian were significantly less likely to report high blood pressure during pregnancy at 2.8%. For all other racial groups, while estimates of high blood pressure during pregnancy ranged from 7.3% for Japanese mothers to 23.3% for Samoan mothers, there was no statistically significant difference in estimate from each other or the state overall.

**Differences by Maternal Age:** Women ages 35 years and older (15.9%) had the highest prevalence of high blood pressure during pregnancy compared to the overall Hawaii prevalence. Women in other age groups had slightly lower, but not significantly different, estimates of high blood pressure from the state overall.

**Differences by Federal Poverty Level (FPL):** The estimates of high blood pressure during pregnancy were similar across all FPLs and were no different from the state overall.

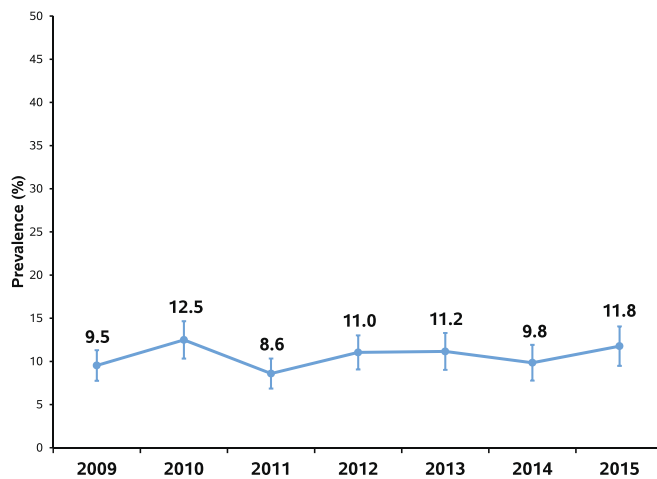
**In the State of Hawaii, 11.0% of mothers reported having high blood pressure during their most recent pregnancy. Mothers ages 35 years and older were most likely to have high blood pressure during pregnancy.**

"During my pregnancy the 1st to 5 months no problems but now 6 months to 8 months my blood pressure is too high that's why I'm preeclampsia but thank God ."

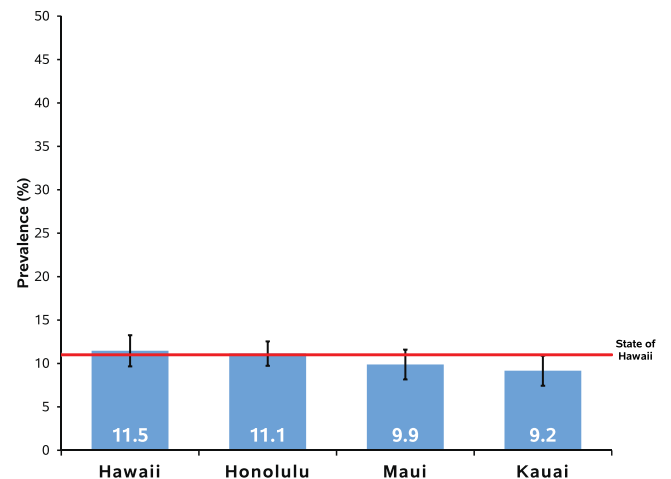
I was induced at 35 weeks for preeclampsia...I was in labor for 27 hours. I did not dilate passes 5cm, which resulted in a c-section. He spent 8 days in NICU for jaundice, feeding problems and not being able to maintain blood sugar.

# High Blood Pressure During Pregnancy

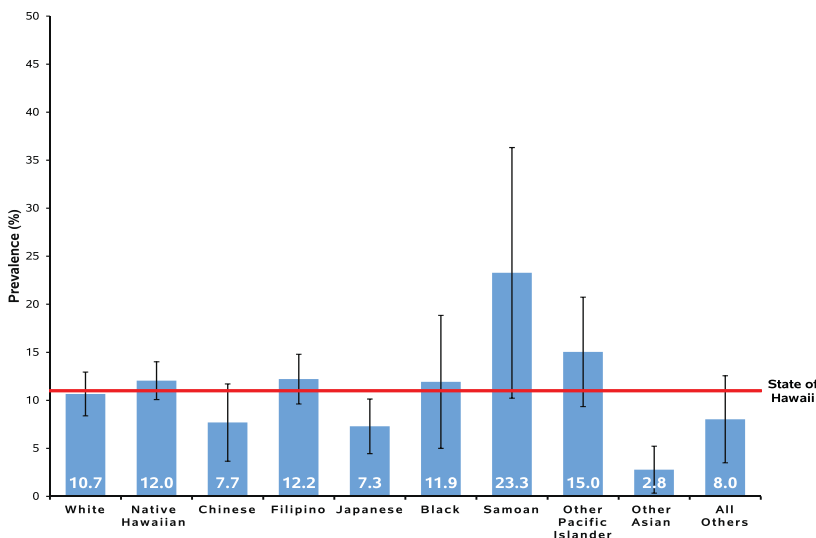
High Blood Pressure During Pregnancy over Time, 2009-2015



High Blood Pressure During Pregnancy by State and County, 2012-2015



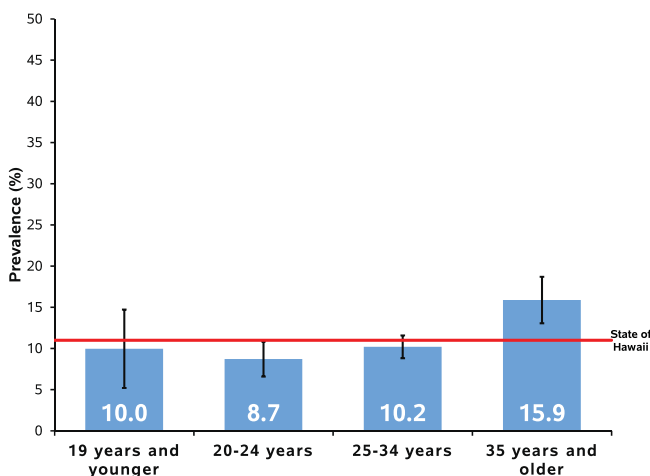
High Blood Pressure During Pregnancy by Maternal Race, 2012-2015



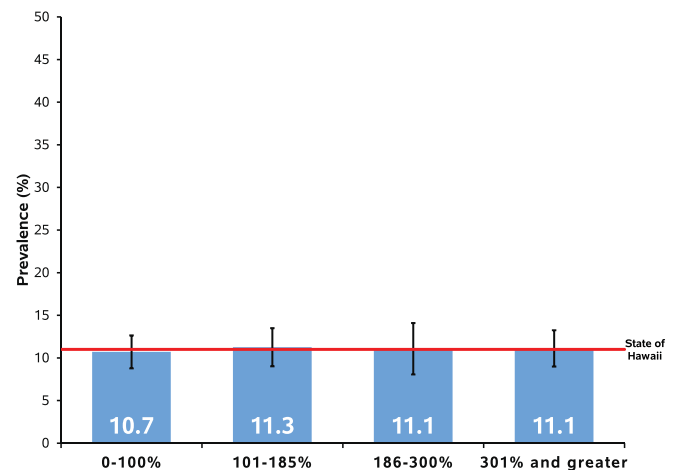
## At-risk Groups

- Mothers ages 35 years and older

High Blood Pressure During Pregnancy by Maternal Age, 2012-2015



High Blood Pressure during Pregnancy by Federal Poverty Level, 2012-2015



# WIC Program During Pregnancy

**Background:** The Women, Infants, and Children Program, frequently referred to as the WIC Program, is a supplemental food and nutrition program for pregnant women, new mothers, and children under the age of 5 years. Through the WIC Program, women and children receive financial assistance in purchasing food, counseling and information on healthy eating, breastfeeding support, and information and referrals to healthcare and other community resources. Studies show that pregnant women who enroll in the WIC Program have longer pregnancies leading to fewer premature births, experience fewer fetal and infant deaths, seek prenatal care earlier in pregnancy, and consume more key nutrients such as iron, protein, calcium and Vitamin C<sup>25</sup>.

**Indicator Definition:** ‘WIC Program during pregnancy’ was defined by a question among women who had a live birth on whether the mother participated in the WIC Program during her most recent pregnancy.

**Trends Over Time:** A downward trend in WIC Program participation during pregnancy appeared to occur from 41.9% in 2009 to 39.8% in 2015; however, yearly estimates were not significantly different across the period.

**Differences by County of Residence:** During 2012-2015, 42.1% of mothers in the State of Hawaii participated in the WIC Program during pregnancy. Hawaii County residents were most likely to participate in WIC during pregnancy at 57.2% compared to the state overall. WIC participation among mothers living in Honolulu (39.0%), Maui (43.8%), and Kauai (44.2%) Counties differed, but not significantly, from each other or the state overall.

**Differences by Maternal Race:** Native Hawaiian and Other Pacific Islander mothers were significantly more likely to participate in WIC (61.5% and 70.5%, respectively) compared to the state overall. White, Other Asian, and Japanese mothers had the lowest estimates of WIC participation during pregnancy (26.6%, 24.8%, and 16.2%, respectively) compared to the state overall. WIC participation among Chinese, Filipino, Black, and All Others mothers varied slightly, but there was no significant difference between racial groups or the state overall.

**Differences by Maternal Age:** There was a steady and significant decrease in WIC participation during pregnancy with increasing age. Compared to the state overall, mothers ages 19 years and younger (71.2%) and 20-24 years (64.8%) were significantly more likely to participate in WIC during pregnancy, while those ages 25-34 years (36.9%) and 35 years and older (25.7%) were significantly less likely to participate in WIC during pregnancy.

**Differences by Federal Poverty Level (FPL):** There was a steady and significant decrease in WIC participation during pregnancy with increasing FPL. Women with the highest estimates were those at or below 100% FPL (77.0%) and those between 101-185% FPL (53.0%) compared to the state overall (41.4%). Women with a FPL above 186% reported significantly lower estimates for WIC participation during pregnancy, with the lowest among those at 301% or greater FPL (4.8%).

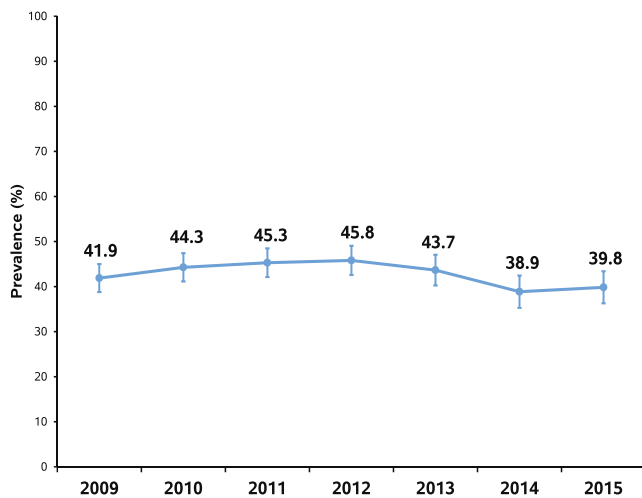
**Participation in the WIC Program during pregnancy was reported by 42.1% of mothers in the State of Hawaii. Mothers living in Hawaii County, Native Hawaiians, Other Pacific Islanders, those ages 24 years and younger, and those less than 186% of the federal poverty level were most likely to participate in the WIC Program.**

“Hawaii really cares!” It’s so awesome that Hawaii has programs like WIC and MedQuest to assist families who needs assistance. All I can say is MAHALO!”

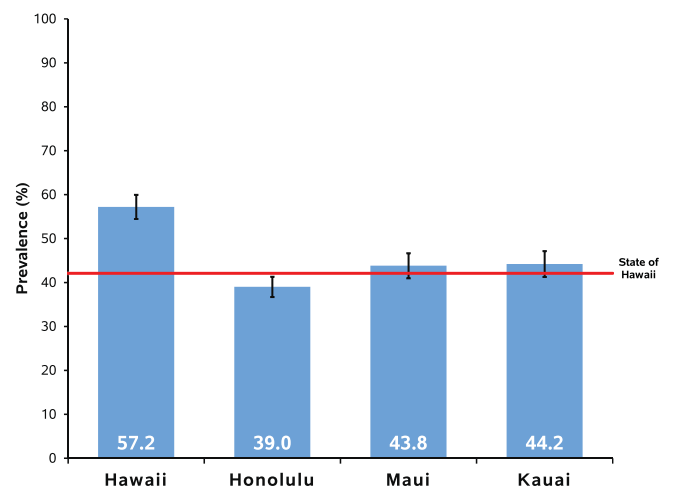


# WIC Program During Pregnancy

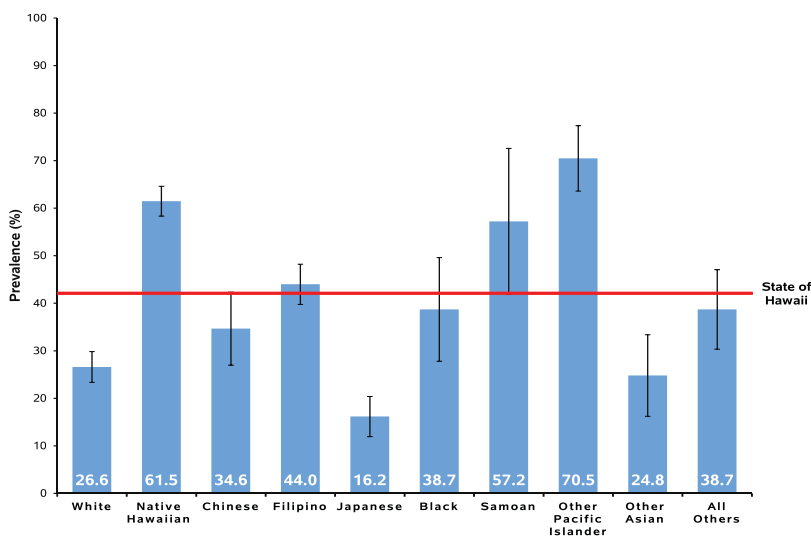
**WIC Program During Pregnancy over Time, 2009-2015**



**WIC Program During Pregnancy by State and County, 2012-2015**



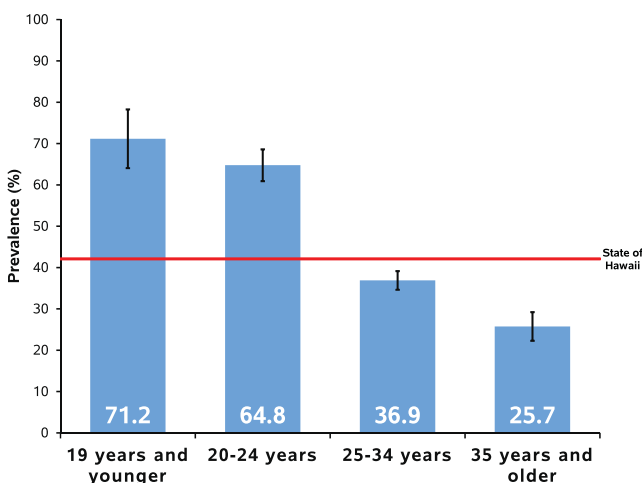
**WIC Program During Pregnancy by Maternal Race, 2012-2015**



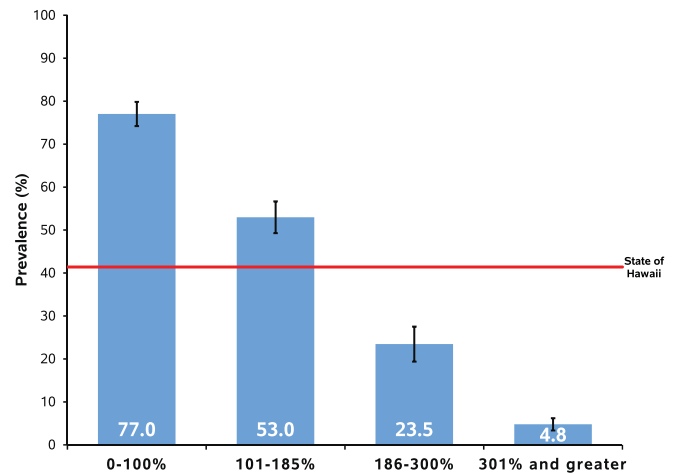
## At-risk Groups

- Mothers living in Hawaii County
- Native Hawaiian and Other Pacific Islander mothers
- Mothers ages 24 years and
- Mothers who are less than 186% of the federal poverty level

**WIC Program During Pregnancy by Maternal Age, 2012-2015**



**WIC Program During Pregnancy by Federal Poverty Level, 2012-2015**



# Preterm Delivery

**Background:** Preterm delivery, or the delivery of an infant before 37 weeks of pregnancy, is the leading cause of infant deaths in the first month of life and is associated with birth defects and long-term health problems. In 2016, preterm delivery occurred in 1 of every 10 births in the United States<sup>26</sup>. Common risk factors for preterm delivery include a prior preterm birth, inadequate weight gain during pregnancy, maternal conditions including high blood pressure and diabetes, and use of alcohol, tobacco, or other drugs during pregnancy.

**Indicator Definition:** ‘Preterm delivery’ was defined by the birth certificate variable based on the clinical estimate of gestational age which is recorded in the birth record. This method was used as it would include adjustments based on clinical data to be reflective of clinical decision making at time of the birth. The overall estimate in PRAMS depends on response patterns and may underestimate the true prevalence of preterm delivery (9.3% in the state of Hawaii PRAMS data compared to 10.1% for all residents in 2015).

**Trends over Time:** Although there is some variation over time, there has been little change in preterm delivery in the state of Hawaii with 9.3% in 2015 compared to 9.4% in 2009.

**Differences by County of Residence:** In the State of Hawaii, 9.0% of mothers had a preterm delivery during 2012-2015. Although preterm delivery appeared to be highest among Hawaii County residents (10.4%) and lowest among Kauai County residents (8.4%), there was no significant difference between counties or the state overall.

**Differences by Maternal Race:** Japanese mothers (6.2%) were significantly less likely to have a preterm delivery compared to the state overall. Black mothers appeared to have the highest estimate of preterm delivery (13.2%), but the prevalence of preterm delivery was not significantly different from any other racial groups or the state overall.

**Differences by Maternal Age:** Mothers ages 35 years and older (11.4%) appeared to have the highest estimate of preterm delivery, while those ages 20-24 years (7.3%) appeared to have the lowest estimate, but these estimates were not significantly different from any age group or the state overall.

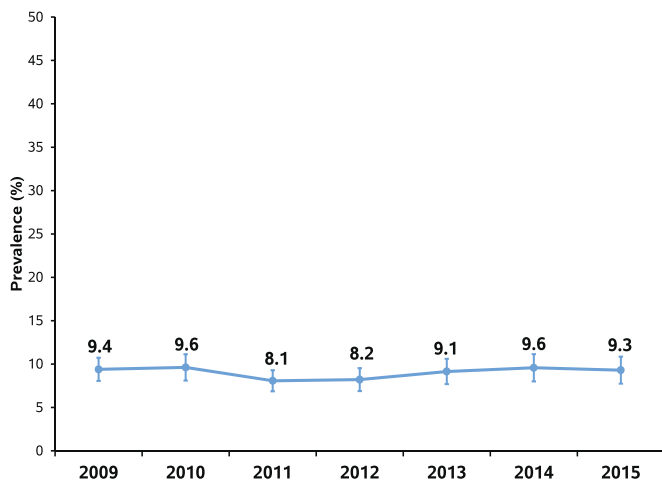
**Differences by Federal Poverty Level (FPL):** The estimates of preterm delivery were similar across all FPLs and the state overall (8.9%). Women at 301% and greater FPL (8.2%) had a slightly lower, but not significantly, estimate of preterm delivery.

**Overall, 9.0% of mothers in the State of Hawaii had a preterm delivery. Although Japanese mothers were least likely to have a preterm birth, there were no other significant differences in prevalence by county, age, or federal poverty level.**

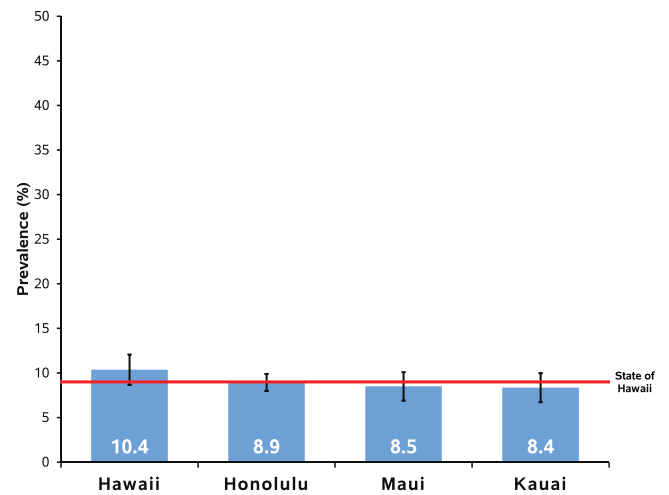
“This was considered a high risk pregnancy with complications starting at 4 weeks. I was put on progesterone shots and suppositories until 35 weeks gestation. I was also on nifedepine and aspirin. I experienced contractions from 17 weeks gestation. I had weekly prenatal visits with the doctor. He was born healthy and continues to thrive.”

# Preterm Delivery

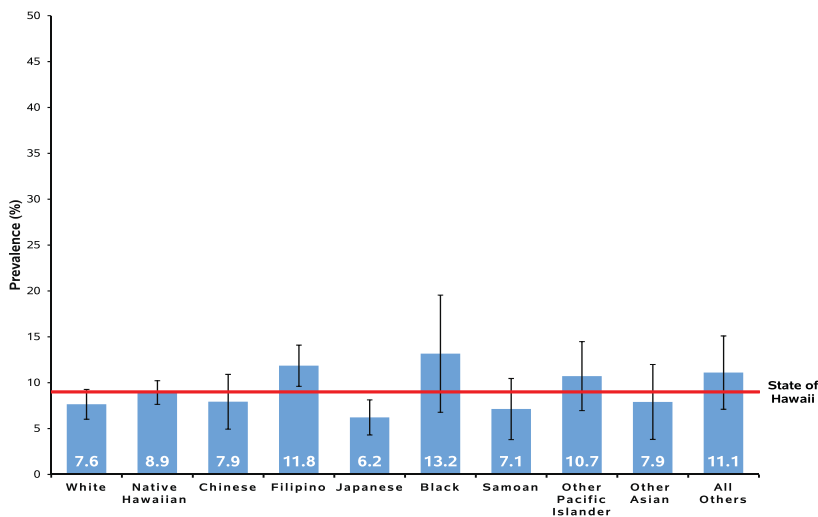
Preterm Delivery over Time, 2009-2015



Preterm Delivery by State and County, 2012-2015



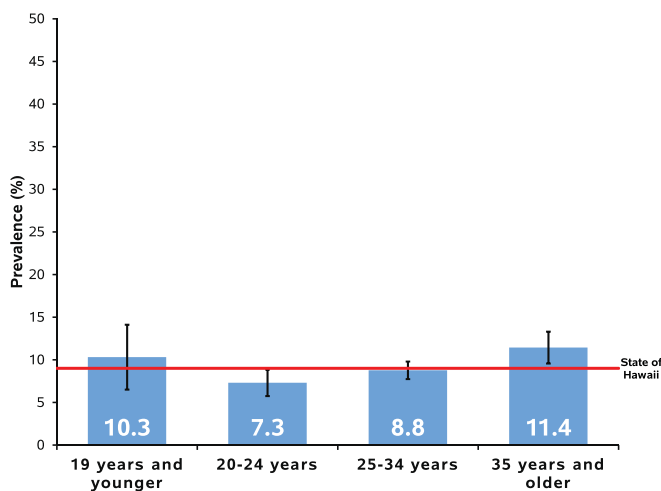
Preterm Delivery by Maternal Race, 2012-2015



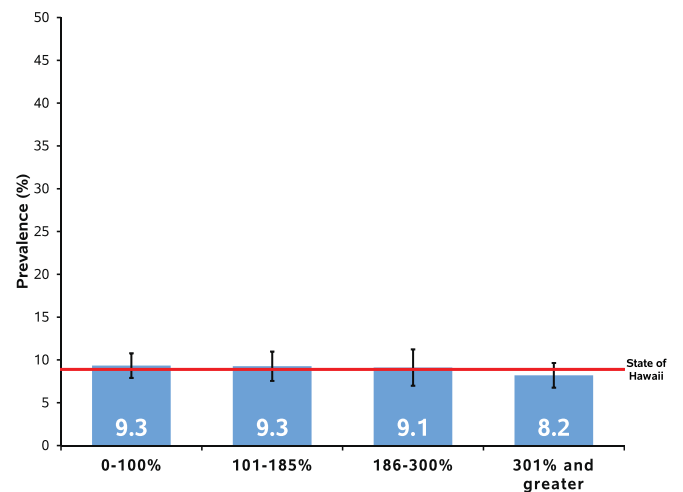
## At-risk Groups

There were no at-risk groups identified for preterm delivery.

Preterm Delivery by Maternal Age, 2012-2015



Preterm Delivery by Federal Poverty Level, 2012-2015



# Cesarean Delivery

**Background:** Cesarean delivery, also known as a C-section, is a surgical operation in which the infant is birthed through an incision in the mother's uterus and abdomen. Caesarean delivery is the most common surgical procedure done in the United States, and results in higher costs, longer hospitalization, and increased risks of short and long-term morbidity compared to a vaginal delivery<sup>27</sup>. The decision to have a cesarean delivery is complex and is made in consultation between the medical provider, the pregnant women, and her family. Typically, this decision is made after specific consideration of risks to the mother and infant, including preexisting medical conditions (e.g., gestational diabetes, high blood pressure during pregnancy), delivery of multiples (e.g., twins), potential complications during labor, previous pregnancy outcomes, and other related health factors.

**Indicator Definition:** 'Cesarean delivery' was defined from the birth certificate variable listing the occurrence of a repeat or primary cesarean delivery, with consideration that all other births are considered a vaginal delivery.

**Trends Over Time:** The prevalence of cesarean delivery among mothers in the State of Hawaii was consistent with no significant differences from 2009 (25.4%) to 2015 (23.8%).

**Differences by County of Residence:** During 2012-2015, 24.4% of mothers in the State of Hawaii had a cesarean delivery. Mothers living in Hawaii and Maui Counties reported similar, high estimates of cesarean delivery at 30.1% and 30.2%, respectively; these estimates were significantly higher than the state overall. Prevalence of cesarean delivery among residents of Honolulu County (22.4%) and Kauai County (25.5%) differed slightly, but not significantly, from the state overall.

**Differences by Maternal Race:** Although prevalence of cesarean delivery ranged from 20.5% in Samoan mothers to 29.8% in Other Asian mothers, there was no significant difference in cesarean delivery prevalence between all racial groups or the state overall.

**Differences by Maternal Age:** There was a steady increase in estimates of cesarean delivery with increasing age. Compared to the state overall, women ages 35 years and older (34.0%) were significantly more likely to have a cesarean delivery. Women ages 19 years and younger (9.6%) and those ages 20-24 years (19.6%) had the lowest estimates of cesarean delivery, which were significantly lower than the state overall.

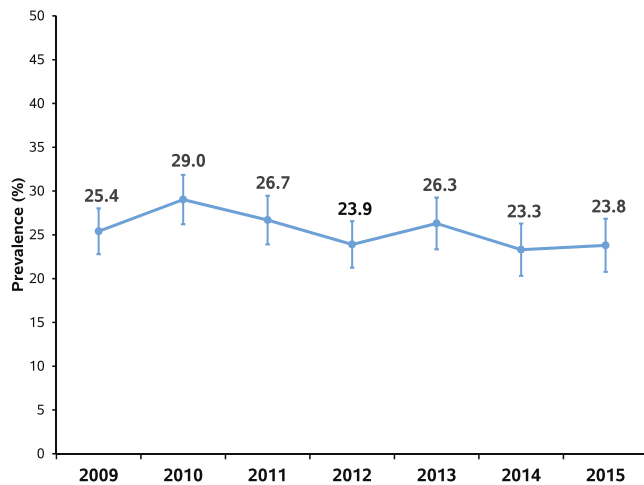
**Differences by Federal Poverty Level (FPL):** Estimates of cesarean delivery varied slightly, but not significantly, from 23.3% in mothers less than 100% FPL to 26.8% in mothers at 301% or greater FPL; estimates were similar with across all FPLs and the state overall (25.0%).

**Nearly a quarter (24.4%) of all births in the State of Hawaii were from cesarean delivery, which was significantly higher among mothers in Hawaii and Maui Counties and those ages 35 years and older compared to the state overall.**

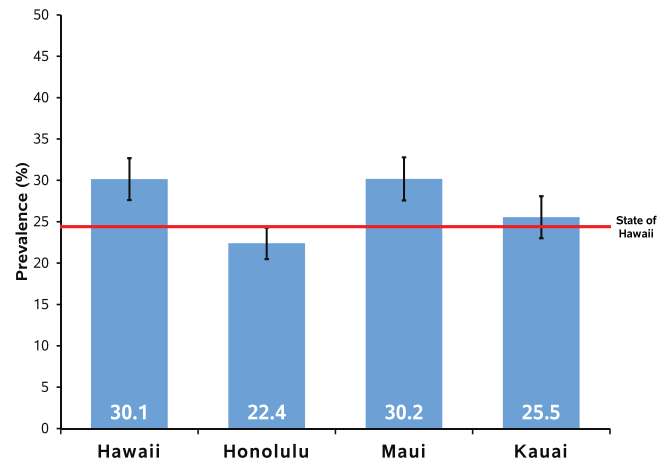
"I had a Vaginal Birth After Cesarean and since there are no hospitals on Hawaii island that offer this service to healthy women, I was forced to choose between a scheduled c-section or a home birth (what extreme options!) So I chose home birth and thank goodness everything was great! Hawaii island should offer safe hospital environment to perform VBACs because going to Honolulu is not an option for most working families with another child."

# Cesarean Delivery

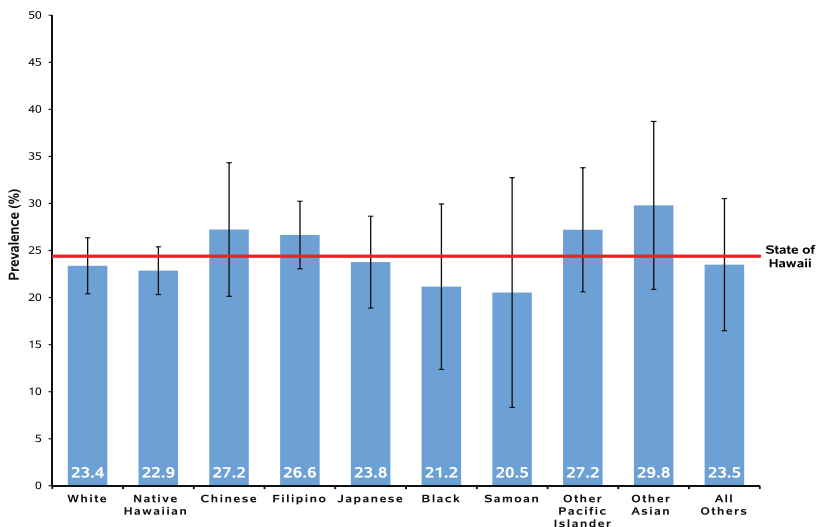
**Cesarean Delivery over Time, 2009-2015**



**Cesarean Delivery by State and County, 2012-2015**



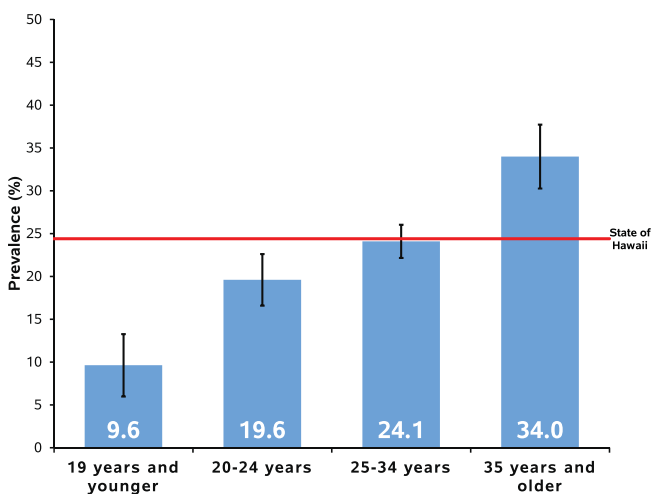
**Cesarean Delivery by Maternal Race, 2012-2015**



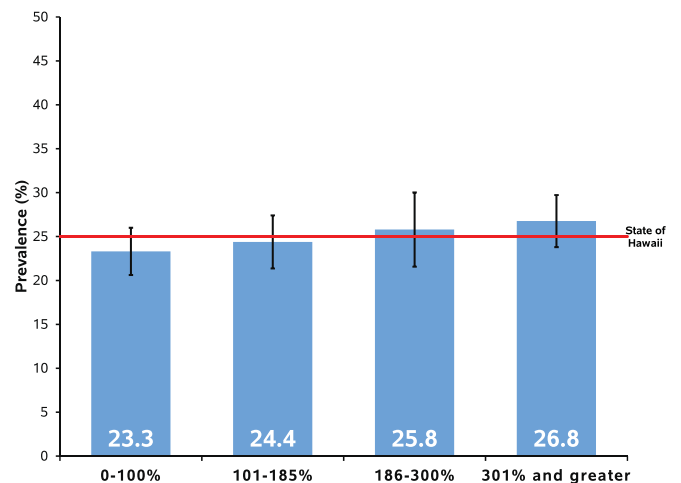
## At-risk Groups

- Mothers living in Hawaii and Maui Counties
- Mothers ages 35 years and older

**Cesarean Delivery by Maternal Age, 2012-2015**



**Cesarean Delivery by Federal Poverty Level, 2012-2015**



# Infant NICU Admissions

**Background:** Newborn babies who need intensive medical attention are often admitted into a special area of the hospital called the Neonatal Intensive Care Unit (NICU). Premature birth is one of the most common reason for newborn babies to be admitted into the NICU, as premature babies are not physically developed enough to survive without medical intervention and are unable to transition to the outside environment as well as full-term babies. Other causes of infant NICU admissions include respiratory distress syndrome, sepsis or infection, hypoglycemia, gastroschisis, or macrosomia<sup>28</sup>.

**Indicator Definition:** ‘Infant NICU admission’ was defined by self-report from a mother with a recent live birth to the question “After your baby was delivered, was he or she put in an intensive care unit (NICU)?”

**Trends Over Time:** In 2015, 8.1% of mothers in the State of Hawaii reported having their infant admitted into a hospital NICU after delivery. Although there is some variation over time, there was no significant change in reported infant NICU admissions from 2009 (9.5%) to 2015.

**Differences by County of Residence:** In the State of Hawaii, 8.5% of mothers reported their infant was admitted to a hospital NICU during 2012-2015. Mothers living in Kauai County (4.4%) reported a significantly lower prevalence of infant NICU admission compared to the state overall. Infant NICU admissions among mothers living in Honolulu County appear highest at 9.2%, but this estimate was not significantly different from those in Hawaii (7.0%) and Maui (7.7%) Counties or from the state overall.

**Differences by Maternal Race:** While estimates of infant NICU admissions varied from 6.3% for Chinese mothers to 10.2% for mothers classified as All Others, there was no significant difference across racial groups or compared to the state overall.

**Differences by Maternal Age:** Although it appears women ages 19 years and younger (11.8%) reported the highest prevalence of infant NICU admissions and women ages 20-24 years (7.5%) reported the lowest prevalence, neither percentage significantly different than other age groups or the state overall.

**Differences by Federal Poverty Level (FPL):** The estimates for infant NICU admissions were similar across all FPLs, with mothers between 186-300% FPL having the highest, but not significantly, estimate of infant NICU admission at 9.3%.

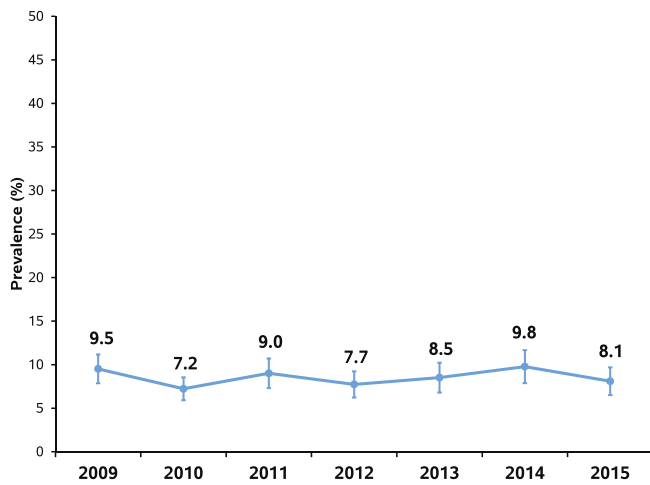
**In the State of Hawaii, 8.5% of mothers reported have their infant admitted into a hospital NICU after delivery. Mothers living in Kauai County were least likely to report an infant NICU admission, but there were no other disparities by county, age, or federal poverty level.**

“I had to stay in the hospital for 1 month and 3 days cause my baby was in the NICU, it has been a very hard time and scary situation, I went to Oahu with nothing and had to depend on ours to help me and that was difficult. Glad to be home and I am glad that my baby is doing fine, she is now 10 pounds and 3 months old.”

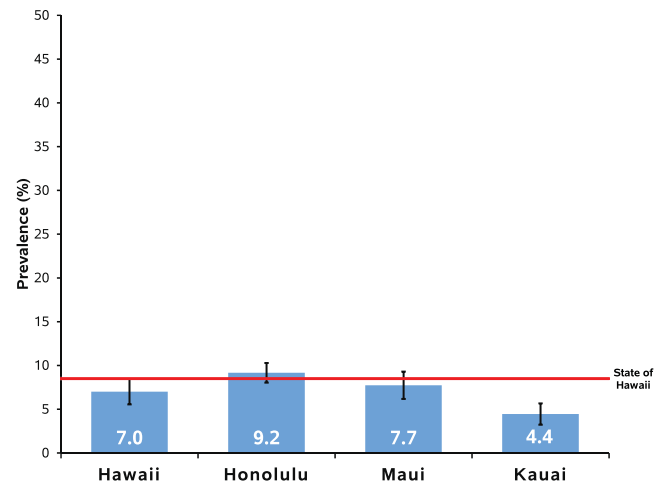


# Infant NICU Admissions

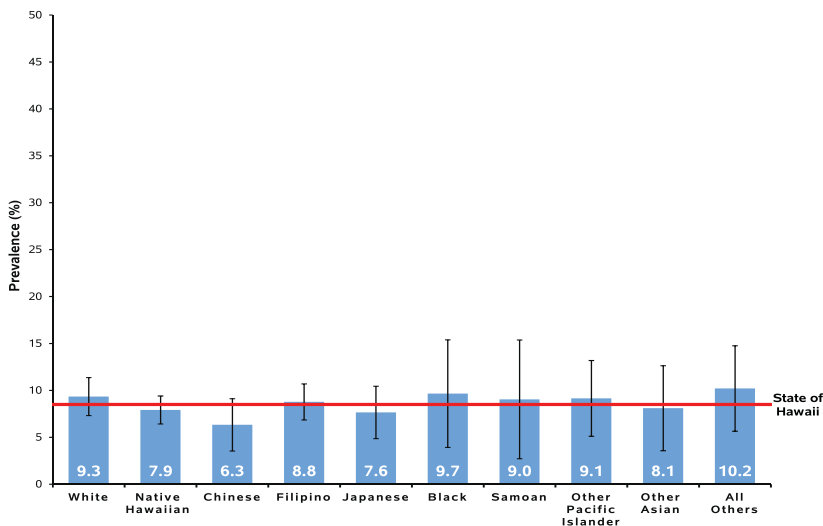
Infant NICU Admissions over Time, 2009-2015



Infant NICU Admissions by State and County, 2012-2015



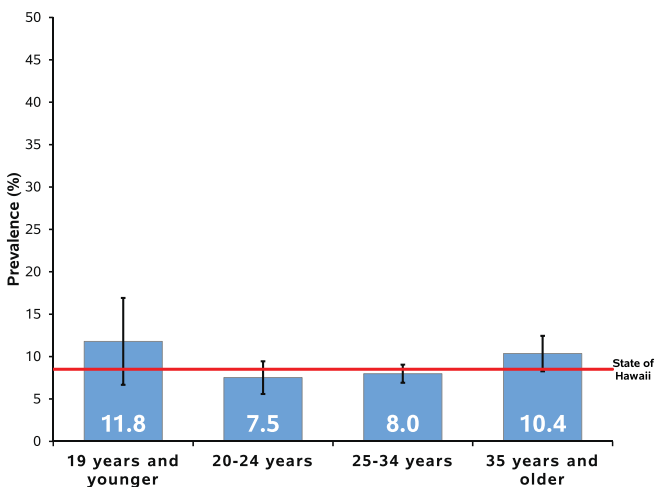
Infant NICU Admissions by Maternal Race, 2012-2015



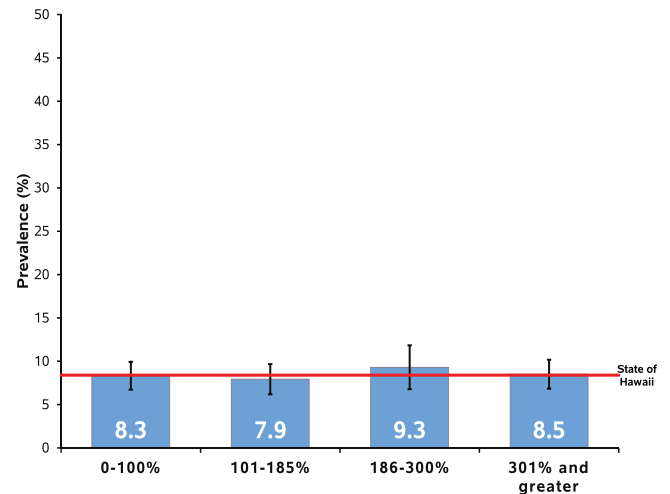
## At-risk Groups

There were no at-risk groups identified for infant NICU admissions.

Infant NICU Admissions by Maternal Age, 2012-2015



Infant NICU Admissions by Federal Poverty Level, 2012-2015



# Postpartum Checkup

**Background:** Postpartum checkup is critical for the health of the mother and the baby and is an important part in the post-pregnancy care. The postpartum checkup is used to evaluate the mother's current physical and mental health, provide counseling on infant care and family planning, and detect and provide referrals for any medical conditions pertaining to the mother and infant. The American College of Obstetricians and Gynecologists (ACOG) previously recommended a comprehensive postpartum checkup within the first six weeks after birth, but now suggests that postpartum care should be an ongoing process<sup>29</sup>. According to the ACOG, a comprehensive postpartum checkup should include a full assessment of the mother's mood and emotional well-being, infant care and feeding, sexuality contraception and birth spacing, sleep and fatigue, physical recovery from birth, chronic disease management, and health management. Not having a postpartum checkup leaves mothers and infants at risk of pregnancy-related issues not being addressed quickly, and potentially causing long-term health effects.

**Indicator Definition:** 'Postpartum checkup' was defined by response to the question of whether the mother had a postpartum checkup for herself since the baby was born.

**Trends Over Time:** From 2009 to 2015, there were some variations in postpartum checkup prevalence among mothers in the State of Hawaii (91.1% to 89.7%), but no significant difference in prevalence occurred over that time.

**Differences by County of Residence:** During 2012-2015, 89.1% of mothers in the State of Hawaii reported having postpartum checkup. Mothers living in Hawaii (86.2%), Honolulu (89.5%), Maui (89.1%), and Kauai (90.9%) Counties had slightly different estimates of postpartum checkup, but none were significantly different from each other or the state overall.

**Differences by Maternal Race:** Mothers in the Other Pacific Islander group (75.9%) had the lowest estimates of postpartum checkup, which was significantly lower than the state overall. White (91.5%) and Japanese (93.8%) mothers appeared to have the highest prevalence of postpartum checkup, but neither was significantly higher than the state overall. Estimates of postpartum checkup for all other racial groups did not differ significantly from each other or the state overall.

**Differences by Maternal Age:** There was an upward trend in postpartum checkup with increasing age from mothers ages 19 years and younger (81.9%) to ages 35 years and older (89.9%), but there was no significant difference in estimates between age groups.

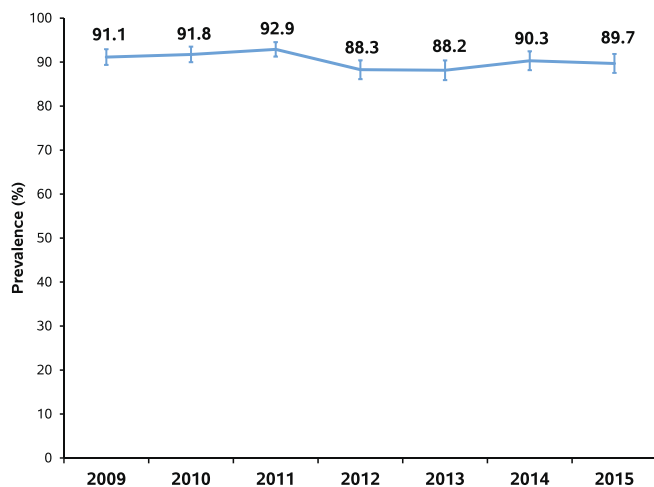
**Differences by Federal Poverty Level (FPL):** The lowest estimate of postpartum checkup was among mothers at or below 100% FPL (84.0%). Those between 186-300% FPL (93.9%) and 301% and greater FPL (93.1%) had similar and higher estimates; these estimates were significantly different from the state overall (89.6%).

**While a high percentage (89.1%) of mothers in the State of Hawaii reported having a postpartum checkup, Other Pacific Islander mothers and those at or below 100% of the federal poverty level had the lowest estimates in the state.**

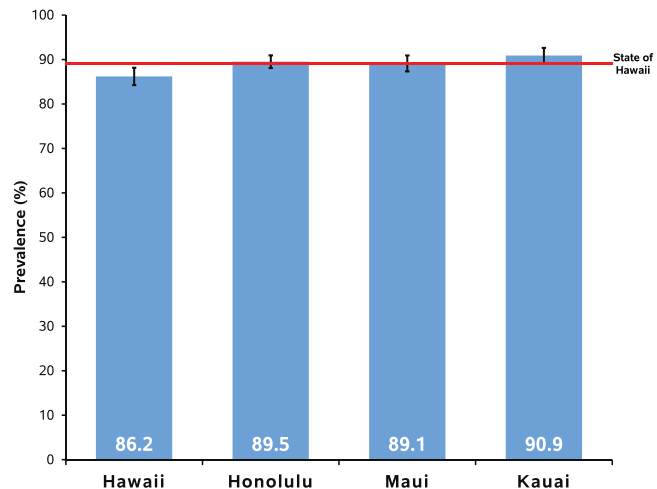
"During my pregnancy, I was very fortunate to be covered by Quest. But then after my postpartum period, my insurance was cancelled because I suddenly made too much money. Now I have no medical insurance for myself. Unfortunately, my doctor wants to do some tests on me to check for cancer, and I have no way to cover it, so the tests must wait."

# Postpartum Checkup

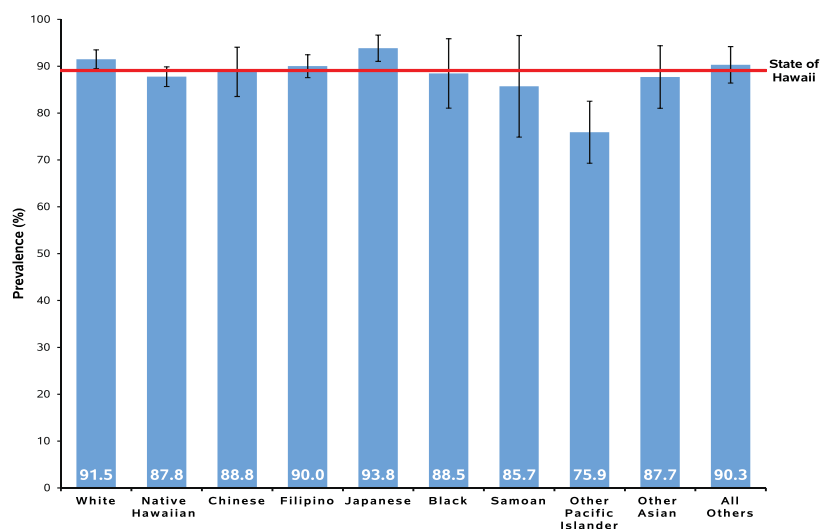
Postpartum Checkup over Time, 2009-2015



Postpartum Checkup by State and County, 2012-2015



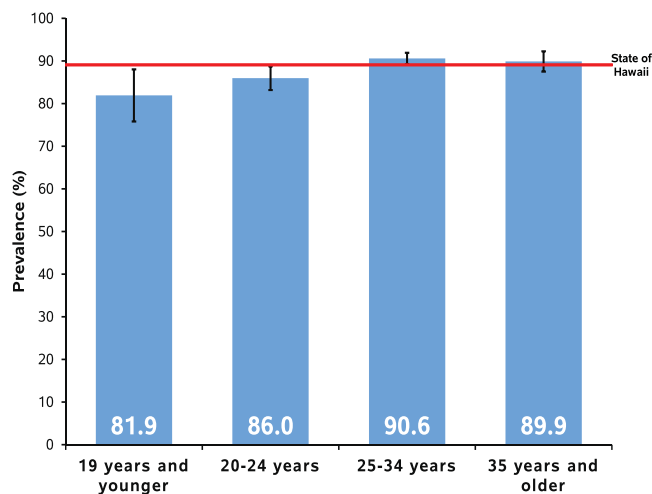
Postpartum Checkup by Maternal Race, 2012-2015



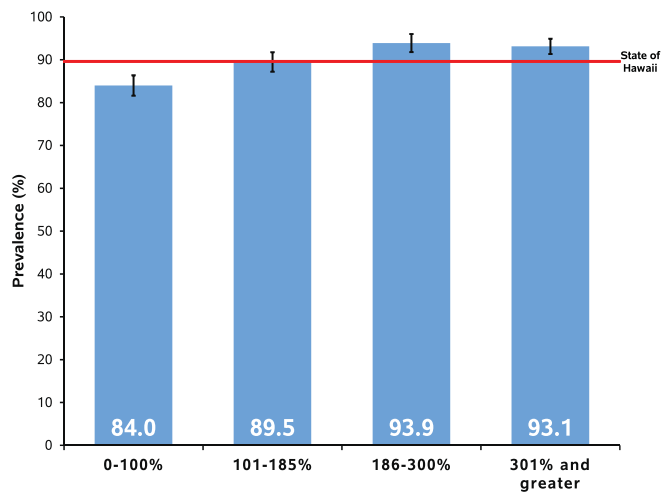
## At-risk Groups

- Other Pacific Islander mothers
- Mothers who are at or below 100% of the federal poverty level

Postpartum Checkup by Maternal Age, 2012-2015



Postpartum Checkup by Federal Poverty Level, 2012-2015



# Postpartum Contraception

**Background:** Sufficient spacing of births helps to promote optimal maternal and infant health outcomes. Effective use of contraception between pregnancies can promote birth spacing and help families address the challenges and experience the satisfaction in raising a new infant. Common reasons reported for not using postpartum contraception include not having sex, not wanting to use birth control, wanting to get pregnant, or other reasons (had tubes tied or husband had vasectomy, difficulty in obtaining birth control, etc.)<sup>30</sup>.

**Indicator Definition:** ‘Postpartum contraception’ was defined by response to the question “are you or your husband doing anything now to keep from getting pregnant?” The question provided examples of postpartum contraception, including “having their tubes tied”, “using birth control methods such as pills”, “condoms”, “withdrawal”, or “natural family planning”.

**Trends Over Time:** In 2015, 73.2% of mothers in the State of Hawaii reported using contraception during the postpartum period. While the prevalence of postpartum contraception varied slightly from 2009 (79.2%) to 2012 (75.7%), there was a significant decrease in postpartum contraception from 2012 to 2013 (66.6%). Since 2013, there was no significant difference in postpartum contraception use among mothers in the state.

**Differences by County of Residence:** During 2012-2015, 71.7% of mothers in the State of Hawaii reported use of postpartum contraception. Maui and Kauai County residents were most likely to use postpartum contraception at 77.7% and 76.4%, respectively; these estimates were significantly higher than the state overall. Mothers living in Honolulu County appeared to have the lowest estimate of postpartum contraception (70.2%), but it was not significantly lower than the state overall.

**Differences by Maternal Race:** Mothers classified as Other Pacific Islander (53.6%) and Japanese (62.4%) were significantly less likely to use postpartum contraception compared to the state overall. White mothers (77.8%) reported the highest estimate of postpartum contraception, which was significantly higher than the state overall. For all other racial groups, estimates varied from 55.6% for Samoan mothers to 80.4% for All Others mothers, but none were significantly different from each other or the state overall.

**Differences by Maternal Age:** There was no significant difference in the prevalence of postpartum contraception use across maternal age groups or the state overall.

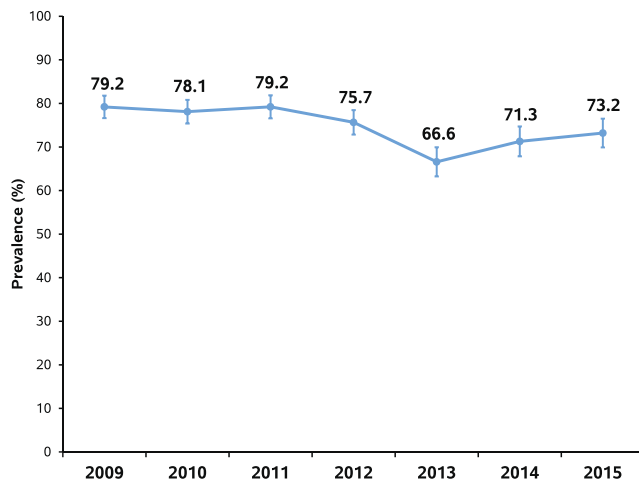
**Differences by Federal Poverty Level (FPL):** Postpartum contraception use was most prevalent among mothers between 101-185% FPL (76.8%) compared to those between 0-100% FPL (68.9%) and the state overall (72.2%). Mothers between 186-300% (73.9%) and 301% or greater FPL (70.8%) had seemingly lower estimates, but there were no significantly different from other FPLs or the state overall.

**Almost three-fourths (71.7%) of mothers in the State of Hawaii reported using postpartum contraception. Postpartum contraception use was lowest among Other Pacific Islander and Japanese mothers.**

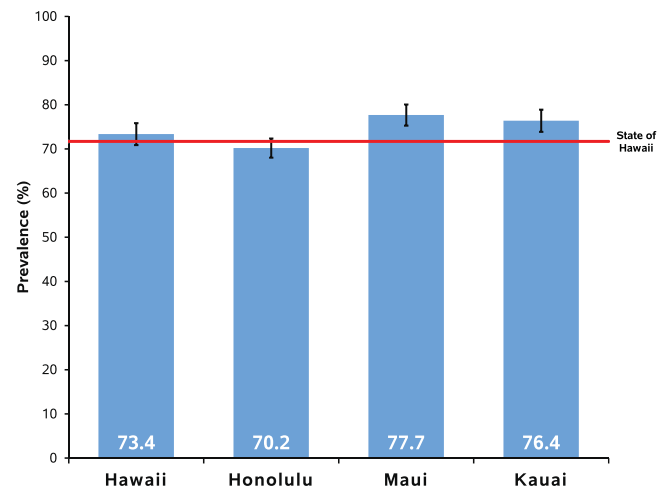
“Hopefully they will make birth control affordable for everyone! That’s the reason why I’m not on any actual birth control! “They” say my husband makes too much for us to get assistance.”

# Postpartum Contraception

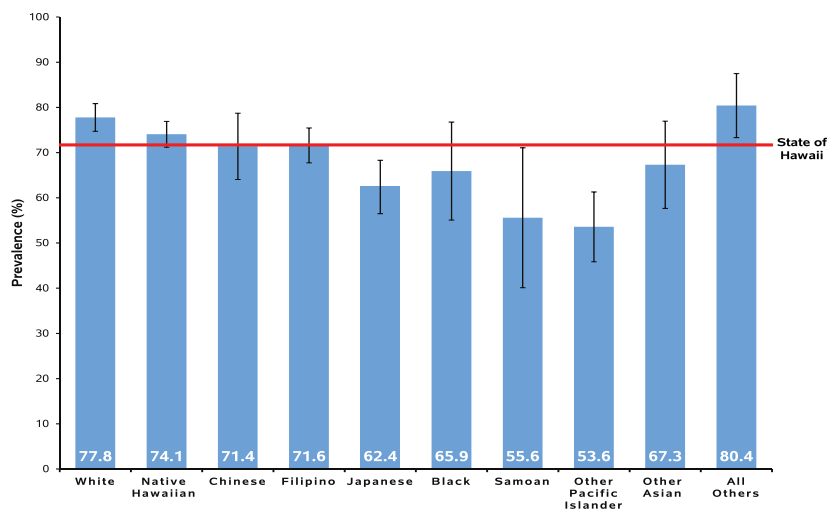
Postpartum Contraception over Time, 2009-2015



Postpartum Contraception by State and County, 2012-2015



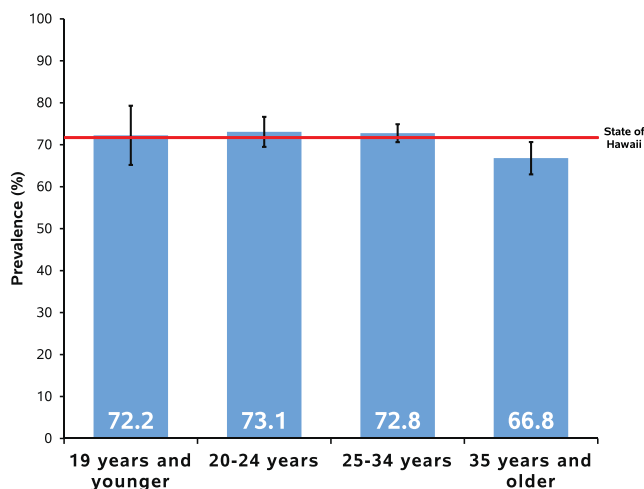
Postpartum Contraception by Maternal Race, 2012-2015



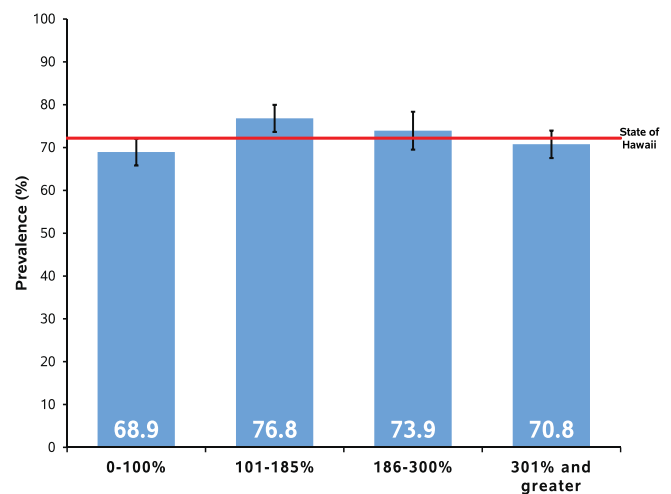
## At-risk Groups

- Other Pacific Islander and Japanese mothers

Postpartum Contraception by Maternal Age, 2012-2015



Postpartum Contraception by Federal Poverty Level, 2012-2015



# Postpartum Depression

**Background:** Pregnancy and childbirth can be a very rewarding and exciting time, but it can also be a period of severe emotional stress. Postpartum depression can be disabling for the mother and limit her ability to care for her new infant resulting in increased use of health care services and more hospitalizations. Women with postpartum depression are less likely to do basic preventive services such as putting the infant to sleep on the back, attending well child visits, and keeping up to date on immunization coverage. In severe cases of postpartum depression, women may harm themselves, their infants, and others.

**Indicator Definition:** ‘Self-reported postpartum depressive symptoms’ was defined by a response of “always” or “often” to “how often have you felt down, depressed, or hopeless?” or “how often have you had little interest or little pleasure in doing things” since your new baby was born. Some of these questions were significantly different in 2009-2011, so this report only includes data from 2012 to 2015.

**Trends Over Time:** From 2012 to 2015, estimates of self-reported postpartum depression symptoms among mothers in the State of Hawaii has decreased from 10.6% to 8.9%, but this change was not significant over the 4-year time frame.

**Differences by County of Residence:** In the State of Hawaii, 10.0% had self-reported postpartum depressive symptoms during 2012-2015. Although there is some variation, estimates of self-reported postpartum depressive symptoms were similar (and not significantly different) across the four counties and compared to the state overall.

**Differences by Maternal Race:** White mothers were significantly less likely to report postpartum depressive symptoms compared to the state overall. Samoan mothers appeared to have the highest prevalence of self-reported postpartum depressive symptoms at 22.1%, but this estimate was not significantly higher than the state overall. For all other racial groups, estimates ranged from 9.3% for Filipino mothers to 13.7% for Other Asian mothers, but none were significantly different from each other or the state overall. Estimates for postpartum depressive symptoms for Black mothers could not be reported due to small sample size.

**Differences by Maternal Age:** Mothers ages 19 years and younger (19.4%) had the highest estimate of self-reported postpartum depressive symptoms compared to the state overall. Mothers ages 25-34 years (9.0%) and those ages 35 years and older (9.4%) reported similar and lower estimates, but not significantly lower than any other age group or the state overall.

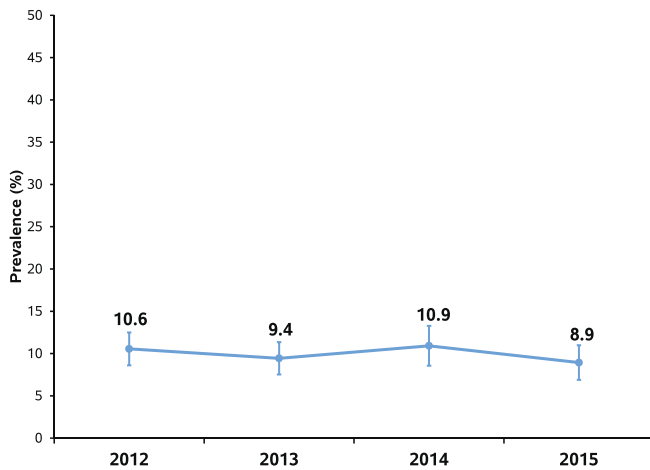
**Differences by Federal Poverty Level (FPL):** Self-reported postpartum depressive symptoms were most prevalent among mothers at or below 100% FPL (13.7%) compared to mothers at 186-300% FPL (7.5%), those at 301% or greater FPL (7.1%) and the state overall (9.7%).

**In the State of Hawaii, 10.0% of mothers reported experiencing postpartum depressive symptoms. Compared to all mothers in the state, mothers ages 19 years and younger and those at the lowest federal poverty level had the highest prevalence of postpartum depressive symptoms.**

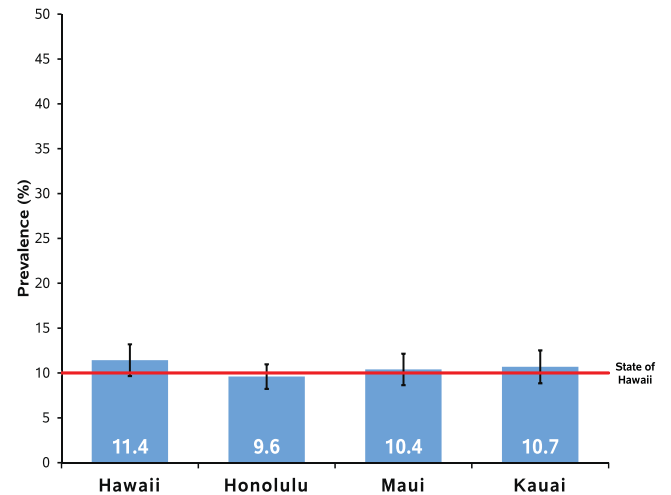
“I think it’s important for women to be aware of postpartum depression and the symptoms. I’m currently on medication and feel much better. I never thought it would happen to me but I’m glad I was aware something wasn’t right and had family who noticed and helped me.”

# Postpartum Depression

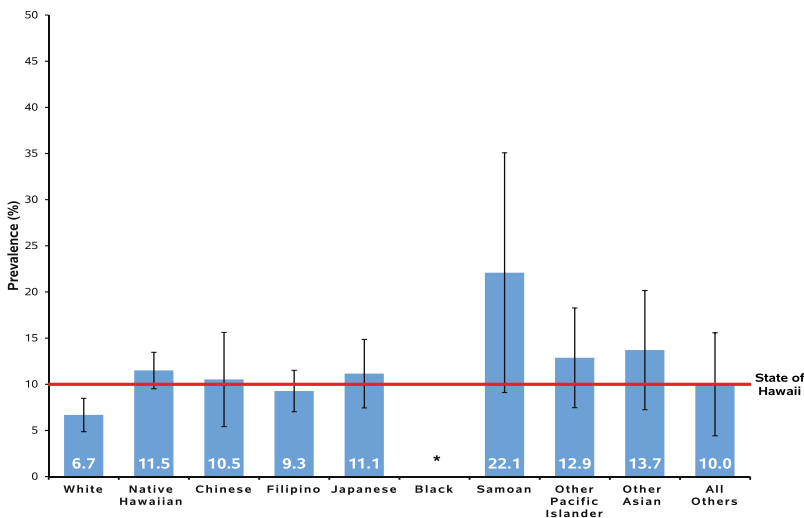
Postpartum Depression over Time, 2012-2015



Postpartum Depression by State and County, 2012-2015



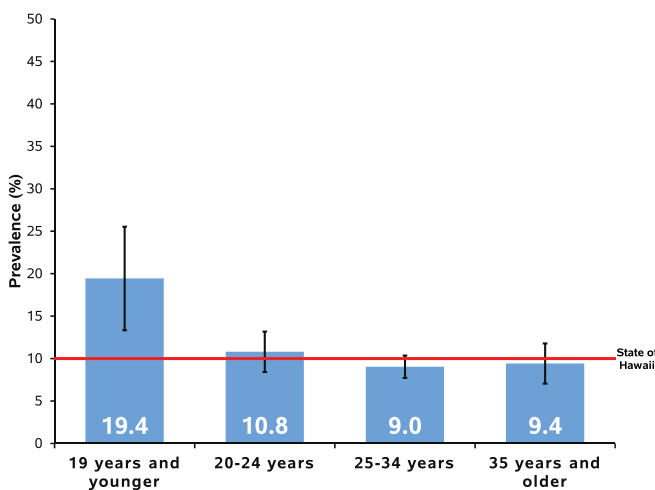
Postpartum Depression by Maternal Race, 2012-2015



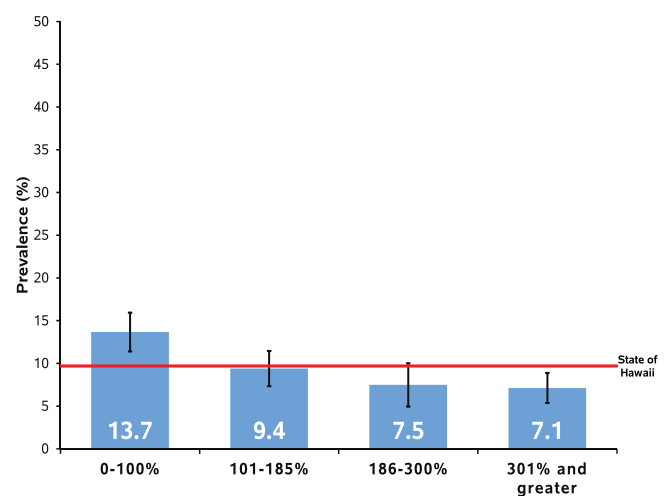
## At-risk Groups

- Mothers ages 19 years and younger
- Mothers who are at or below 100% of the federal poverty level

Postpartum Depression by Maternal Age, 2012-2015



Postpartum Depression by Federal Poverty Level, 2012-2015





# Breastfeeding Eight Weeks

**Background:** Breast milk is the most complete form of nutrition for infants and offers a range of benefits for infant, including prevention of childhood illnesses such as obesity, type 1 and type 2 diabetes, and sudden infant death syndrome<sup>31,32</sup>. Breastfeeding mothers report fewer sick visits and improved work productivity for mothers and society<sup>33</sup>. Healthy People 2020 set a national objective for women to increase the initiation of breastfeeding in the early postpartum period to 81.9% of newborns and to improve breastfeeding estimates to 60.6% of infants at age 6 months and 34.1% at one year<sup>4</sup>.

**Indicator Definition:** ‘Timing of breastfeeding at least eight weeks’ was calculated based on self-report by the mother. In women who reported no longer breastfeeding on the survey, the time that women reported stopping was used. Among mothers that were still breastfeeding at time the survey was completed, the number of weeks at that point was used. This measure did not include the degree of exclusive breastfeeding.

**Trends Over Time:** There was a significant increase in breastfeeding at least eight weeks among mothers in the State of Hawaii from 2009 (70.8%) to 2015 (79.6%) that first began in 2011 (78.3%). In 2012, there was a slight decrease in breastfeeding at eight weeks, which then remained consistently high from 2013 (79.6%) to 2015.

**Differences by County of Residence:** During 2012-2015, 78.5% of mothers in the State of Hawaii reported breastfeeding at least eight weeks. Mothers living in Hawaii (77.8%), Honolulu (78.5%), Maui (78.7%), and Kauai (81.4%) Counties had slightly different estimates for breastfeeding at least eight weeks, but none were significantly different from each other or the state overall.

**Differences by Maternal Race:** Compared to the state overall, breastfeeding at least eight weeks was significantly lower among Native Hawaiian mothers at 69.4%, yet significantly higher among White and Japanese mothers at 84.9% and 93.0%, respectively. Estimates for all other racial groups varied greatly, but none were significantly different from the each other or the state overall.

**Differences by Maternal Age:** The lowest prevalence of breastfeeding at least 8 weeks was among mothers ages 19 years and younger (66.5%) and those ages 20-24 years (70.2%); these estimates were significantly lower than the prevalence for the state overall. There was steady improvement in the estimates of breastfeeding at least eight weeks with increasing age, with mothers ages 25-34 years (81.2%) and 35 years and older (82.7%) having similar estimates. However, these estimates were not significantly higher than the state overall.

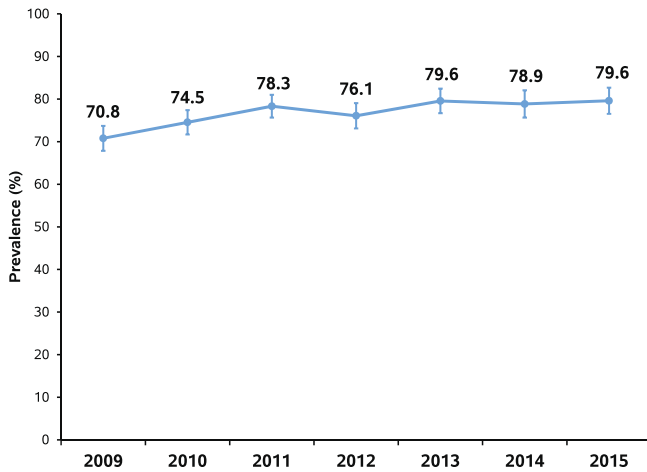
**Differences by Federal Poverty Level (FPL):** Mothers at or below 100% FPL (70.8%) were significantly less likely to report breastfeeding at least eight weeks compared the state overall (79.8%). Although there appeared to be a steady increase in the estimates of breastfeeding at least eight weeks with increasing federal poverty level, only mothers at 301% and greater FPL (88.8%) had a significantly higher estimate than the state overall.

**In the State of Hawaii, 79.8% of mothers reported breastfeeding at least eight weeks after delivery, which was lowest among Native Hawaiian mothers, those ages 24 years and younger, and those at the lowest federal poverty level.**

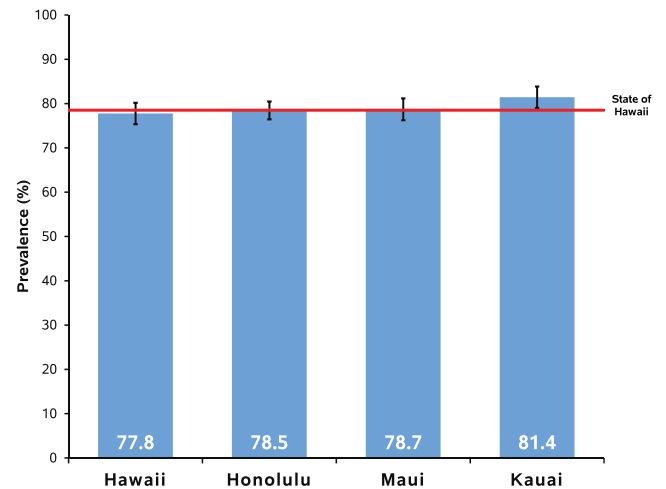
“Personally, I feel that breastfeeding is not pushed enough by healthcare providers (ie doctors/nurses). Information and support is given to mothers. From my own experience, I think ALL mothers should see a lactation consultant while they are still at the hospital and formula should not be handed out so freely and easily.”

# Breastfeeding Eight Weeks

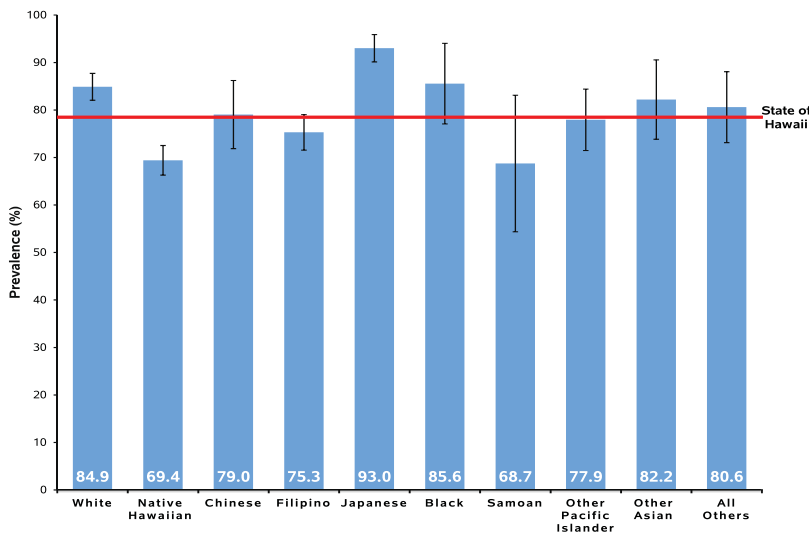
**Breastfeeding Eight Weeks over Time, 2009-2015**



**Breastfeeding Eight Weeks by State and County, 2012-2015**



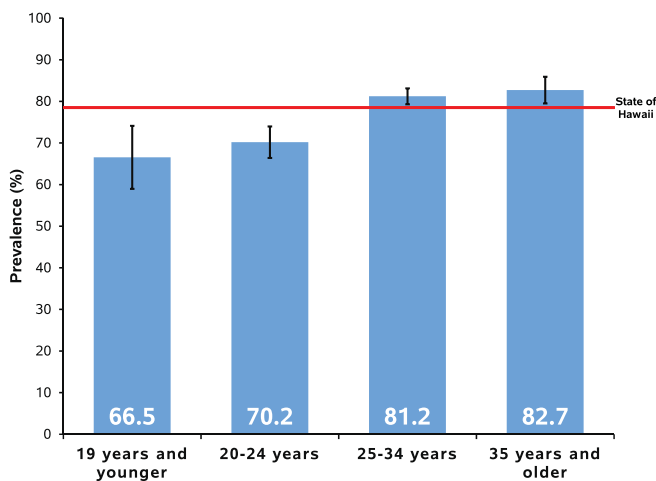
**Breastfeeding Eight Weeks by Maternal Race, 2012-2015**



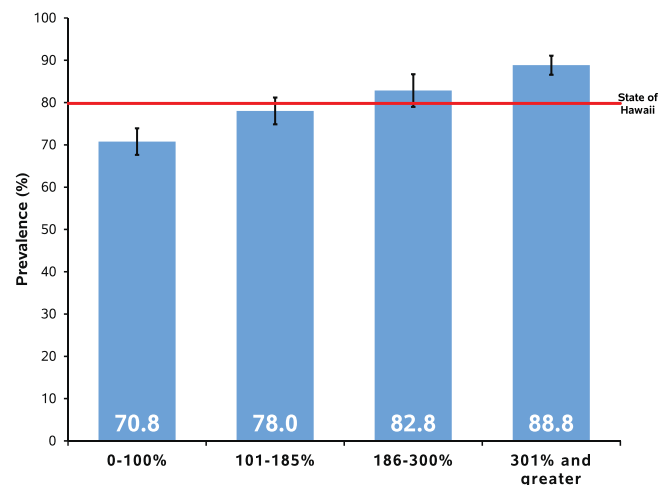
## At-risk Groups

- Native Hawaiian mothers
- Mothers ages 24 years and younger
- Mothers who are at or below 100% of the federal poverty level

**Breastfeeding Eight Weeks by Maternal Age, 2012-2015**



**Breastfeeding Eight Weeks by Federal Poverty Level, 2012-2015**



# Infant Sleep Position

**Background:** Sudden Infant Death Syndrome (SIDS), the sudden and unexplained death of an infant under 1 year of age, is the leading cause of post-neonatal mortality (death between 1 month and 1 year of age). Putting infants to sleep on their back can decrease the risk of SIDS. Studies show infants are more likely to die from suffocation-related SIDS death when placed to sleep on their stomach or side<sup>34</sup>. Within the United States, the “Safe to Sleep” public health campaign has helped educate millions of caregivers about back sleeping positioning and use of appropriate bedding in the infant’s sleep environment, resulting in a 50% reduction in SIDS since the campaign’s launch in 1994. In recognition of this issue, one objective of Healthy People 2020 is to increase the proportion of infants placed on their backs to sleep to 75.8% nationally<sup>4</sup>.

**Indicator Definition:** ‘Back sleep positioning’ was defined by self-reported of “in which one position do you most often lay your baby down to sleep,” with the responses of “back” compared to all other positions.

**Trends Over Time:** In 2015, 81.5% of mothers in the State of Hawaii reported positioning their infants to sleep on their backs. Estimates appeared to suggest an increase in back sleep position from 2009 (76.9%) to 2015, but these estimates were not significantly different during this period.

**Differences by County of Residence:** In the state of Hawaii, 80.3% of mothers reported positioning their infants to sleep on their backs. Mothers living in Kauai County had the lowest prevalence of back sleep positioning at 75.5%; this estimate was significantly lower than the state overall. Those in Hawaii (79.1%), Maui (80.0%), and Honolulu (80.9%) Counties reported similar (and not significantly different) estimates of back sleep positioning compared to the state overall.

**Differences by Maternal Race:** Compared to the state overall, Samoan (57.8%) and Native Hawaiian (72.9%) mothers had the lowest estimates of back sleep positioning, while Japanese (89.0%), Chinese (87.6%), and White (86.3%) mothers had the highest estimates. Estimates of back sleep positioning for all other racial groups did not differ significantly from each other or the state overall.

**Differences by Maternal Age:** Women ages 19 years and younger (70.0%) were significantly less likely to report back sleep positioning. There was a steady increase in estimates of back sleep position with increasing age, with mothers ages 25-34 years (82.3%) and 35 years and older (82.4%) having similar and higher estimates; these estimates were not significantly different from those ages 20-24 years (75.5%) and the state overall estimate.

**Differences by Federal Poverty Level (FPL):** Mothers at 301% and greater FPL (85.7%) were most likely to position their infants to sleep on their backs. Mothers at or below 100% FPL (77.0%) appeared to have the lowest estimate of back sleep positioning, but it was not significantly different from the state overall (80.5%).

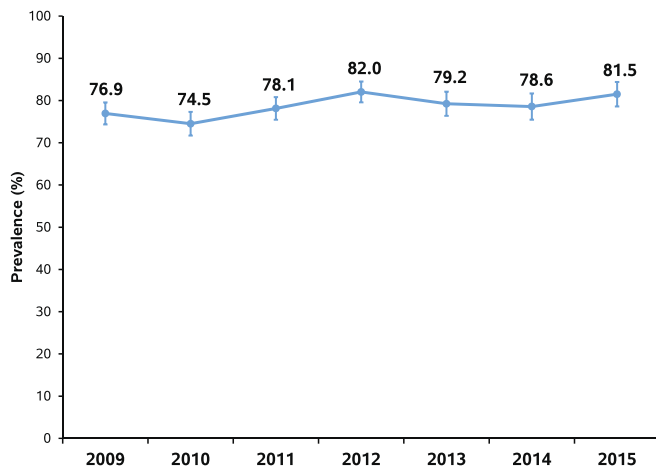
**Overall, 81.5% of mothers in the State of Hawaii reported back sleep positioning for their infants. Mothers living in Kauai County, Samoan and Native Hawaiian mothers, and those ages 19 years and younger were least likely to report positioning their infants to sleep on their backs.**

“I had a friend who recently lost her 3 month old baby from SIDS. She smoked cigarettes through her pregnancy and this is her 3rd child. They must enforce women not to smoke while pregnant !! It’s very sad!!!”

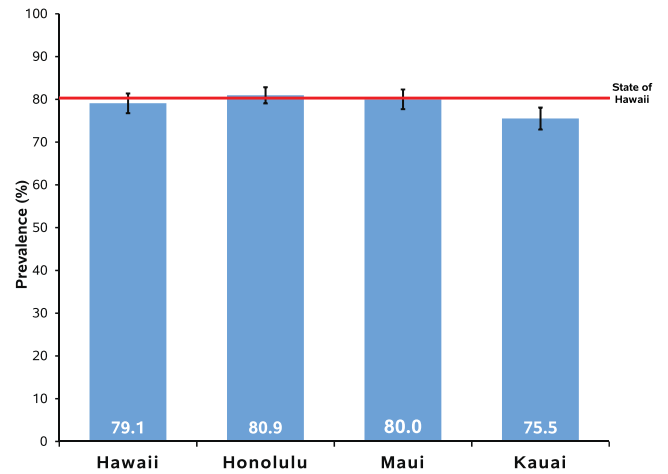
“No questions if instructed on SIDS prevention- I was not thoroughly instructed on this and felt I should have been everyone should multiple times.”

# Infant Sleep Position

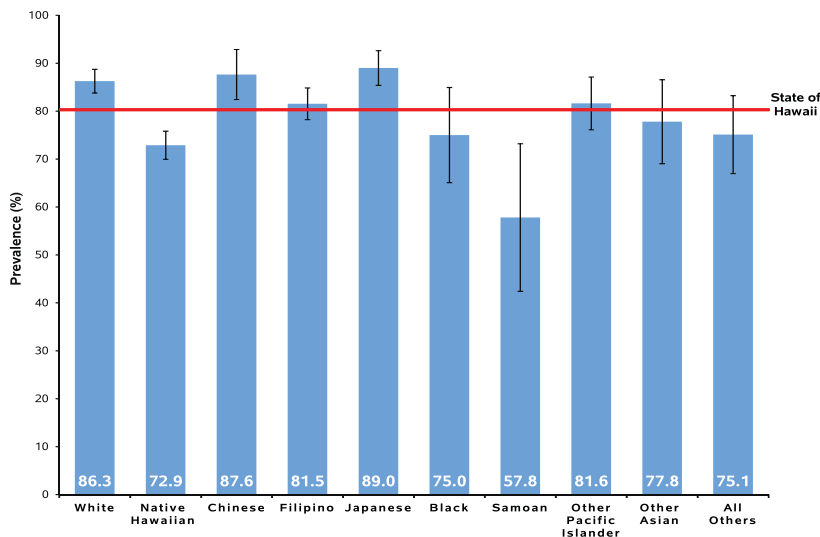
Infant Back Sleep Position over Time, 2009-2015



Infant Back Sleep Position by State and County, 2012-2015



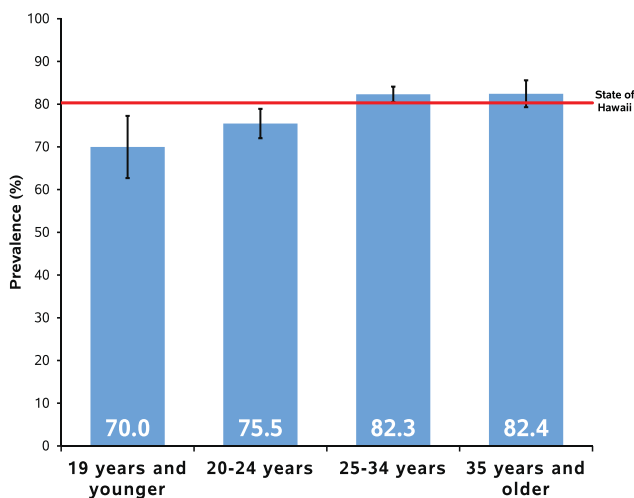
Infant Back Sleep Position by Maternal Race, 2012-2015



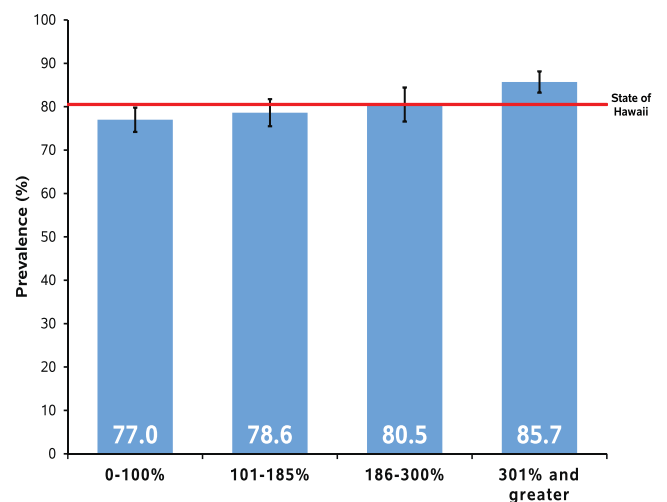
## At-risk Groups

- Mothers living in Kauai County
- Samoan and Native Hawaiian mothers
- Mothers ages 19 years and younger

Infant Back Sleep Position by Maternal Age, 2012-2015



Infant Back Sleep Position by Federal Poverty Level, 2012-2015



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# Summary Tables

		Preconception Obesity	No Health Insurance Prior to Pregnancy	Preconception Healthcare Visit	Pre-Pregnancy Teeth Cleaning
		Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI
Year					
	2009	17.3 (14.8–19.7)	8.0 (6.4–9.7)	NA	52.3 (49.2–55.4)
	2010	14.8 (12.6–17.1)	7.8 (6.1–9.6)	NA	50.5 (47.3–53.7)
	2011	13.9 (11.6–16.1)	6.7 (5.1–8.3)	NA	52.8 (49.6–56.0)
	2012	17.2 (14.7–19.7)	6.4 (4.9–8.0)	24.3 (21.5–27.1)	51.8 (48.5–55.0)
	2013	18.3 (15.6–21.1)	5.1 (3.6–6.5)	25.3 (22.2–28.4)	54.2 (50.7–57.6)
	2014	18.1 (15.2–21.0)	5.2 (3.7–6.7)	27.3 (23.9–30.7)	57.1 (53.4–60.8)
	2015	19.3 (16.4–22.3)	4.7 (3.2–6.2)	26.3 (23.0–29.7)	61.9 (58.4–65.5)
County					
	State of Hawaii	18.2 (16.8–19.6)	5.4 (4.6–6.1)	25.8 (24.2–27.4)	56.2 (54.5–57.9)
	Hawaii	21.4 (19.0–23.7)	6.7 (5.4–8.1)	23.6 (21.2–26.0)	<b>48.3 (45.6–51.1)</b>
	Honolulu	17.9 (16.1–19.8)	4.6 (3.7–5.6)	26.7 (24.5–28.8)	58.6 (56.3–60.9)
	Maui	18.1 (15.8–20.3)	<b>8.1 (6.5–9.6)</b>	24.5 (22.1–27.0)	<b>50.9 (48.0–53.7)</b>
	Kauai	15.0 (12.8–17.1)	6.5 (5.1–8.0)	<b>21.7 (19.2–24.1)</b>	53.4 (50.4–56.3)
Maternal Race					
	State of Hawaii	18.2 (16.8–19.6)	5.4 (4.6–6.1)	25.8 (24.2–27.4)	56.2 (54.5–57.9)
	White	<b>13.8 (11.1–16.4)</b>	5.0 (3.6–6.4)	21.4 (18.4–24.4)	<b>66.1 (62.7–69.5)</b>
	Native Hawaiian	<b>27.8 (24.9–30.7)</b>	4.9 (3.5–6.2)	24.1 (21.3–26.9)	<b>48.3 (45.1–51.5)</b>
	Chinese	<b>7.8 (3.6–12.0)</b>	7.0 (2.9–11.1)	28.1 (20.6–35.6)	64.8 (57.0–72.6)
	Filipino	<b>13.0 (10.1–15.9)</b>	4.2 (2.5–5.8)	29.8 (25.9–33.7)	53.8 (49.6–58.0)
	Japanese	<b>11.2 (7.6–14.9)</b>	<b>2.8 (1.2–4.5)</b>	25.4 (20.1–30.8)	<b>69.5 (65.0–75.1)</b>
	Black	16.4 (8.1–24.8)	NR	20.9 (11.9–30.0)	61.3 (50.4–72.2)
	Samoan	<b>55.5 (39.8–71.1)</b>	<b>17.7 (6.3–29.2)</b>	39.3 (24.3–54.4)	40.1 (25.0–55.1)
	Other Pacific Islander	23.0 (16.4–29.5)	6.8 (2.9–10.8)	<b>38.3 (30.7–45.8)</b>	<b>35.4 (27.9–42.9)</b>
	Other Asian	<b>4.8 (0.7–8.9)</b>	11.4 (4.9–17.9)	29.7 (20.2–39.3)	51.1 (41.1–61.0)
	All Others	21.7 (13.8–29.6)	9.5 (5.2–13.9)	22.0 (14.5–29.5)	54.9 (46.0–63.8)
Maternal Age					
	State of Hawaii	18.2 (16.8–19.6)	5.4 (4.6–6.1)	25.8 (24.2–27.4)	56.2 (54.5–57.9)
	19 years and younger	<b>7.4 (3.6–11.3)</b>	6.4 (2.6–10.2)	<b>15.7 (10.2–21.2)</b>	47.4 (39.7–55.1)
	20–24 years	18.7 (15.5–21.8)	5.8 (4.1–7.6)	24.4 (20.9–27.9)	<b>43.7 (39.8–47.7)</b>
	25–34 years	18.9 (17.0–20.8)	4.9 (3.9–5.8)	25.5 (23.4–27.6)	58.9 (56.6–61.2)
	35 years and older	18.4 (15.2–21.7)	6.0 (4.1–8.0)	31.0 (27.2–34.9)	<b>63.8 (59.9–67.7)</b>
Federal Poverty Level					
	State of Hawaii	18.3 (16.8–19.7)	5.2 (4.4–5.9)	26.1 (24.5–27.8)	56.1 (54.2–57.9)
	0–100%	<b>23.5 (20.6–26.4)</b>	<b>8.9 (7.1–10.8)</b>	25.1 (22.2–28.0)	<b>36.4 (33.2–39.6)</b>
	101–185%	20.6 (17.6–23.5)	5.8 (4.3–7.4)	25.2 (21.9–28.5)	51.8 (48.2–55.5)
	186–300%	15.8 (12.1–19.4)	3.6 (1.9–5.3)	23.5 (19.3–27.7)	60.6 (55.8–65.4)
	301% and greater	<b>12.5 (10.1–14.8)</b>	<b>1.6 (0.7–2.4)</b>	29.3 (26.1–32.5)	<b>77.2 (74.3–80.1)</b>

Notes: Aggregated data from 2012–2015, except for individual year prevalence estimates.

95% CI represents the 95% Confidence Intervals around prevalence estimate.

NA represents data not available due to changes in question.

NR represents data not reportable due to small numbers.

Bolding signifies prevalence estimate is different from the overall State estimate based on review of overlapping confidence intervals.

# Summary Tables

		Preconception Vitamin Intake	Unintended Pregnancy	Binge Drinking Prior to Pregnancy	Alcohol Use During Pregnancy
		Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI
Year	2009	66.3 (63.4–69.3)	NA	NA	6.7 (5.2–8.2)
	2010	66.3 (63.2–69.3)	NA	NA	7.2 (5.6–8.8)
	2011	65.6 (62.5–68.6)	NA	NA	6.9 (5.3–8.5)
	2012	66.3 (63.3–69.4)	51.1 (47.8–54.4)	19.8 (17.1–22.4)	7.9 (6.2–9.7)
	2013	64.6 (61.2–68.0)	46.7 (43.2–50.2)	18.9 (16.1–21.6)	7.6 (5.8–9.4)
	2014	59.6 (55.8–63.3)	44.8 (41.0–48.6)	16.6 (13.8–19.3)	8.5 (6.4–10.5)
	2015	63.9 (60.3–67.5)	48.4 (44.6–52.1)	19.2 (16.2–22.1)	8.7 (6.6–10.7)
County	State of Hawaii	63.6 (61.9–65.4)	47.8 (46.0–49.6)	18.6 (17.2–20.0)	8.2 (7.2–9.1)
	Hawaii	<b>71.0 (68.4–73.5)</b>	<b>55.0 (52.2–57.8)</b>	19.1 (16.9–21.3)	9.0 (7.4–10.6)
	Honolulu	61.6 (59.3–63.9)	45.7 (43.3–48.1)	18.0 (16.1–19.8)	7.6 (6.3–8.8)
	Maui	66.9 (64.2–69.6)	51.7 (48.7–54.6)	20.7 (18.3–23.0)	9.7 (8.0–11.5)
	Kauai	67.8 (65.1–70.6)	51.1 (48.2–54.1)	21.8 (19.3–24.3)	<b>11.6 (9.6–13.4)</b>
Maternal Race	State of Hawaii	63.6 (61.9–65.4)	47.8 (46.0–49.6)	18.6 (17.2–20.0)	8.2 (7.2–9.1)
	White	<b>54.8 (51.1–58.5)</b>	<b>33.3 (29.9–36.8)</b>	20.8 (17.8–23.8)	<b>12.1 (9.8–14.4)</b>
	Native Hawaiian	<b>75.2 (72.4–78.1)</b>	<b>59.8 (56.6–63.0)</b>	<b>23.7 (20.9–26.5)</b>	7.4 (5.7–9.1)
	Chinese	61.4 (53.4–69.5)	41.2 (33.2–49.3)	13.1 (7.4–18.8)	9.5 (4.4–14.5)
	Filipino	57.9 (53.6–62.2)	50.6 (46.3–55.0)	<b>12.2 (9.4–15.0)</b>	6.6 (4.5–8.6)
	Japanese	<b>53.1 (46.9–59.2)</b>	<b>34.2 (28.4–40.0)</b>	16.0 (11.4–20.5)	5.5 (3.0–8.0)
	Black	72.5 (62.7–82.3)	54.9 (43.5–66.3)	18.3 (9.3–27.2)	NR
	Samoa	<b>79.1 (66.4–91.8)</b>	<b>66.6 (52.6–80.6)</b>	NR	NR
	Other Pacific Islander	<b>76.0 (69.4–82.7)</b>	<b>64.0 (56.5–71.4)</b>	13.4 (8.0–18.8)	NR
	Other Asian	56.2 (46.1–66.3)	46.9 (36.7–57.1)	13.8 (7.3–20.2)	8.2 (3.5–13.0)
	All Others	64.8 (56.0–73.6)	44.3 (35.3–53.3)	25.9 (18.1–33.7)	6.8 (2.3–11.2)
Maternal Age	State of Hawaii	63.6 (61.9–65.4)	47.8 (46.0–49.6)	18.6 (17.2–20.0)	8.2 (7.2–9.1)
	19 years and younger	<b>89.3 (84.6–94.0)</b>	<b>86.0 (80.6–91.4)</b>	<b>7.3 (3.4–11.2)</b>	NR
	20–24 years	<b>77.8 (74.4–81.1)</b>	<b>66.5 (62.7–70.3)</b>	22.1 (18.8–25.5)	6.9 (4.9–8.9)
	25–34 years	60.0 (57.6–62.4)	<b>41.2 (38.8–43.5)</b>	20.4 (18.5–22.3)	8.5 (7.2–9.8)
	35 years and older	<b>52.4 (48.3–56.5)</b>	<b>36.9 (32.9–40.9)</b>	<b>12.2 (9.6–14.8)</b>	9.6 (7.2–11.9)
Federal Poverty Level	State of Hawaii	63.6 (61.7–65.4)	47.0 (45.1–48.9)	18.9 (17.5–20.4)	8.3 (7.3–9.3)
	0–100%	<b>77.3 (74.5–80.2)</b>	<b>69.1 (66.0–72.1)</b>	18.5 (15.9–21.1)	5.8 (4.3–7.3)
	101–185%	<b>69.4 (65.9–72.9)</b>	46.5 (42.8–50.3)	20.6 (17.6–23.6)	6.9 (5.1–8.7)
	186–300%	63.2 (58.4–68.0)	40.8 (35.9–45.7)	19.3 (15.4–23.3)	7.3 (5.0–9.6)
	301% and greater	<b>44.7 (41.2–48.2)</b>	<b>28.1 (24.9–31.3)</b>	17.8 (15.1–20.5)	<b>12.5 (10.1–14.8)</b>

Notes: Aggregated data from 2012–2015, except for individual year prevalence estimates.

95% CI represents the 95% Confidence Intervals around prevalence estimate.

NA represents data not available due to changes in question.

NR represents data not reportable due to small numbers.

Bolding signifies prevalence estimate is different from the overall State estimate based on review of overlapping confidence intervals.



# Summary Tables

		Cigarette Smoking During Pregnancy	Illicit Drug Use Before Pregnancy	Stressful Life Events	Intimate Partner Violence
		Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI
Year	2009	9.6 (7.8–11.5)	7.2 (5.6–8.7)	16.3 (14.0–18.7)	NA
	2010	7.8 (6.1–9.6)	6.1 (4.6–7.5)	14.0 (11.8–16.2)	NA
	2011	5.0 (3.8–6.3)	6.4 (4.9–7.8)	10.2 (8.4–12.0)	NA
	2012	4.2 (2.9–5.4)	6.7 (5.1–8.3)	13.7 (11.5–15.9)	3.0 (1.9–4.1)
	2013	5.6 (4.1–7.0)	7.4 (5.6–9.2)	15.5 (13.1–17.9)	4.1 (2.8–5.4)
	2014	4.5 (2.9–6.0)	5.3 (3.9–6.7)	11.8 (9.4–14.2)	2.5 (1.4–3.7)
	2015	4.9 (3.3–6.4)	5.4 (3.8–7.1)	11.4 (9.1–13.6)	3.2 (1.9–4.6)
County	State of Hawaii	4.8 (4.0–5.5)	6.2 (5.4–7.0)	13.1 (12.0–14.3)	3.2 (2.6–3.8)
	Hawaii	<b>7.6 (6.0–9.1)</b>	8.5 (6.9–10.0)	<b>17.2 (15.0–19.3)</b>	3.7 (2.6–4.7)
	Honolulu	4.1 (3.1–5.0)	4.9 (3.8–5.9)	11.8 (10.3–13.4)	3.1 (2.3–3.9)
	Maui	5.0 (3.7–6.3)	<b>10.7 (8.9–12.6)</b>	15.1 (13.1–17.2)	3.4 (2.3–4.4)
	Kauai	7.0 (5.4–8.5)	<b>10.1 (8.3–11.9)</b>	<b>17.2 (14.9–19.4)</b>	3.2 (2.1–4.3)
Maternal Race	State of Hawaii	4.8 (4.0–5.5)	6.2 (5.4–7.0)	13.1 (12.0–14.3)	3.2 (2.6–3.8)
	White	<b>2.6 (1.5–3.8)</b>	7.6 (5.9–9.4)	12.3 (10.0–14.7)	<b>1.5 (0.6–2.3)</b>
	Native Hawaiian	<b>8.7 (7.0–10.4)</b>	8.6 (6.9–10.4)	<b>18.1 (15.7–20.5)</b>	5.3 (3.8–6.8)
	Chinese	NR	<b>2.8 (0.6–5.0)</b>	<b>6.7 (2.9–10.5)</b>	NR
	Filipino	3.6 (2.0–5.2)	<b>2.5 (1.2–3.8)</b>	11.1 (8.4–13.8)	3.6 (2.0–5.3)
	Japanese	3.1 (0.8–5.4)	4.8 (2.0–7.6)	<b>7.2 (4.1–10.3)</b>	2.5 (0.6–4.3)
	Black	NR	NR	8.8 (3.1–14.5)	NR
	Samoan	NR	NR	<b>29.9 (15.3–44.5)</b>	NR
	Other Pacific Islander	NR	NR	11.4 (6.7–16.1)	2.5 (0.6–4.4)
	Other Asian	4.8 (0.8–8.9)	9.3 (3.3–15.3)	9.9 (4.1–15.7)	NR
	All Others	5.5 (2.6–8.5)	7.4 (4.6–10.3)	15.4 (9.5–21.2)	5.8 (1.9–9.6)
Maternal Age	State of Hawaii	4.8 (4.0–5.5)	6.2 (5.4–7.0)	13.1 (12.0–14.3)	3.2 (2.6–3.8)
	19 years and younger	NR	<b>14.5 (8.8–20.2)</b>	14.1 (9.0–19.2)	6.7 (2.7–10.6)
	20–24 years	6.6 (4.7–8.5)	8.1 (6.1–10.1)	17.2 (14.2–20.1)	4.0 (2.5–5.6)
	25–34 years	4.6 (3.7–5.6)	6.1 (5.0–7.2)	12.2 (10.7–13.7)	2.7 (1.9–3.4)
	35 years and older	3.7 (2.2–5.2)	<b>2.4 (1.5–3.3)</b>	11.2 (8.7–13.7)	3.0 (1.6–4.5)
Federal Poverty Level	State of Hawaii	4.8 (4.0–5.5)	6.1 (5.3–7.0)	13.3 (12.1–14.6)	3.1 (2.5–3.8)
	0–100%	<b>9.9 (8.0–11.7)</b>	<b>10.1 (8.1–12.0)</b>	<b>20.0 (17.4–22.6)</b>	<b>5.7 (4.2–7.3)</b>
	101–185%	3.5 (2.2–4.9)	<b>3.8 (2.6–4.9)</b>	13.8 (11.4–16.3)	<b>1.5 (0.7–2.3)</b>
	186–300%	<b>2.2 (0.8–3.6)</b>	4.2 (2.6–5.9)	12.3 (9.1–15.5)	2.9 (1.1–4.7)
	301% and greater	<b>2.0 (0.9–3.0)</b>	5.1 (3.6–6.6)	<b>6.7 (5.0–8.4)</b>	2.1 (1.0–3.1)

Notes: Aggregated data from 2012–2015, except for individual year prevalence estimates.

95% CI represents the 95% Confidence Intervals around prevalence estimate.

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# Summary Tables

		Gestational Diabetes	High Blood Pressure During Pregnancy	WIC Program During Pregnancy	Preterm Delivery
		Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI
Year	2009	12.2 (10.1–14.3)	9.5 (7.8–11.3)	41.9 (38.8–45.0)	9.4 (8.1–10.7)
	2010	11.6 (9.5–13.6)	12.5 (10.3–14.7)	44.3 (41.1–47.4)	9.6 (8.1–11.1)
	2011	10.6 (8.6–12.6)	8.6 (6.9–10.3)	45.3 (42.1–48.5)	8.1 (6.9–9.3)
	2012	10.4 (8.5–12.3)	11.0 (9.1–13.0)	45.8 (42.6–49.1)	8.2 (6.9–9.5)
	2013	11.4 (9.1–13.6)	11.2 (9.0–13.3)	43.7 (40.2–47.1)	9.1 (7.7–10.6)
	2014	13.7 (11.1–16.2)	9.8 (7.8–11.9)	38.9 (35.3–42.5)	9.6 (8.0–11.1)
	2015	14.4 (11.7–17.0)	11.8 (9.5–14.1)	39.8 (36.3–43.4)	9.3 (7.7–10.9)
County	State of Hawaii	12.4 (11.3–13.6)	11.0 (9.9–12.0)	42.1 (40.3–43.8)	9.0 (8.3–9.8)
	Hawaii	11.8 (10.0–13.6)	11.5 (9.7–13.3)	<b>57.2 (54.5–60.0)</b>	10.4 (8.7–12.1)
	Honolulu	12.8 (11.3–14.4)	11.1 (9.7–12.5)	39.0 (36.7–41.3)	8.9 (8.0–9.9)
	Maui	11.0 (9.2–12.8)	9.9 (8.2–11.6)	43.8 (41.0–46.7)	8.5 (6.9–10.1)
	Kauai	11.1 (9.3–13.0)	9.2 (7.4–10.9)	44.2 (41.3–47.1)	8.4 (6.7–10.0)
Maternal Race	State of Hawaii	12.4 (11.3–13.6)	11.0 (9.9–12.0)	42.1 (40.3–43.8)	9.0 (8.3–9.8)
	White	<b>6.6 (4.8–8.4)</b>	10.7 (8.4–12.9)	<b>26.6 (23.4–29.8)</b>	7.6 (6.0–9.3)
	Native Hawaiian	10.4 (8.4–12.4)	12.0 (10.1–14.0)	<b>61.5 (58.3–64.6)</b>	8.9 (7.6–10.2)
	Chinese	12.6 (7.2–18.0)	7.7 (3.7–11.7)	34.6 (27.0–42.3)	7.9 (4.9–10.9)
	Filipino	<b>20.2 (16.8–23.7)</b>	12.2 (9.6–14.8)	44.0 (39.8–48.2)	11.8 (9.6–14.1)
	Japanese	14.2 (10.0–18.4)	7.3 (4.4–10.1)	<b>16.2 (11.9–20.4)</b>	<b>6.2 (4.3–8.1)</b>
	Black	8.7 (2.1–15.3)	11.9 (5.0–18.8)	38.7 (27.8–49.6)	13.2 (6.8–19.5)
	Samoa	27.1 (12.7–41.5)	23.3 (10.2–36.3)	57.2 (41.8–72.6)	7.1 (3.8–10.5)
	Other Pacific Islander	16.0 (10.5–21.5)	15.0 (9.3–20.7)	<b>70.5 (63.6–77.4)</b>	10.7 (7.0–14.5)
	Other Asian	16.1 (8.6–23.6)	<b>2.8 (0.3–5.2)</b>	<b>24.8 (16.2–33.4)</b>	7.9 (3.8–12.0)
	All Others	12.7 (6.8–18.7)	8.0 (3.5–12.6)	38.7 (30.4–47.1)	11.1 (7.1–15.1)
Maternal Age	State of Hawaii	12.4 (11.3–13.6)	11.0 (9.9–12.0)	42.1 (40.3–43.8)	9.0 (8.3–9.8)
	19 years and younger	7.7 (3.0–12.3)	10.0 (5.2–14.7)	<b>71.2 (64.0–78.3)</b>	10.3 (6.5–14.1)
	20–24 years	<b>8.4 (6.2–10.6)</b>	8.7 (6.6–10.8)	<b>64.8 (60.9–68.6)</b>	7.3 (5.7–8.8)
	25–34 years	11.6 (10.1–13.2)	10.2 (8.8–11.6)	<b>36.9 (34.6–39.1)</b>	8.8 (7.7–9.8)
	35 years and older	<b>20.3 (17.0–23.5)</b>	<b>15.9 (13.1–18.7)</b>	<b>25.7 (22.3–29.2)</b>	11.4 (9.6–13.3)
Federal Poverty Level	State of Hawaii	12.6 (11.3–13.8)	11.0 (9.9–12.1)	41.4 (39.6–43.2)	8.9 (8.2–9.7)
	0–100%	11.7 (9.5–13.8)	10.7 (8.8–12.6)	<b>77.0 (74.2–79.8)</b>	9.3 (7.9–10.8)
	101–185%	13.5 (10.9–16.0)	11.3 (9.0–13.5)	<b>53.0 (49.3–56.7)</b>	9.3 (7.5–11.0)
	186–300%	13.7 (10.2–17.1)	11.1 (8.1–14.1)	<b>23.5 (19.4–27.5)</b>	9.1 (7.0–11.2)
	301% and greater	12.1 (9.8–14.4)	11.1 (9.0–13.2)	<b>4.8 (3.4–6.2)</b>	8.2 (6.8–9.6)

Notes: Aggregated data from 2012–2015, except for individual year prevalence estimates.

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# Summary Tables

		Cesarean Delivery	Infant NICU Admissions	Postpartum Checkup	Postpartum Contraception
		Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI
Year	2009	25.4 (22.8–28.0)	9.5 (7.9–11.2)	91.1 (89.4–92.9)	79.2 (76.6–81.8)
	2010	29.0 (26.2–31.8)	7.2 (5.9–8.5)	91.8 (90.0–93.5)	78.1 (75.4–80.8)
	2011	26.7 (23.9–29.5)	9.0 (7.3–10.7)	92.9 (91.3–94.5)	79.2 (76.6–81.9)
	2012	23.9 (21.3–26.6)	7.7 (6.2–9.2)	88.3 (86.1–90.4)	75.7 (72.8–78.5)
	2013	26.3 (23.4–29.3)	8.5 (6.8–10.2)	88.2 (85.9–90.4)	66.6 (63.2–69.9)
	2014	23.3 (20.3–26.3)	9.8 (7.9–11.7)	90.3 (88.2–92.5)	71.3 (67.9–74.7)
	2015	23.8 (20.7–26.8)	8.1 (6.4–9.7)	89.7 (87.5–91.9)	73.2 (69.9–76.5)
County	State of Hawaii	24.4 (22.9–25.8)	8.5 (7.7–9.4)	89.1 (88.0–90.2)	71.7 (70.1–73.3)
	Hawaii	<b>30.1 (27.6–32.7)</b>	7.0 (5.6–8.5)	86.2 (84.2–88.2)	73.4 (70.9–75.8)
	Honolulu	22.4 (20.5–24.3)	9.2 (8.0–10.3)	89.5 (88.1–90.9)	70.2 (68.0–72.4)
	Maui	<b>30.2 (27.6–32.8)</b>	7.7 (6.2–9.3)	89.1 (87.3–90.9)	<b>77.7 (75.3–80.1)</b>
	Kauai	25.5 (23.0–28.1)	<b>4.4 (3.2–5.7)</b>	90.9 (89.2–92.6)	<b>76.4 (73.9–78.9)</b>
Maternal Race	State of Hawaii	24.4 (22.9–25.8)	8.5 (7.7–9.4)	89.1 (88.0–90.2)	71.7 (70.1–73.3)
	White	23.4 (20.4–26.4)	9.3 (7.3–11.4)	91.5 (89.5–93.5)	<b>77.8 (74.7–80.8)</b>
	Native Hawaiian	22.9 (20.3–25.4)	7.9 (6.4–9.4)	87.8 (85.7–89.9)	74.1 (71.2–76.9)
	Chinese	27.2 (20.1–34.3)	6.3 (3.5–9.1)	88.8 (83.5–94.1)	71.4 (64.1–78.7)
	Filipino	26.6 (23.1–30.2)	8.8 (6.8–10.7)	90.0 (87.6–92.5)	71.6 (67.7–75.5)
	Japanese	23.8 (18.9–28.7)	7.6 (4.9–10.4)	93.8 (91.0–96.7)	<b>62.4 (56.5–68.3)</b>
	Black	21.2 (12.4–29.9)	9.7 (3.9–15.4)	88.5 (81.1–95.9)	65.9 (55.1–76.8)
	Samoa	20.5 (8.3–32.7)	9.0 (2.7–15.4)	85.7 (74.9–96.6)	55.6 (40.1–71.1)
	Other Pacific Islander	27.2 (20.6–33.8)	9.1 (5.1–13.2)	<b>75.9 (69.3–82.5)</b>	<b>53.6 (45.8–61.3)</b>
	Other Asian	29.8 (20.9–38.7)	8.1 (3.6–12.6)	87.7 (81.1–94.4)	67.3 (57.7–77.0)
	All Others	23.5 (16.5–30.5)	10.2 (5.6–14.8)	90.3 (86.5–94.2)	80.4 (73.3–87.5)
Maternal Age	State of Hawaii	24.4 (22.9–25.8)	8.5 (7.7–9.4)	89.1 (88.0–90.2)	71.7 (70.1–73.3)
	19 years and younger	<b>9.6 (6.0–13.3)</b>	11.8 (6.7–16.9)	81.9 (75.8–88.0)	72.2 (65.2–79.3)
	20–24 years	<b>19.6 (16.6–22.6)</b>	7.5 (5.6–9.4)	86.0 (83.2–88.7)	73.1 (69.5–76.7)
	25–34 years	24.1 (22.2–26.0)	8.0 (6.9–9.1)	90.6 (89.2–91.9)	72.8 (70.6–74.9)
	35 years and older	<b>34.0 (30.3–37.7)</b>	10.4 (8.3–12.4)	89.9 (87.5–92.3)	66.8 (62.9–70.6)
Federal Poverty Level	State of Hawaii	25.0 (23.4–26.5)	8.4 (7.5–9.3)	89.6 (88.4–90.7)	72.2 (70.5–73.9)
	0–100%	23.3 (20.6–26.0)	8.3 (6.7–9.9)	<b>84.0 (81.6–86.4)</b>	68.9 (65.8–72.1)
	101–185%	24.4 (21.4–27.4)	7.9 (6.2–9.7)	89.5 (87.2–91.8)	76.8 (73.6–80.0)
	186–300%	25.8 (21.6–30.0)	9.3 (6.8–11.8)	<b>93.9 (91.8–96.0)</b>	73.9 (69.5–78.4)
	301% and greater	26.8 (23.8–29.7)	8.5 (6.8–10.2)	<b>93.1 (91.3–94.9)</b>	70.8 (67.5–74.0)

Notes: Aggregated data from 2012–2015, except for individual year prevalence estimates.

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# Summary Tables

		Postpartum Depression	Breastfeeding 8 weeks	Infant Sleep Position
		Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI	Weighted Prevalence (%) and 95% CI
Year	2009	NA	70.8 (67.9–73.7)	76.9 (74.3–79.5)
	2010	NA	74.5 (71.7–77.4)	74.5 (71.7–77.3)
	2011	NA	78.3 (75.6–81.0)	78.1 (75.5–80.8)
	2012	10.6 (8.6–12.5)	76.1 (73.1–79.0)	82.0 (79.6–84.5)
	2013	9.4 (7.5–11.4)	79.6 (76.7–82.4)	79.2 (76.4–82.1)
	2014	10.9 (8.6–13.3)	78.9 (75.7–82.1)	78.6 (75.5–81.7)
	2015	8.9 (6.9–11.0)	79.6 (76.5–82.7)	81.5 (78.7–84.4)
County	State of Hawaii	10.0 (8.9–11.0)	78.5 (77.0–80.0)	80.3 (78.9–81.8)
	Hawaii	11.4 (9.7–13.2)	77.8 (75.3–80.2)	79.1 (76.8–81.4)
	Honolulu	9.6 (8.2–11.0)	78.5 (76.4–80.5)	80.9 (79.1–82.8)
	Maui	10.4 (8.6–12.2)	78.7 (76.2–81.2)	80.0 (77.7–82.3)
	Kauai	10.7 (8.8–12.5)	81.4 (79.0–83.9)	<b>75.5 (72.9–78.1)</b>
Maternal Race	State of Hawaii	10.0 (8.9–11.0)	78.5 (77.0–80.0)	80.3 (78.9–81.8)
	White	<b>6.7 (4.9–8.5)</b>	<b>84.9 (82.1–87.7)</b>	<b>86.3 (83.8–88.7)</b>
	Native Hawaiian	11.5 (9.5–13.5)	<b>69.4 (66.3–72.5)</b>	<b>72.9 (70.0–75.8)</b>
	Chinese	10.5 (5.4–15.6)	79.0 (71.9–86.2)	<b>87.6 (82.4–92.9)</b>
	Filipino	9.3 (7.0–11.5)	75.3 (71.6–79.0)	81.5 (78.2–84.9)
	Japanese	11.1 (7.4–14.9)	<b>93.0 (90.1–95.9)</b>	<b>89.0 (85.4–92.6)</b>
	Black	NR	85.6 (77.1–94.0)	75.0 (65.1–84.9)
	Samoaan	22.1 (9.1–35.1)	68.7 (54.4–83.1)	<b>57.8 (42.4–73.2)</b>
	Other Pacific Islander	12.9 (7.5–18.3)	77.9 (71.5–84.4)	81.6 (76.1–87.1)
	Other Asian	13.7 (7.1–20.2)	82.2 (73.9–90.6)	77.8 (69.1–86.6)
	All Others	10.0 (4.4–15.6)	80.6 (73.1–88.1)	75.1 (66.9–83.2)
Maternal Age	State of Hawaii	10.0 (8.9–11.0)	78.5 (77.0–80.0)	80.3 (78.9–81.8)
	19 years and younger	<b>19.4 (13.3–25.5)</b>	<b>66.5 (59.0–74.1)</b>	<b>70.0 (62.7–77.3)</b>
	20–24 years	10.8 (8.4–13.2)	<b>70.2 (66.4–74.0)</b>	75.5 (72.0–78.9)
	25–34 years	9.0 (7.7–10.4)	81.2 (79.3–83.1)	82.3 (80.5–84.1)
	35 years and older	9.4 (7.0–11.8)	82.7 (79.5–85.9)	82.4 (79.3–85.6)
Federal Poverty Level	State of Hawaii	9.7 (8.6–10.8)	79.8 (78.2–81.3)	80.5 (79.0–82.0)
	0–100%	<b>13.7 (11.4–15.9)</b>	<b>70.8 (67.6–73.9)</b>	77.0 (74.2–79.8)
	101–185%	9.4 (7.3–11.5)	78.0 (74.9–81.2)	78.6 (75.5–81.7)
	186–300%	7.5 (4.9–10.0)	82.8 (79.0–86.7)	80.5 (76.6–84.4)
	301% and greater	7.1 (5.4–8.9)	<b>88.8 (86.6–91.1)</b>	<b>85.7 (83.2–88.1)</b>

Notes: Aggregated data from 2012–2015, except for individual year prevalence estimates.

95% CI represents the 95% Confidence Intervals around prevalence estimate.

NA represents data not available due to changes in question.

NR represents data not reportable due to small numbers.

Bolding signifies prevalence estimate is different from the overall State estimate based on review of overlapping confidence intervals.

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## Additional Resources:

<http://health.hawaii.gov/fhsd/home/hawaii-pregnancy-risk-assessment-monitoring-system-prams/>  
<http://www.cdc.gov/prams/index.htm>

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# Summary Comments

Hawaii PRAMS data provides information on many health issues related to the mothers and infants that we may not capture in other population-based surveillance systems. Use of PRAMS data provides us a unique opportunity to describe this special population and identify potential opportunities for targeted health education or interventions. This report describes the most recent prevalence and trend data for 23 indicators representative of perinatal issues in the state. We hope this report will increase awareness, discussion, and assist communities in developing solutions to critical issues facing our mothers, children, and families.

Throughout the report, for all indicators, major changes in prevalence over time and significant differences between subgroups are highlighted. Some of these differences are pronounced and lend themselves to developing interventions to eliminate disparities and help decrease the overall burden of disease. However, it is important to realize that all these issues are complex and will require multiple strategies to effectively make a difference. This report serves to bring an awareness to disparities to help frame future activities aimed at why they exist and how we can eliminate them.

Ten indicators from the previous trend report, which covered 2000-2008, are included in this report. Since 2009, there was significant improvement in the state estimate for two indicators (reduction in mothers experiencing stressful life events and improvement in breastfeeding at least eight weeks) and significant decline in one indicator (use of postpartum contraception). There were no significant changes in the other seven indicators, namely preconception obesity, preconception vitamin intake, cigarette smoking during pregnancy, alcohol use during pregnancy, cesarean delivery, postpartum depression, and infant sleep position. The question about postpartum depression changed in the 2012 survey, so only comparison over the years 2012-2015 are presented in this report.

Of the 13 new indicators in this report, nine were collected over a 7-year period (2009-2015), while four were collected over a 4-year period (2012-2015) because either data was not previously available, or the question was not asked in the 2009-2011 PRAMS survey. Since 2009, two indicators (no health insurance prior to pregnancy and pre-pregnancy teeth cleaning) showed significant improvement among mothers in the state. There were no significant changes for the remaining seven indicators (illicit drug use before pregnancy, gestational diabetes, high blood pressure during pregnancy, WIC Program during pregnancy, preterm delivery, infant NICU admissions, and postpartum checkup). For the four indicators with data across the 2012-2015 period, none showed significant differences over time (binge drinking prior to pregnancy, preconception health visit, unintended pregnancy, and intimate partner violence).

This report highlights selected indicators related to the health and well-being of women and their families. A better understanding of why some of the indicators improved could be helpful for identifying strategies to facilitate further gains in these and other areas. As we continue to promote better quality-of-life outcomes for all families in Hawaii, efforts to improve social determinants of health (e.g., education, healthcare, environment, economic stability, social context) are needed. To address this need, recommendations that can be applied across indicators include: 1) Increased awareness of pregnancy intention among women of reproductive age; 2) Increased identification of factors associated with negative outcomes such as poverty and socioeconomic contributors; 3) Improved access and availability of free or low-cost healthcare services; 4) Increased reproductive health education; and 5) Increased development of effective culturally appropriate interventions through collaborations with community partners. Additional data and information is available and those interested are encouraged to contact Hawaii PRAMS directly (see back cover for details).







# STATE OF HAWAII **PRAMS REPORT**

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