

**Hawai'i  
Pregnancy Risk Assessment  
Monitoring System  
(PRAMS)**

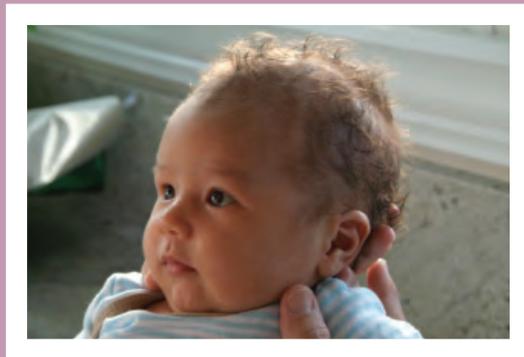
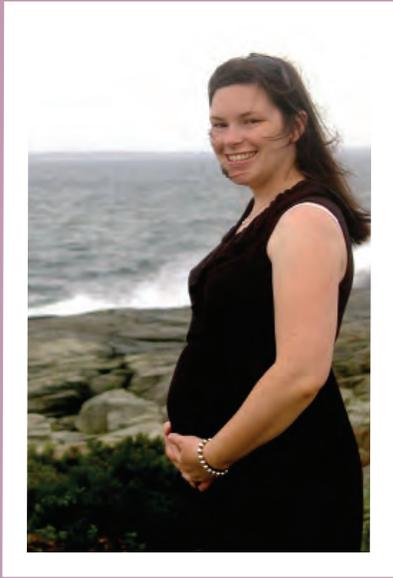
**Trend Report  
2000-2008**



Family Health  
Services Division



**August 2010**



## In an average year in Hawai'i\*...



18,350 babies are born.

2 in 3 moms don't take preconception vitamins.

8,300 pregnancies are unintended.

4 in 5 moms receive first trimester prenatal care.

2,700 moms report multiple stressful life events.

1 in 6 moms are obese before they got pregnant.

3,400 moms binge drink prior to pregnancy.

1 in 10 moms smoke during pregnancy.

500 moms report drug use during pregnancy.

1 in 4 babies are delivered by cesarean section.

1,200 moms report intimate partner violence.

2 in 5 moms saw a dentist during their pregnancy.

13,000 infants are breast fed at least eight weeks.

7 in 10 infants sleep on their backs.

2,800 moms report postpartum depression.

4 in 5 moms report postpartum contraception use.

600 infants are exposed to secondhand smoke.

\*Based on aggregated data from 2004-2008

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# Foreword

The Hawai‘i Department of Health has been collecting important information through the Pregnancy Risk Assessment Monitoring System (PRAMS) project from mothers about their experiences before and during pregnancy, and in the first few months postpartum since 2000. We are pleased to present the first Hawai‘i PRAMS Trend Report and believe it will be a valuable reference on maternal and infant health issues. The report highlights 16 indicators for the State of Hawai‘i and includes variation by year, county of residence, maternal race, and maternal age groups. The data can be used to help generate ideas and develop solutions for some highly preventable issues facing our families. It is my hope that this report will be a useful source of quantitative information to health policy makers, planners, and all of us in the community who share a common desire to improve the health of our mothers, children, and families.



Chiyome Leinaala Fukino, M.D.  
Director of Health

# PRAMS Overview

The Pregnancy Risk Assessment Monitoring System (PRAMS) is a Centers for Disease Control & Prevention (CDC) funded project with participation in 37 states, New York City, and South Dakota (Yankton Sioux Tribe). It is an ongoing population-based surveillance system to identify and monitor maternal behaviors and experiences before, during, and in the first few months after delivery. The data is used to monitor several Healthy People 2010 and other Maternal and Child Health objectives at the state and national level. In an effort to reduce infant mortality in 1987 the Division of Reproductive Health at CDC developed PRAMS. The systemic collection of information related to perinatal health is intended to inform the development of strategies to improve the health among mothers, their children, and their families. The survey is made up of a set of core questions that are asked by all participating states, and additional questions that are selected by individual states.

Hawai‘i started PRAMS in 1999 with the first full year of data collected in 2000. Hawai‘i PRAMS works in collaboration with the Hawai‘i Department of Health, Office of Health Status Monitoring (OHSM) to identify women who have a live birth in Hawai‘i. Of the approximately 18,350 births in Hawai‘i each year, about 200 surveys are sent out each month to mothers about 2 months after delivery, with regular follow up by mail and telephone up to 6 months postpartum. The survey is completed by 75% of mothers. Weighted estimates from Hawai‘i PRAMS are generalizable to all pregnant women having a live birth in the state. Thus, the results are not representative among those whose pregnancies did not result in a live birth. The estimates are weighted based on information from the birth certificate such as age, education, and race. This weighting accounts for differences in characteristics between those that responded and those that didn’t to develop estimates representative of the population. Information such as insurance is not available on the birth certificate so it can’t be used in the weighting process. Thus, some specific groups of insurance such as those on medicaid/QUEST may be underestimated in the PRAMS data if they didn’t respond to the survey at the same rate as other groups.

# PRAMS Overview

The Hawai‘i PRAMS steering committee is made up of staff in the Hawai‘i Department of Health and community stakeholders to provide oversight and guidance for the program. The core questions in the survey are changed every 3-5 years by CDC. The state selected questions are changed at the same time based on input from the Hawai‘i PRAMS steering committee. In 2007, PRAMS initiated discussions on revision of the survey that was implemented in 2009. A series of meetings were held with the steering committee to determine which state added questions would be included in the new survey expected to cover births from 2009-2011. Revisions to the 2012 survey have already started and will continue to involve the steering committee and experts from the CDC.

In this report, we have included the 95% confidence intervals (95% CI) in all the graphs to demonstrate the differences between the population groups. 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 in the population will be within the boundaries of the interval. Confidence intervals 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. On the other hand, if there is no overlap for the two groups, it can be concluded that the estimates are different from each other.

The data has been used in various ways in Hawai‘i. For example, a series of fact sheets on several perinatal issues have been developed and distributed. Some of these fact sheets have informed legislation and have been used by community groups to apply for grant opportunities, evaluate the needs of a community, and assist in the development of policies. Hawai‘i PRAMS data has been included in several national reports and analyses have been published in peer reviewed journal articles highlighting issues such as postpartum depression and prenatal care access in our population.

# Population Characteristics

The following tables highlight some of the basic characteristics of women and their related perinatal outcomes in Hawai‘i. The annual estimated population and the prevalence estimate for the entire population of women having a live birth in the state are shown. Also shown are the 95% CI which demonstrates the precision of the estimate which is partly dependent on the number of respondents who complete the survey and variability in their responses. The data was aggregated for the time period from 2004-2008 to generate stable estimates for the individual estimates by county, race, and maternal age groups.

There was an average annual estimate of 18,350 resident births in Hawai‘i over the time period. Almost three-quarters of all births occurred in those women 20-34 years of age. Approximately 18.0% of births were to mothers 35 years of age and over, while 8.3% were to those under 20 years of age.

The Hawaii Department of Health, Office of Health Status and Monitoring assigns all people that report more than once 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. Being of Hawaiian race represented just over a quarter of all births, followed by White race with 20.8% of births, Filipino race with 18.6% of births, and Japanese race with 12.0% of births for the time period. About 10% were classified as “All Others” which was made up of “Other Asian” (1.8% of all births), “Other Pacific Islander” (5.0% of all births), “Hispanic” (1.8% of all births), American Indian (1.4% of all births), and “refused/unknown” (0.3% of all births). The numbers were too small to further characterize these groups: “Other Asian” consisted of Vietnamese (n=73), Asian Indian (n=15), and all other Asians (n=64); “Other Pacific Islander” consisted of Guamanian (n=29) and all other pacific islanders (n=322); and “Hispanic” consisted of Mexican (n=104), Puerto Rican (n=34), and Cuban (n=3).

In nearly half of all births in the State of Hawai‘i, the mother had 12 or less years of education with just over a quarter reporting having completed college. Almost

# Population Characteristics

	<b>Estimated Annual Population (N)*</b>	<b>Weighted Percent Estimate* (%)</b>	<b>95% Confidence Interval*</b>	<b>Respondents (n)*</b>
<b>Maternal Age</b>				
Under 20 years	1,550	8.3	7.7-9.0	616
20-24 years	4,450	24.1	23.2-25.0	1,937
25-34 years	9,100	49.5	48.5-50.6	4,587
35 years and over	3,000	18.0	17.2-18.8	1,850
<b>Maternal Race</b>				
White	3,850	20.8	20.6-21.1	1,726
Black	450	2.4	2.1-2.8	172
Hawaiian	5,100	27.7	27.6-27.8	1,946
Samoan	550	2.9	2.6-3.3	218
Filipino	3,400	18.6	18.5-18.7	1,750
Japanese	2,200	12.0	11.5-12.6	1,035
Chinese	650	3.6	3.4-3.7	946
Korean	300	1.6	1.5-1.7	422
All Others	1,900	10.3	9.7-10.9	776
"Other Pacific Islander"	900	5.0	4.5-5.4	351
"Other Asian"	350	1.8	1.6-2.1	152
"Hispanic"	350	1.8	1.5-2.0	141
American Indian	250	1.4	1.2-1.7	107
"refused/unknown"	50	0.3	0.2-0.5	25
<b>Maternal Education</b>				
Less Than 12 Years	1,600	8.9	8.3-9.6	649
12 Years	7,200	39.9	38.9-40.9	3,140
Some College	4,550	25.0	24.2-25.9	2,321
College+	4,750	26.1	25.3-27.0	2,740
<b>Marital Status</b>				
Married	11,800	64.3	63.3-65.2	6,186
Other	6,600	35.7	34.8-36.7	2,805

\*Aggregated data from 2004-2008

# Population Characteristics

	Estimated Annual Population (N)*	Weighted Percent Estimate* (%)	95% Confidence Interval*	Respondents (n)*
<b>County of Residence</b>				
Hawai'i	2,350	12.8	12.1-13.5	1,035
Honolulu	13,150	71.6	70.6-72.5	6,656
Kauai	900	4.8	4.4-5.3	398
Maui	2,000	10.8	10.2-11.5	902
<b>Percent of Federal Poverty Level</b>				
0-100%	5,200	30.5	29.6-31.6	2,268
101-185%	3,500	20.7	19.8-21.6	1,649
186-300%	2,500	14.7	14.0-15.5	1,258
301% +	5,800	34.1	33.1-35.1	3,150
Missing				666
<b>Insurance Coverage for Prenatal Care</b>				
No coverage	350	2.1	1.8-2.4	179
Medicaid/QUEST	4,900	28.1	27.1-29.1	2,088
Private Insurance	9,600	54.9	53.8-55.9	5,043
Military	2,600	15.0	14.3-15.7	1,234
Missing				447
<b>Prenatal WIC Participation</b>	7,800	43.4	42.4-44.4	3,503
<b>Parity</b>				
First Birth	7,650	41.5	40.5-42.6	3,837
Second or Third Birth	8,700	47.2	46.2-48.2	4,239
Fourth or more Birth	2,050	11.3	10.6-12.0	914
<b>Premature Delivery</b>				
No	16,600	90.6	89.9-91.2	8,106
Yes	1,750	9.4	8.8-10.1	840
<b>Low Birth Weight</b>				
No	17,000	92.5	92.0-93.1	8,309
Yes	1,350	7.5	6.9-8.0	672
<b>OVERALL</b>	18,350	100		8,981

\*Aggregated data from 2004-2008

# Population Characteristics

two-thirds of the births occurred to mothers who were married at the time of the delivery. Almost three-quarters of the births occurred to mothers who reported a residence in Honolulu County. Smaller proportions and number of births were from Hawai‘i, Maui, and Kauai Counties.

Among all births in the State of Hawai‘i, almost one third occurred among mothers who reported income and household size that would put them at below 100% of the federal poverty level. Just over 20% of mothers were at the 101-185% of the federal poverty level. This demonstrates that just over half of those who have a live birth in the state meet the criteria for Medicaid/QUEST eligibility during pregnancy. Of the 8,500 women each year who are eligible based on federal poverty level for Medicaid/QUEST, about 3,500 women each year could potentially lose that coverage postpartum at eight weeks post partum unless the addition of the new infant or a change in their overall income would allow them to remain eligible at the 100% federal poverty level. Almost 15% reported levels consistent with being at a federal poverty level of 186 - 300%, and just over a third were over 300% of federal poverty level.

Health insurance coverage for prenatal care was reported by the majority of new mothers with only 2.1% reporting no coverage. Private insurance was the most common, followed by Medicaid/QUEST, and Military Insurance. In just over 40% of births in the state, the mothers were seen in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) during prenatal care.

Just over 40% of births occurred among first time mothers and nearly 60% of births were to mothers with one or two previous live births. A premature delivery, defined as less than 37 weeks of gestation, occurred in 9.4% of births. A low birth weight birth, defined as less than 2,500 grams, occurred in 7.5% of births for the time period.

# Unintended Pregnancy

## **Background:**

When pregnancies are intended and planned, there is greater opportunity and motivation for women and their partners to adopt or maintain positive health behaviors, often leading to improved infant outcomes. An unintended pregnancy is associated with late or inadequate prenatal care, intimate partner violence, low birth weight, infant deaths, and other adverse consequences to the mother and her infant. The U.S. Healthy People 2010 objective is to increase the proportion of intended pregnancies to 70%.

## **PRAMS Definition:**

An Unintended pregnancy was defined by a question among women who had a live birth about timing of the pregnancy. A report of wanting it “then” or “sooner” was considered an intended pregnancy, while wanting it “later” or “did not want then or at anytime in the future” was considered an unintended pregnancy. PRAMS data does not allow a determination of unintendedness among those pregnancies that did not result in a live birth.

## **Trends over Time:**

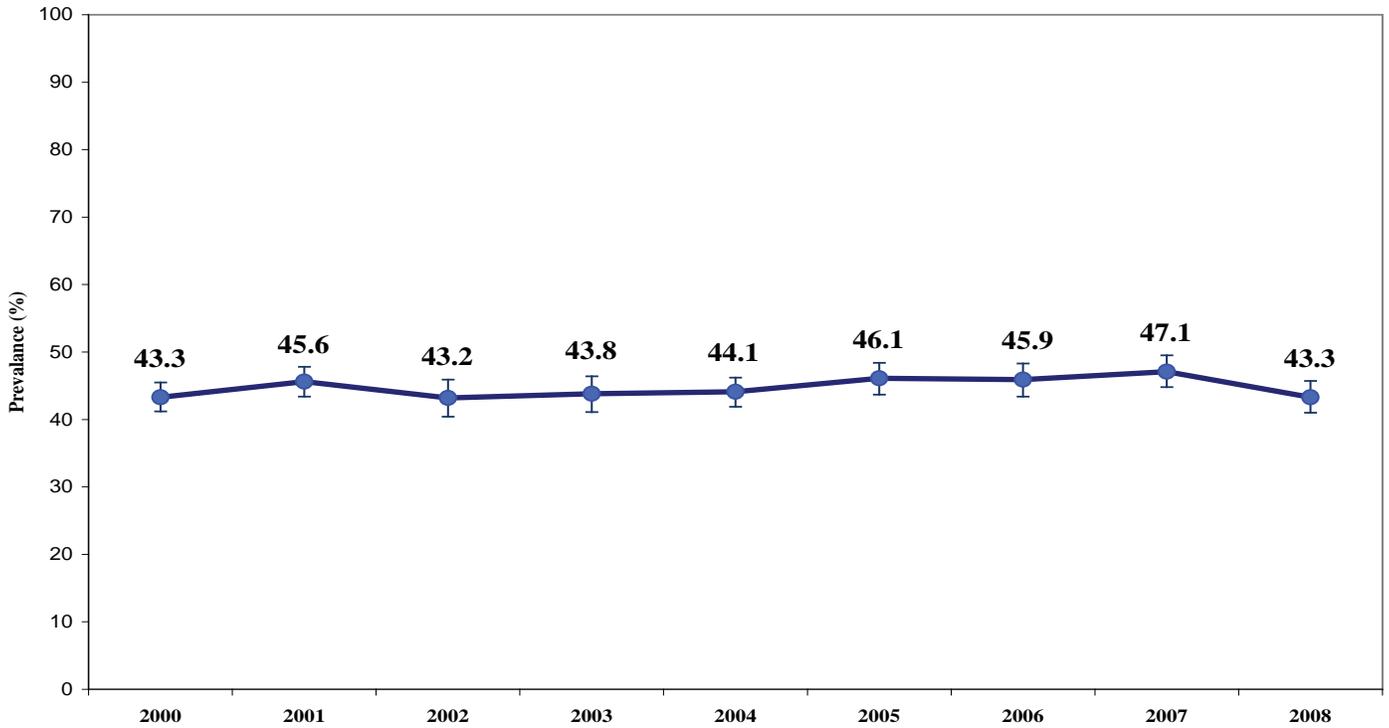
Although some fluctuation over time, there was some positive change with 43.3% in 2008 reporting an unintended pregnancy, compared to 47.1% in 2007.

## **Differences Related to County of Residence:**

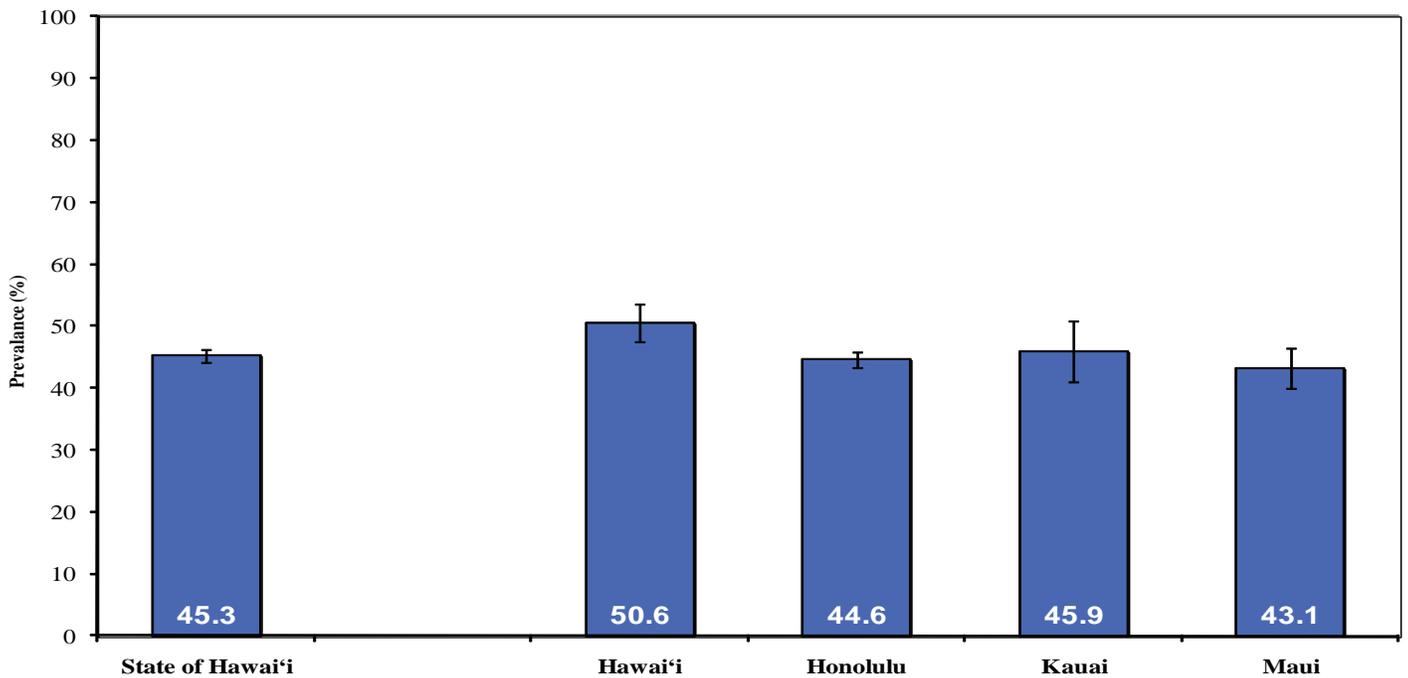
Overall, an estimated 45.3% reported having an unintended pregnancy. Those living in Hawai‘i County had the highest estimate, with Kauai County residents having slightly lower estimates. Those living in Honolulu and Maui Counties had similar estimates.

# Unintended Pregnancy

## Unintended Pregnancy, 2000-2008

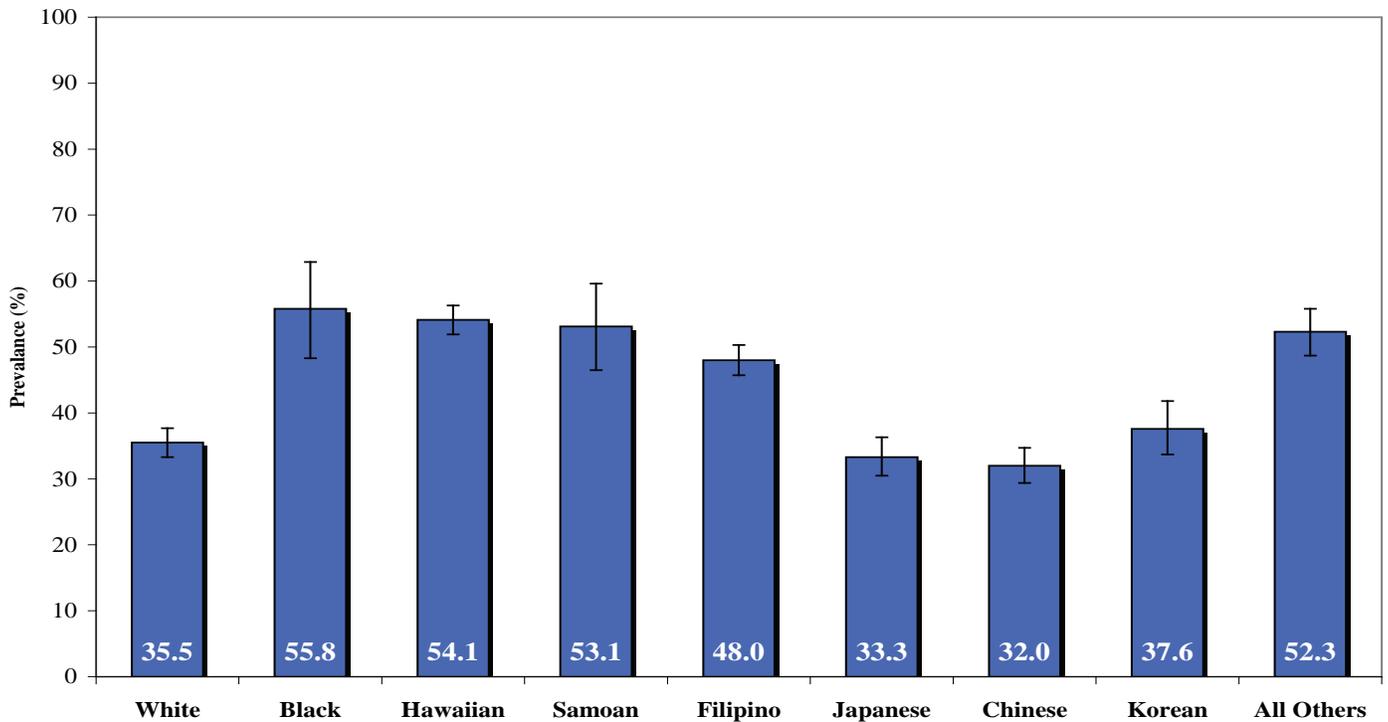


## Unintended Pregnancy by County, 2004-2008

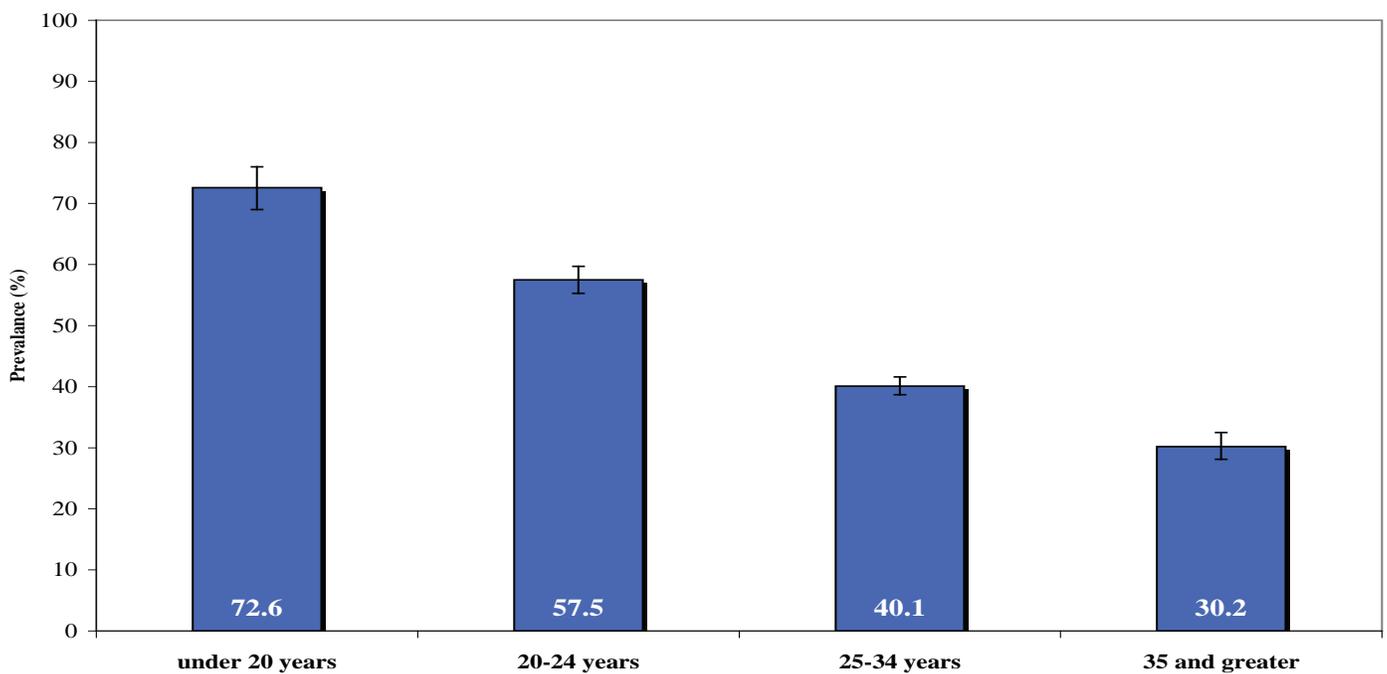


# Unintended Pregnancy

## Unintended Pregnancy by Race, 2004-2008



## Unintended Pregnancy by Age, 2004-2008



# Unintended Pregnancy

## **Differences Related to Maternal Race:**

Hawaiian, Black, Samoan, and the “All Others” mothers reported the highest estimates of unintendedness. Chinese, Japanese, White, and Korean mothers reported the lowest estimates of unintendedness. The high estimate in the “All Others” group was primarily attributed to the “Other Pacific Islander” (59.9%; 95% CI = 54.7-64.9) and “Hispanic” (49.3%; 95% CI = 41.3-57.4) groups.

## **Differences Related to Maternal Age:**

Women under 20 years of age and those aged 20-24 years of age were more likely to report the pregnancy being unintended with much lower rates of unintendedness among those 35 years and older.

## **Recommendations/Implications:**

There are significant disparities in the rate of unintended pregnancy with an estimated 45.3% of women who had a live birth reporting an unintended pregnancy. If pregnancies that did not result in a live birth are included, the estimate for unintended pregnancies would be even higher. Emphasizing the development of a reproductive health plan and ensuring access to effective family planning methods in all women of reproductive age could potentially decrease the impact and costs associated with an unintended pregnancy. Particular focus may include those living in Hawai‘i and Kauai Counties; those of Hawaiian, Black, Samoan, “Other Pacific Islander,” and “Hispanic” race; and those under 25 years of age. Other potential correlates that would be beneficial to explore include those related to substance use, insurance coverage, and socio-economic conditions before pregnancy due to their relationships with having an unintended pregnancy.

# Preconception Vitamin

## **Background:**

Multivitamins or prenatal vitamins typically contain folic acid that can reduce the risk of neural tube defects (NTD), particularly spina bifida and anencephaly, when taken in sufficient amounts during the first month of pregnancy. Studies have shown that 400 micrograms of folic acid taken daily before pregnancy can reduce the risk of having a child with a NTD by 50%. The U.S. Healthy People 2010 objective is to increase the daily intake of folic acid up to 80%, or have less than 20% reporting an inadequate intake, among all women of childbearing age.

## **PRAMS Definition:**

Inadequate preconception vitamin is defined as intake of multivitamins or prenatal vitamins on average < 4 times a week in the month before pregnancy.

## **Trends over Time:**

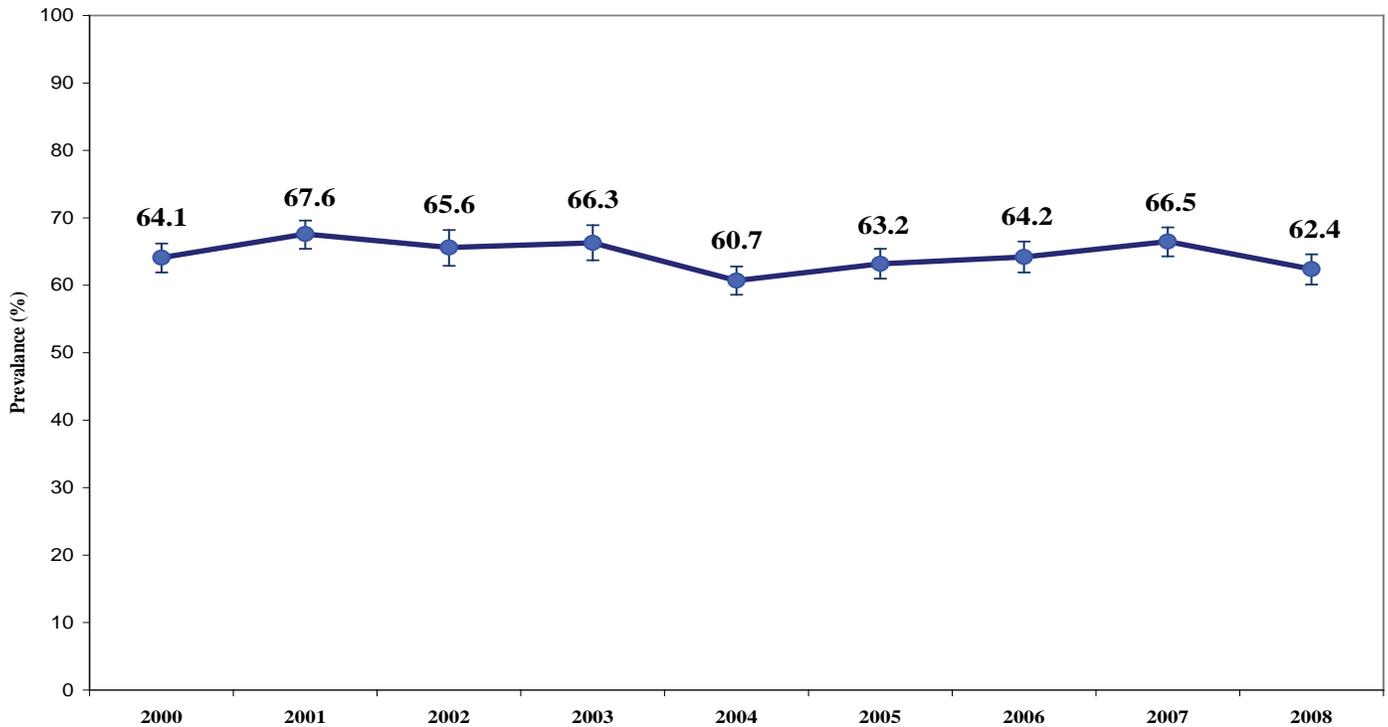
Although some fluctuation overtime, there was minimal change with 62.4% in 2008 reporting an inadequate intake of preconception vitamins in the month before pregnancy, compared to 64.1% in 2000.

## **Differences Related to County of Residence:**

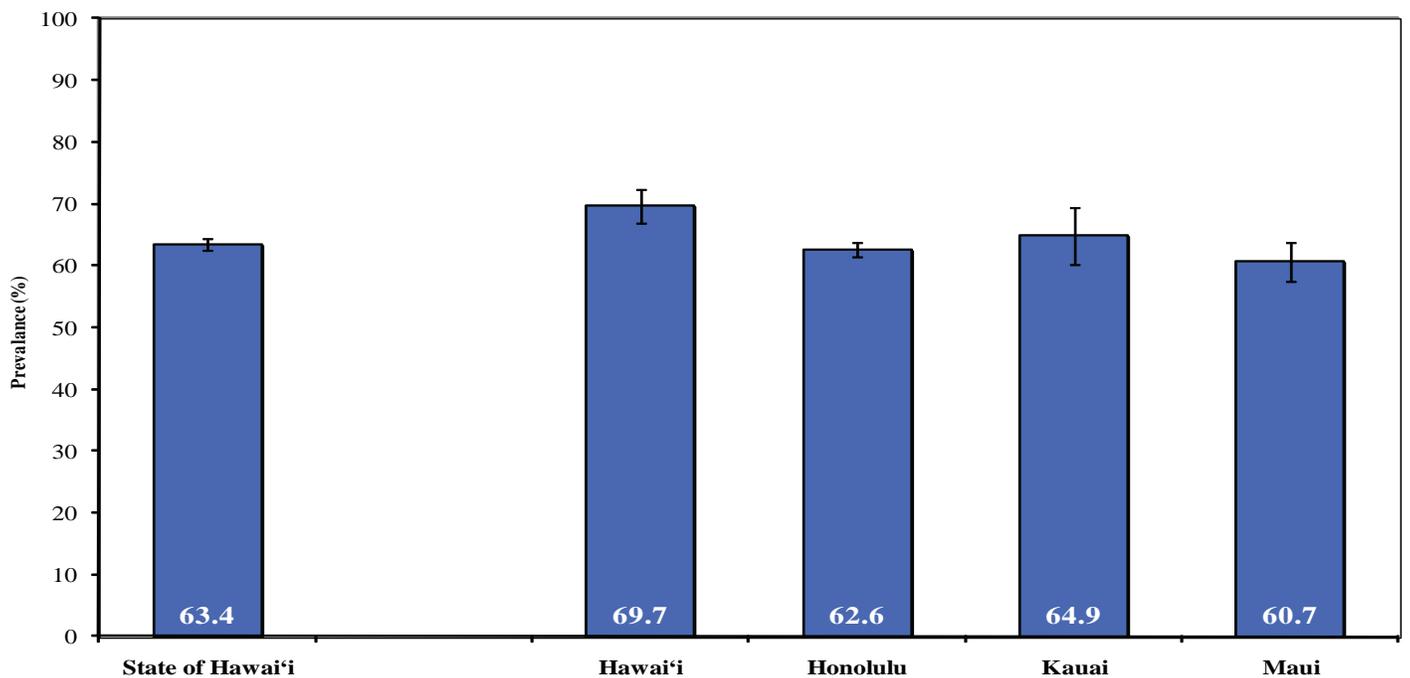
Overall, an estimated 63.4% did not take an adequate amount of preconception vitamins in the month before pregnancy. Those living in Hawai'i County had the highest estimates of inadequate intake, while those living in Maui and Honolulu County had the lowest estimates.

# Preconception Vitamin

## Inadequate Preconception Vitamin Use, 2000-2008

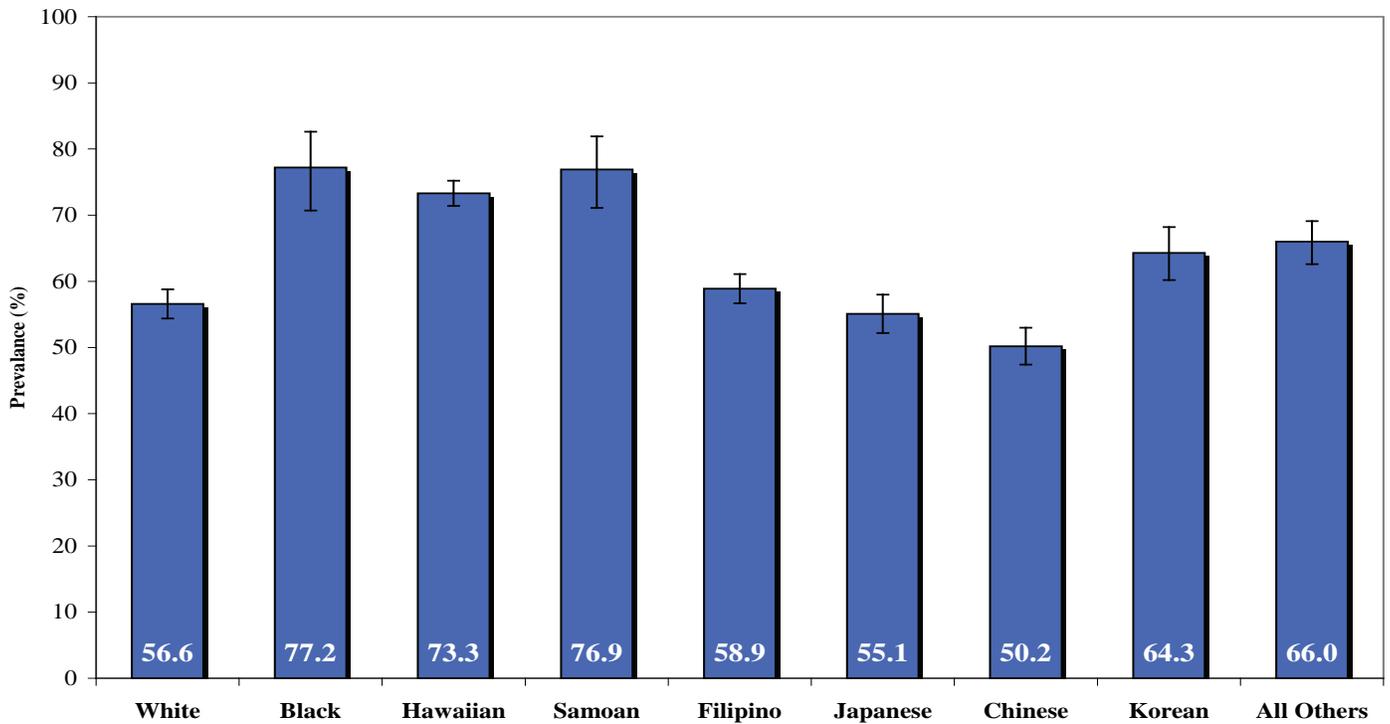


## Inadequate Preconception Vitamin Use by County, 2004-2008

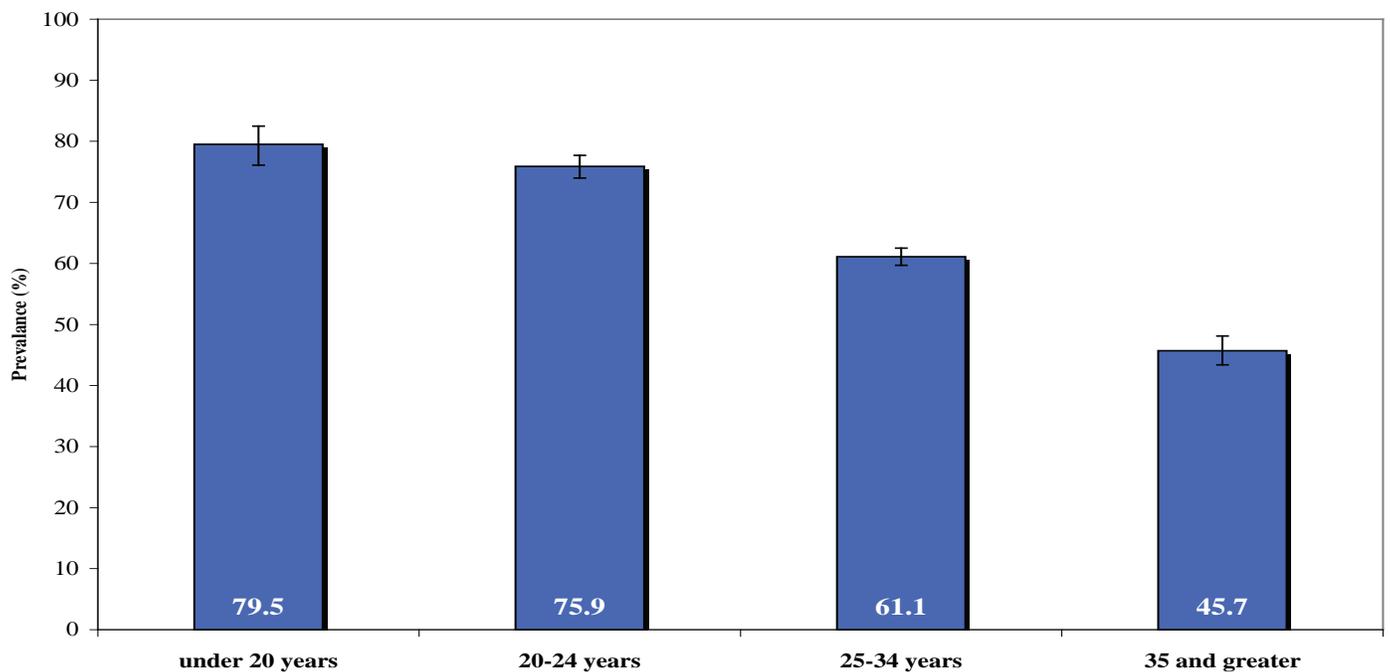


# Preconception Vitamin

## Inadequate Preconception Vitamin Use by Race, 2004-2008



## Inadequate Preconception Vitamin Use by Age, 2004-2008



# Preconception Vitamin

## **Differences Related to Maternal Race:**

Chinese, Japanese, White, and Filipino mothers reported the lowest estimates of inadequate intake of preconception vitamins. Samoan, Black, Hawaiian, “All Others” and Korean mothers reported the highest estimates of inadequate preconception vitamins. The high estimate in the “All Others” group was primarily attributed to the “refused/unknown” (77.1%; 95 CI = 56.7-89.7) and American Indian (71.6%; 95% CI = 62.7-79.1) groups.

## **Differences Related to Maternal Age:**

Women under 20 and those aged 20-24 years of age were more likely to take an inadequate amount of preconception vitamins. Those 35 years and older had the lowest estimate of inadequate intake of preconception vitamins.

## **Recommendations/Implications:**

There are significant disparities in the use of preconception vitamins during a critical period of infant development. An estimated 63.4% of women who had a live birth reported an inadequate intake of preconception vitamins with significant differences by geography, maternal race, and age. The Healthy People 2010 objective of <20% of all women of reproductive age taking an inadequate amount of folic acid on a daily basis is not being met in Hawai‘i, even among those that are likely to benefit the most (those that got pregnant). Emphasizing the use of vitamins in all women of reproductive age could potentially decrease birth defects associated with inadequate folic acid intake. Prenatal vitamins are not covered by insurance until a woman is already confirmed to be pregnant so the beneficial effect related to preventing neural tube defects in the first month after conception may not be realized due to costs and access. Particular focus may include those living in Hawai‘i County; those of Samoan, Hawaiian, Black, Korean, and American Indian race; and those under 25 years of age. Other potential correlates that would be beneficial to explore include those related to poverty and socio-economic conditions.

# First Trimester Prenatal Care

## **Background:**

Early identification of maternal disease and risks for complications of pregnancy or birth are the primary reasons for first trimester entry into prenatal care. This can help ensure that women with complex problems and women with chronic illness or other risks are seen by specialists if required. Early high quality prenatal care is critical to improving pregnancy outcomes. The U.S. Healthy People 2010 Objective is to increase the proportion of pregnant women who receive prenatal care in the first trimester of pregnancy to 90%.

## **PRAMS Definition:**

First trimester prenatal care was defined by the birth certificate variable for the month that prenatal care began within the first three months. If the response was missing from the birth certificate, the PRAMS variable for number of weeks (<13) or months ( $\leq 3$ ) that they reported as their first prenatal care visit was used.

## **Trends over Time:**

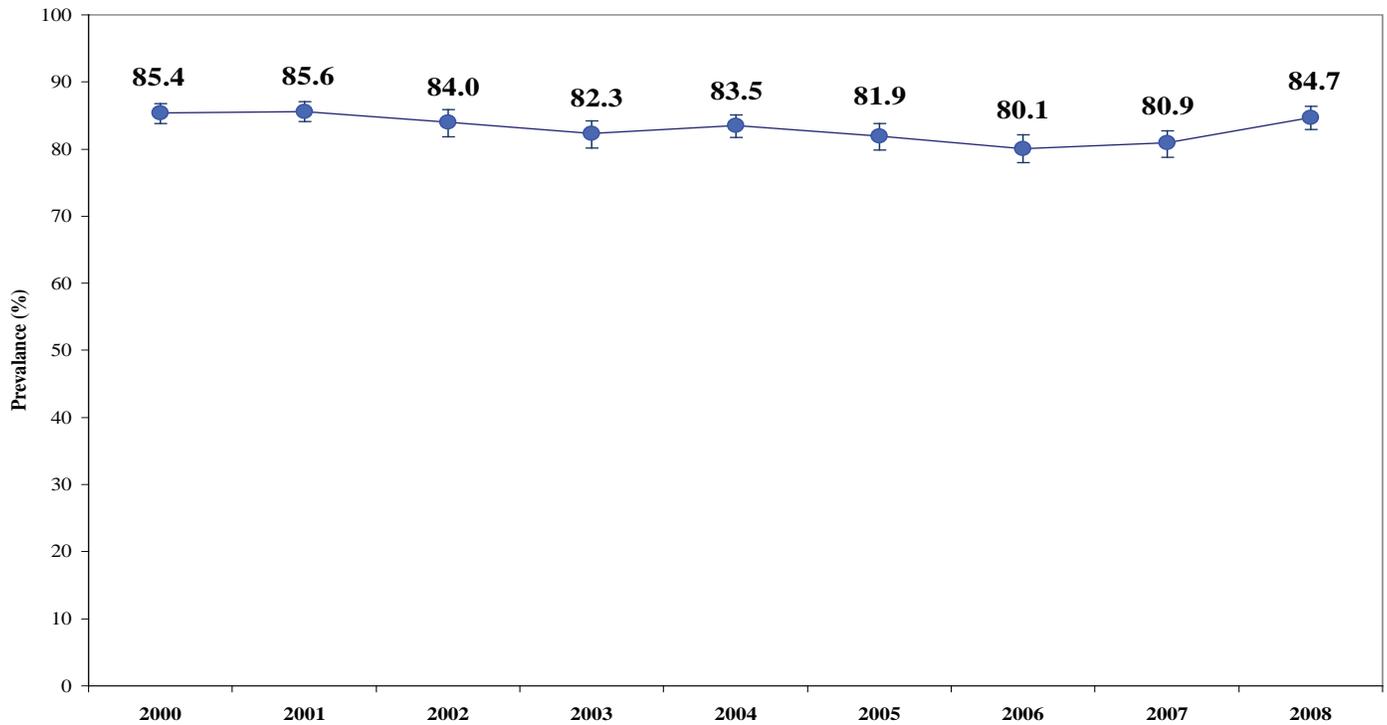
There was a steady decrease in first trimester prenatal care from 2001 to 2006 with a low 80.1% in 2006, there was a slight improvement to 84.7% in 2008 however, it was still below the 2000 percentage of 85.4%.

## **Differences Related to County of Residence:**

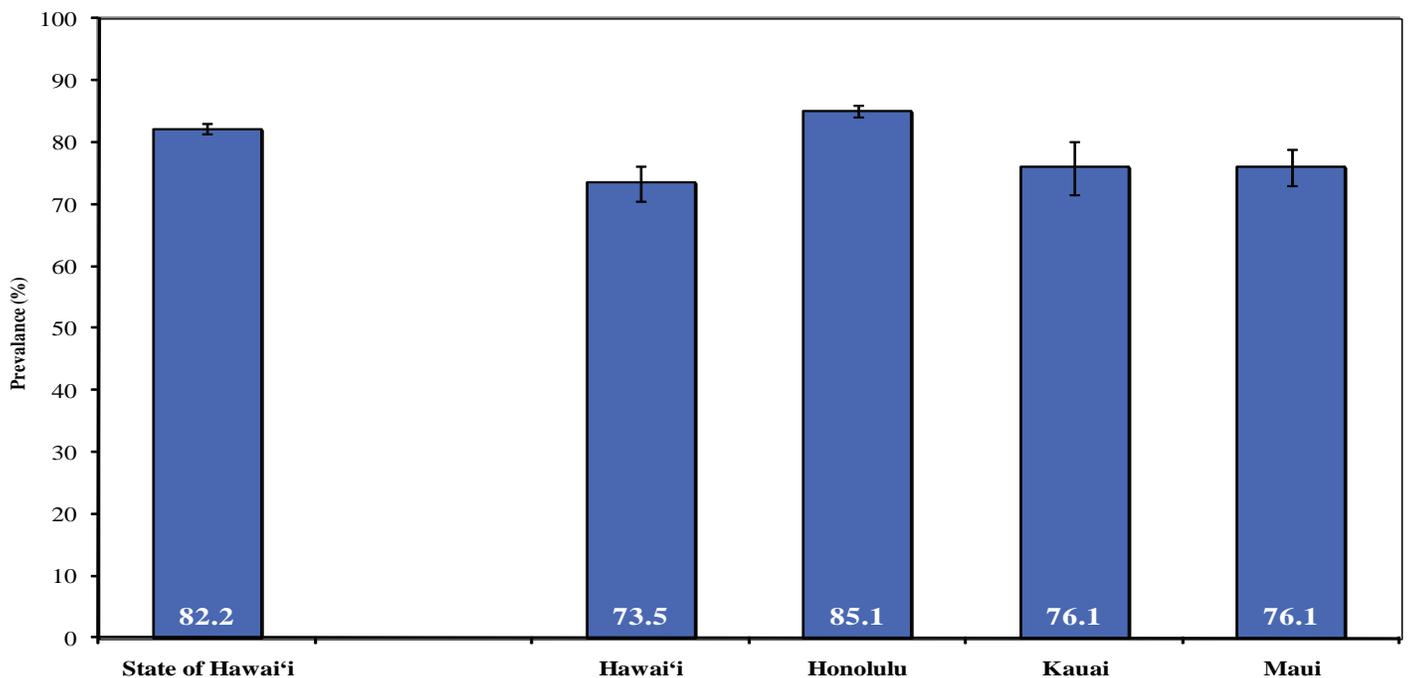
Overall, an estimated 82.2% received prenatal care within the first three months of the pregnancy. Those living in Kauai, Maui, and Hawai'i Counties had lower estimates of first trimester prenatal care compared to those living in Honolulu County.

# First Trimester Prenatal Care

## First Trimester Prenatal Care, 2000-2008

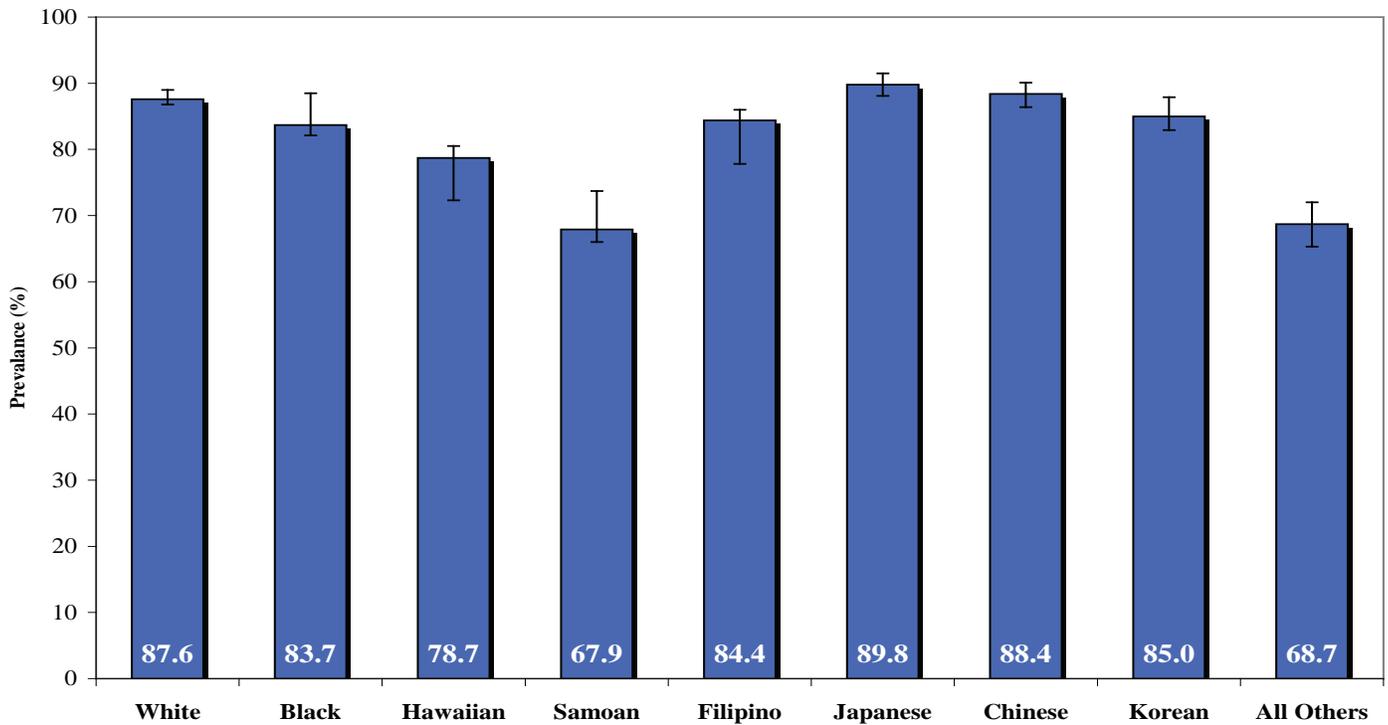


## First Trimester Prenatal Care by County, 2004-2008

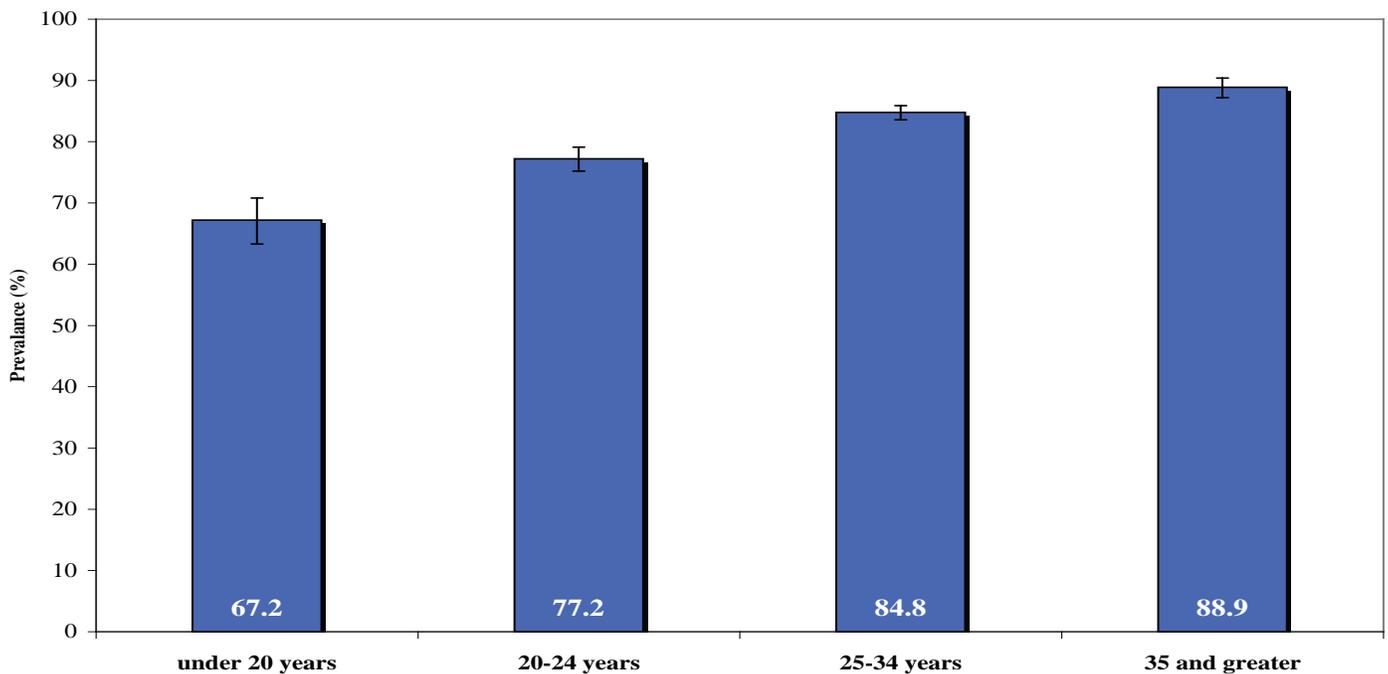


# First Trimester Prenatal Care

## First Trimester Prenatal Care by Race, 2004-2008



## First Trimester Prenatal Care by Age, 2004-2008



# First Trimester Prenatal Care

## **Differences Related to Maternal Race:**

Samoan, Hawaiian, and those reporting “All Others” race reported the lowest estimates of first trimester prenatal care. Chinese, Japanese, and White mothers reported the highest estimates of first trimester prenatal care. The high estimate in the “All Others” group was primarily attributed to the “Other Pacific Islander” (57.2%; 95% CI = 51.9-62.4) group.

## **Differences Related to Maternal Age:**

Women under 20 years of age and those aged 20-24 years of age were less likely to obtain first trimester prenatal care. Those 25 years and older had higher estimates of first trimester prenatal care with nearly 90% of those 35 years or more reporting first trimester prenatal care.

## **Recommendations/Implications:**

There are significant disparities in first trimester prenatal care with an estimated 82.2% of women who had a live birth receiving prenatal care in the first trimester. The Healthy People 2010 objective of 90% of all pregnant women to receive prenatal care in the first trimester is not being met in Hawai‘i, and is actually headed in a worsening direction. Emphasizing the importance of prenatal care and minimizing barriers in receiving early prenatal care is needed to change these trends. Eligibility for public insurance coverage is expanded to 185% of Federal Poverty Level once a woman becomes pregnant, but there may be difficulty accessing care in the first trimester due to appointment availability and distribution of providers. Particular focus may include those living on neighbor islands; those of Samoan, Hawaiian, and “Other Pacific Islander” race; and those under 25 years of age. Other potential correlates that would be beneficial to explore to improve access to first trimester prenatal care may include those related to poverty and socio-economic conditions, and work force issues such as the availability and distribution of providers.

# Stressful Life Events

## **Background:**

Experiencing stressful life events can affect a woman's health and result in poor health practices as a way to alleviate the stress. Poor health practices such as smoking, drinking, poor diet, lack of exercise, unsafe sexual activity, and poor hygienic practices, can adversely affect an unborn child. In addition, there are several theories that stress may be biologically linked with prematurity and other adverse outcomes.

## **PRAMS Definition:**

Stressful life events was defined by the occurrence of at least 4 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/mother lost job;" "argued with partner/husband more than usual;" "husband/partner said he did not want me to be pregnant;" "couldn't pay bills;" "was in a physical fight;" "partner/husband went to jail;" "someone close had bad problem with drinking or drugs;" or "someone very close died."

## **Trends over Time:**

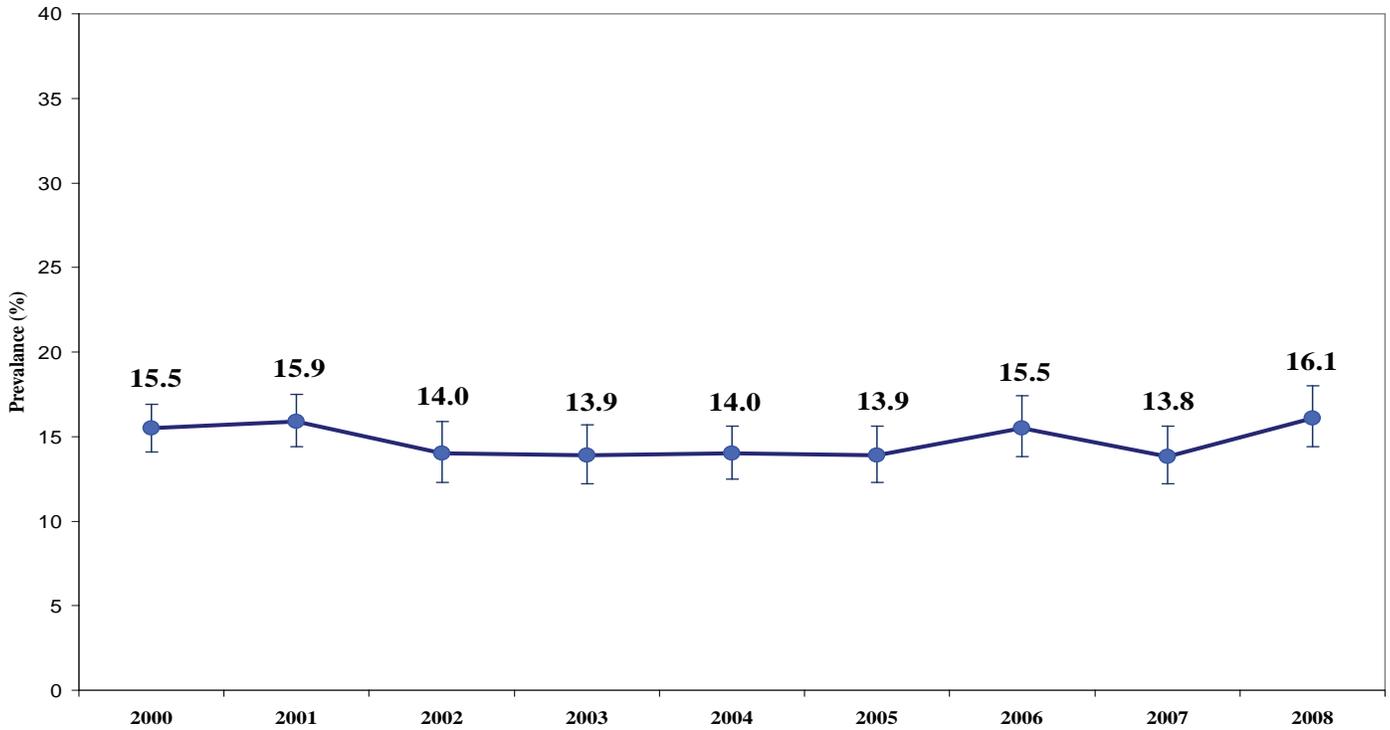
Fluctuation over time with estimates between 13.8% and 16.1% since 2000. There was a recent increase from 13.8% in 2007 to 16.1% in 2008.

## **Differences Related to County of Residence:**

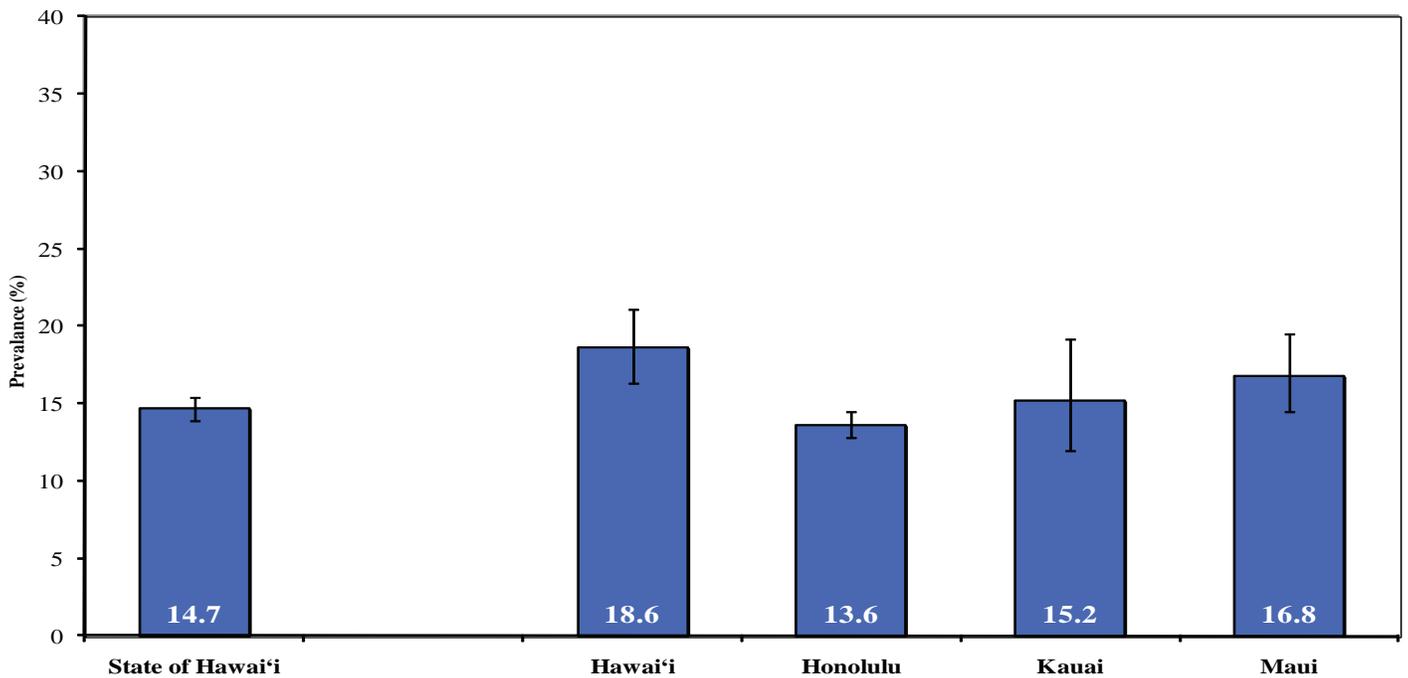
Overall, an estimated 14.7% reported stressful life events. Those living in Hawai'i, Maui, and Kauai Counties had higher estimates compared to those living in Honolulu County.

# Stressful Life Events

Stressful Life Events, 2000-2008

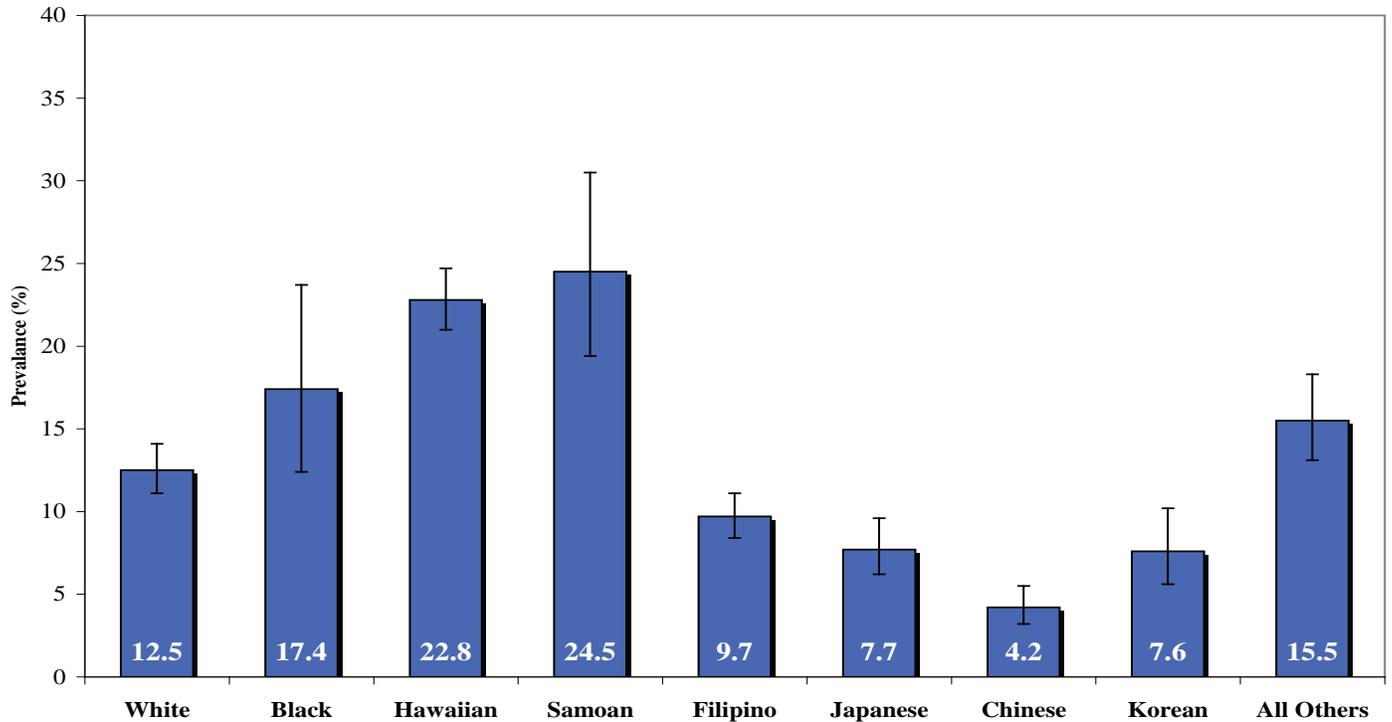


Stressful Life Events by County, 2004-2008

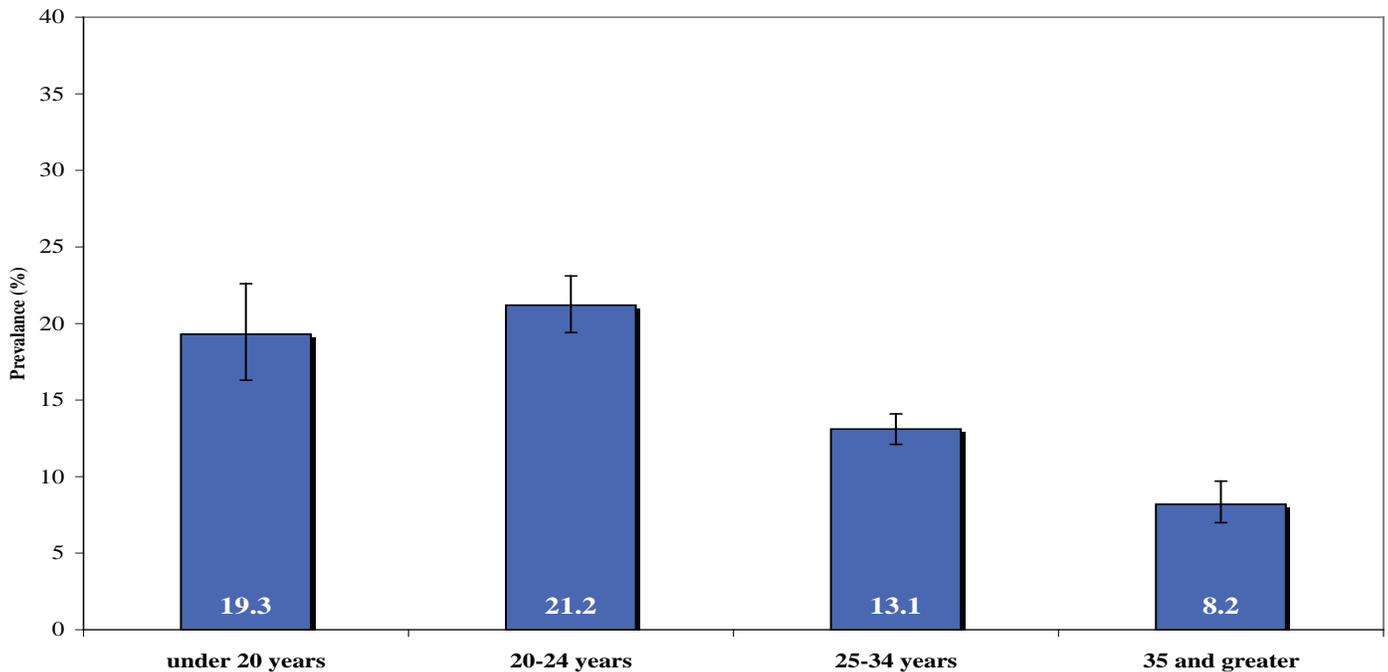


# Stressful Life Events

## Stressful Life Events by Race, 2004-2008



## Stressful Life Events by Age, 2004-2008



# Stressful Life Events

## **Differences Related to Maternal Race:**

Samoan and Hawaiian mothers reported the highest estimates of stressful life events, with Black, White, and those in the “All Others” group having intermediate rates. Lowest rates of stressful life events were reported among Chinese, Japanese, Korean, and Filipino mothers. The intermediate rate in the “All Others” was primarily attributed to American Indian (26.1%; 95% CI = 18.7-35.3), “refused/unknown” (25.5%; 95% CI = 11.6-47.4), and “Other Pacific Islander” (18.0%; 95% CI = 14.3-22.3) groups.

## **Differences Related to Maternal Age:**

Women under 20 years of age and those aged 20-24 years of age were more likely to report stressful life events, with much lower estimates in those 25 years and older. Those 35 or more years of age reported the lowest estimates of stressful life events.

## **Recommendations/Implications:**

There are significant disparities in the reporting of stressful life events with an estimated 14.7% of women who had a live birth reporting at least four stressful life events during the 12 months before the birth of their baby. There are significant differences by geography, maternal race, and age. Emphasizing the importance of coping skills and ensuring adequate support for all pregnant women may improve birth outcomes. In order to decrease disparities, particular focus may include specific attention to those living on neighbor islands; those of Samoan, Hawaiian, American Indian, and “Other Pacific Islander” race; and those under 25 years of age. Other potential correlates that would be beneficial to explore include those related to poverty and socio-economic conditions as they contribute to the experience of stressful life events.

# 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. Additionally, obesity is associated with poor female reproductive health and pre-pregnancy obesity has been found to be an independent risk factor for adverse pregnancy and neonatal outcomes. Pregnancy complications associated with obesity include gestational diabetes, gestational hypertension, pre-eclampsia, and cesarean delivery.

## **PRAMS Definition:**

Self-reported height and weight prior to pregnancy was used to calculate a body mass index (weight in kilograms divided by the height in meters-squared). A 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:**

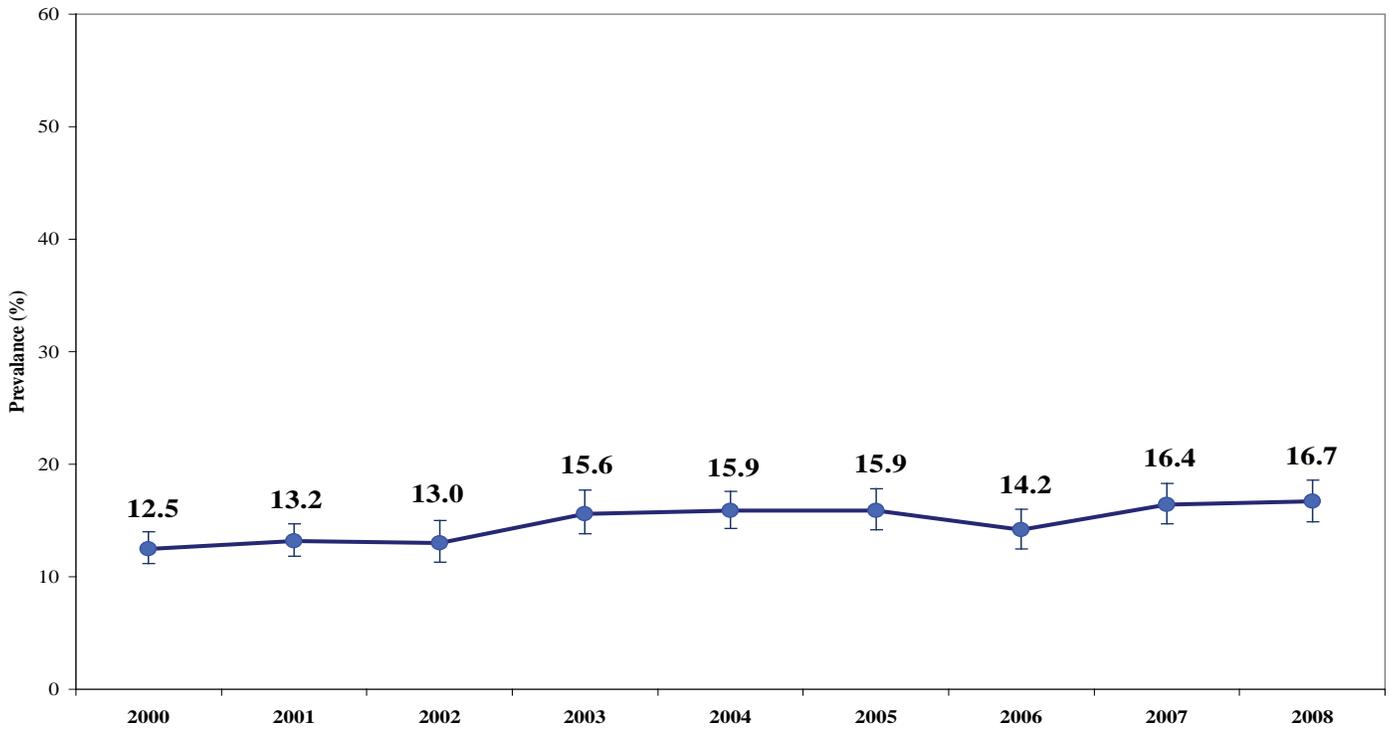
The estimates of preconception obesity have steadily increased over time with 16.7% of mothers reporting preconception obesity in 2008, compared to 12.5% in 2000.

## **Differences Related to County of Residence:**

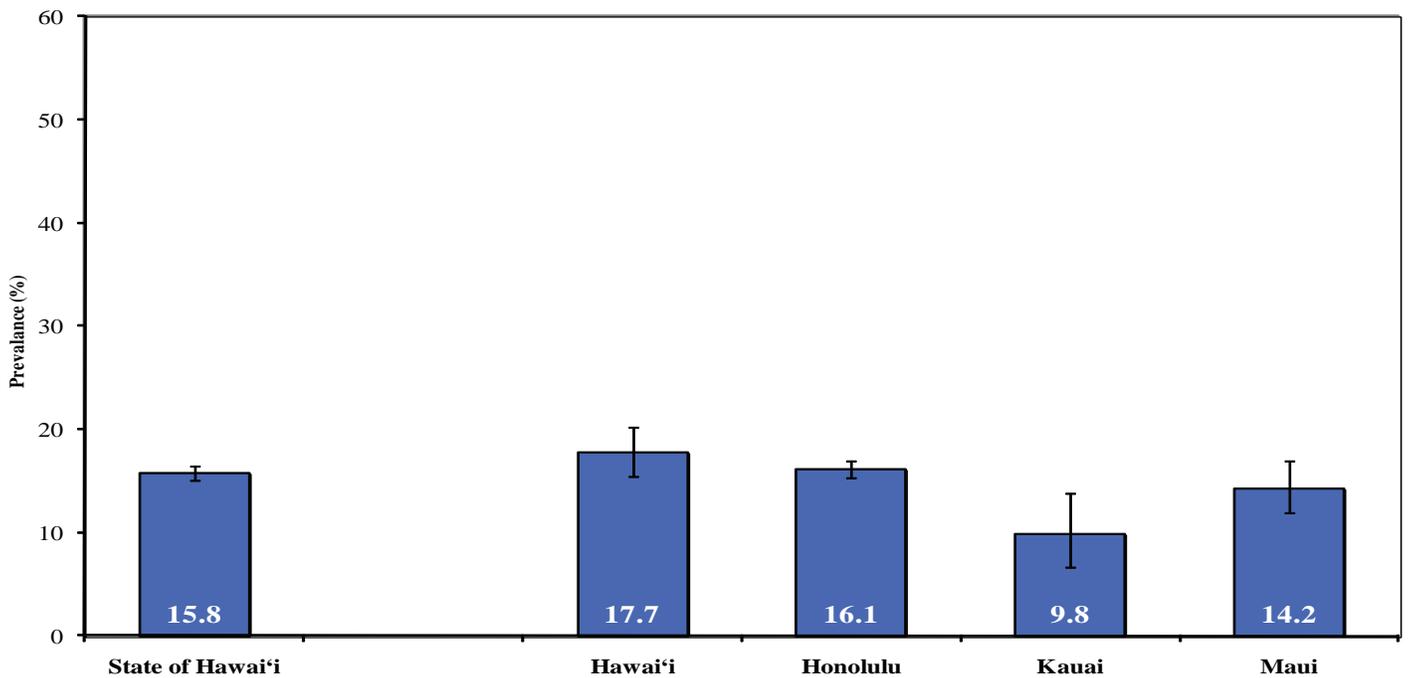
Overall, an estimated 15.8% of mothers had preconception obesity. Those living in Hawai'i County had the highest estimates of preconception obesity, while those living in Kauai County had the lowest estimate.

# Preconception Obesity

## Preconception Obesity, 2000-2008

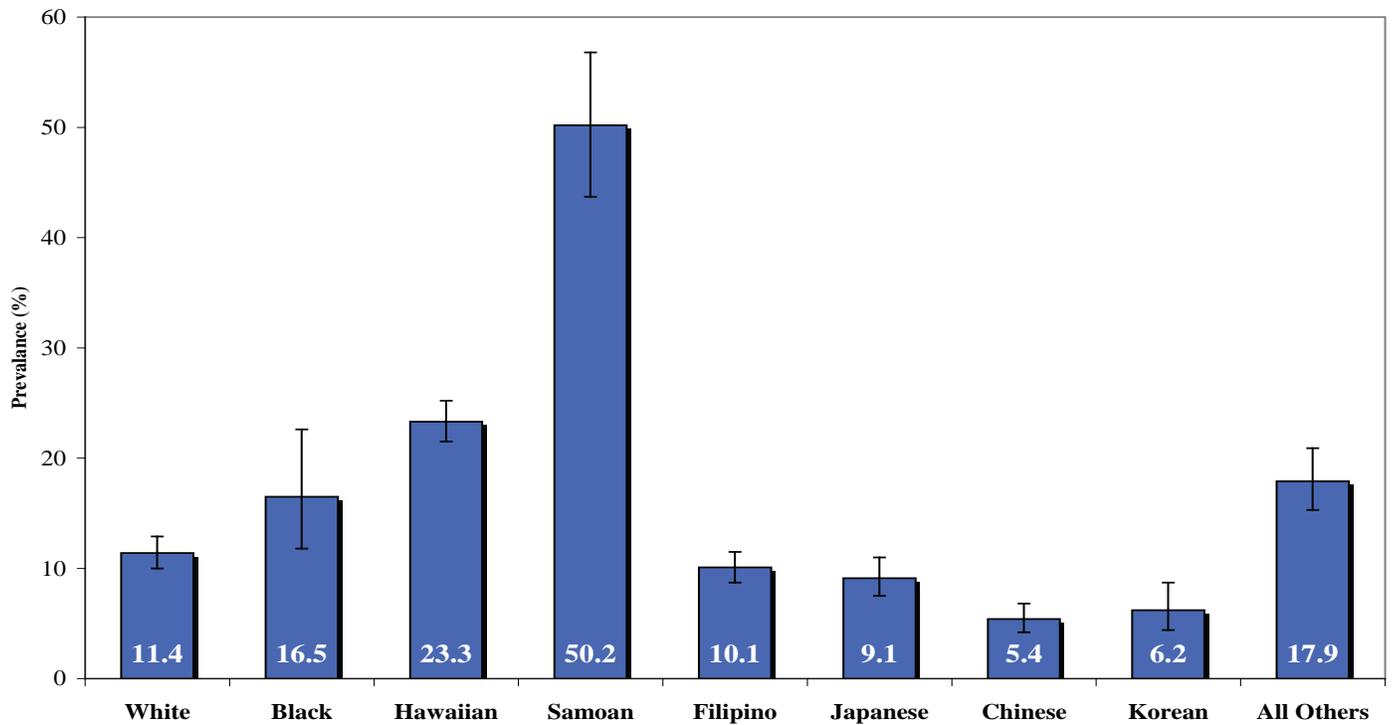


## Preconception Obesity by County, 2004-2008

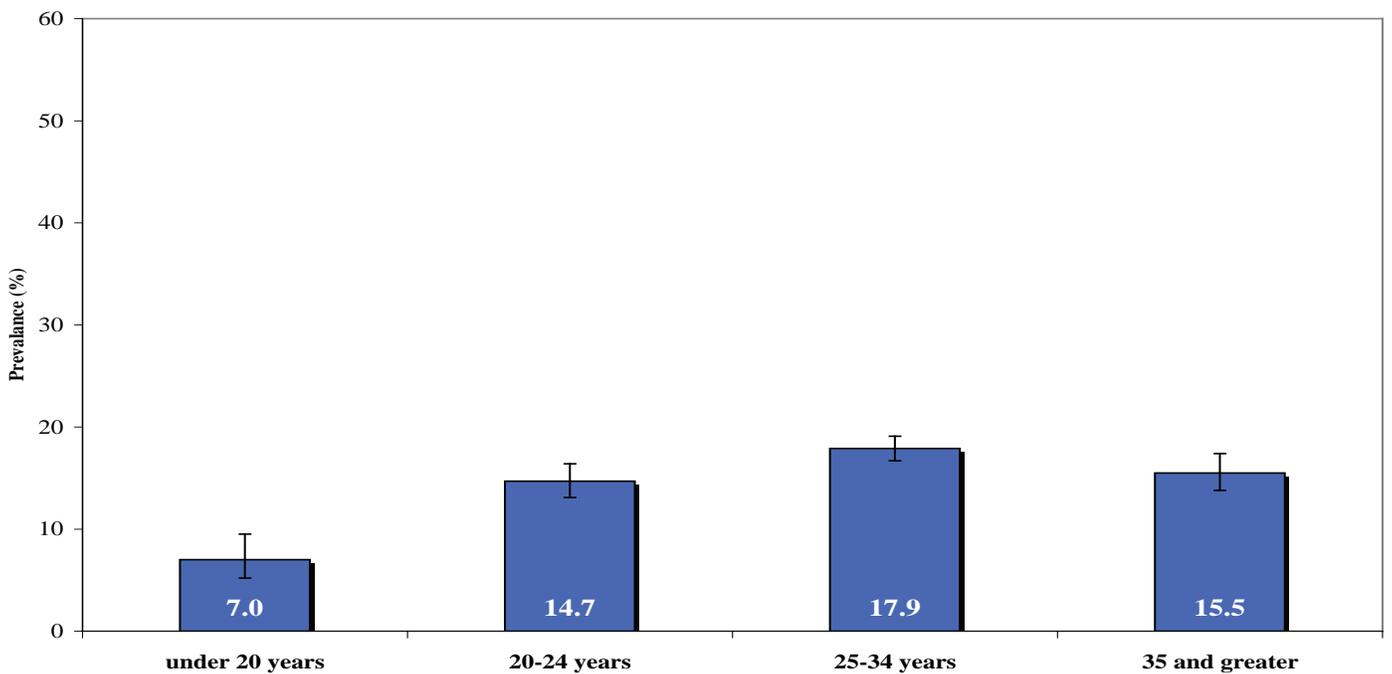


# Preconception Obesity

## Preconception Obesity by Race, 2004-2008



## Preconception Obesity by Age, 2004-2008



# Preconception Obesity

## **Differences Related to Maternal Race:**

Half of Samoan and nearly a quarter of Hawaiian mothers had preconception obesity. Korean, Chinese, Japanese, and Filipino mothers had the lowest estimates while White, and those in the “All Others” group had intermediate estimates of preconception obesity. The intermediate estimate in the “All Others” was primarily attributed to “Other Pacific Islander” (27.7%; 95% CI = 23.2-32.8) group. Those in the “refused/unknown” (15.1%; 95% CI = 5.1-37.0), American Indian (14.9%; 95% CI = 9.4-22.8), and “Hispanic” (13.2%; 95% CI = 8.6-19.6) groups also had elevated estimates.

## **Differences Related to Maternal Age:**

Women under 20 years of age had the lowest estimates of preconception obesity, while those aged 20-24, 25-34, and 35 and older had similar estimates.

## **Recommendations/Implications:**

There are significant disparities in the estimates of preconception obesity. An estimated 15.8% of women who had a live birth report heights and weights consistent with preconception obesity. There are significant differences by geography, maternal race, and age. Emphasizing physical activity and proper nutrition in women of reproductive age could decrease the impact of obesity on birth outcomes. Additionally, the reduction of obesity would improve the health status of all and likely decrease the development of chronic conditions and their associated costs. Particular focus may include those living on Hawai‘i County; those of Samoan, Hawaiian, “Other Pacific Islander,” American Indian, and “Hispanic” race; and those 20 years of age and older. Other potential correlates that would be beneficial to explore include those related to poverty and socio-economic conditions as they are likely related to preconception obesity.

# Binge Drinking Prior to Pregnancy

## **Background:**

Any consumption of alcohol at any time during pregnancy is considered unsafe to the developing fetus. Research has determined that binge drinking during early pregnancy is especially deleterious for the fetus. 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.

## **PRAMS Definition:**

Binge drinking was defined by the reported intake of 5 or more drinks in one sitting at least once in the 3 months before becoming pregnant. The question changed significantly in the survey in 2004 so this report only includes data from 2004 to 2008.

## **Trends Over Time:**

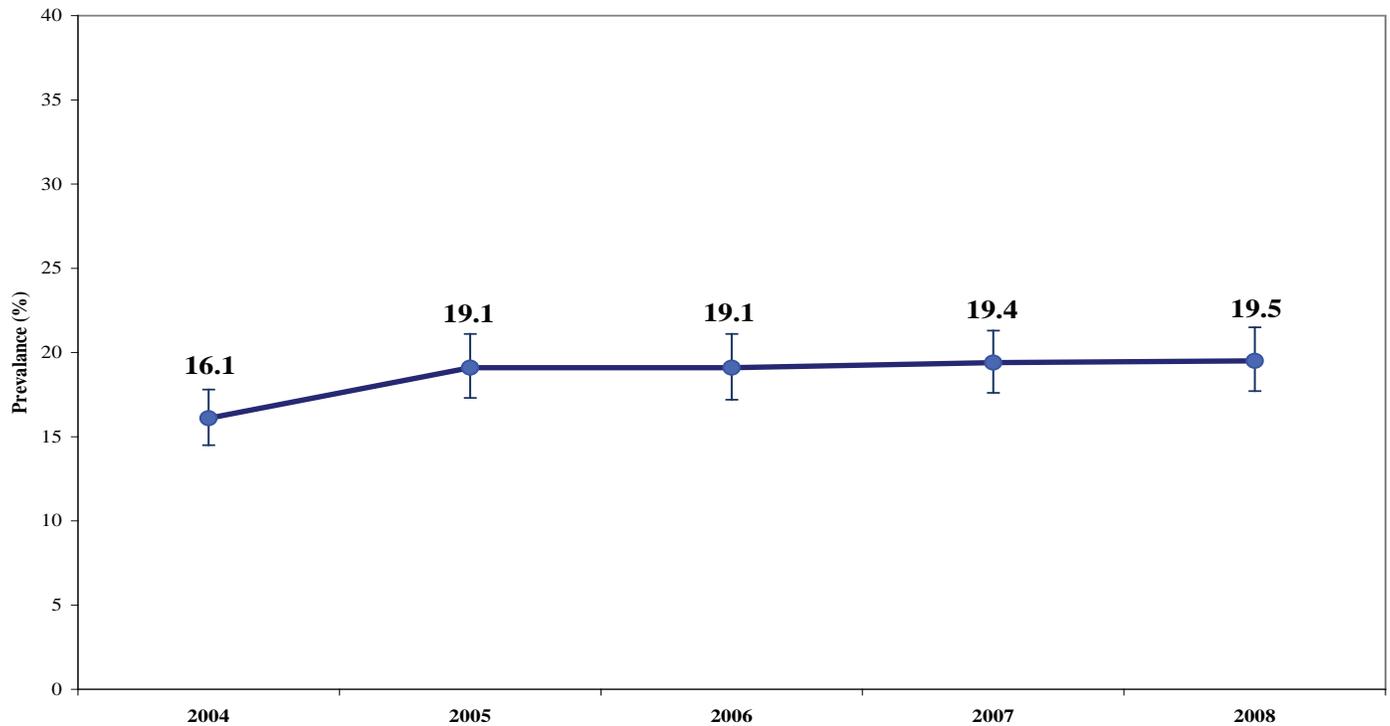
Some increase over time with an estimated 19.5% of mothers reporting binge drinking in the 3 months prior to pregnancy in 2008, compared to 16.1% in 2004.

## **Differences Related to County of Residence:**

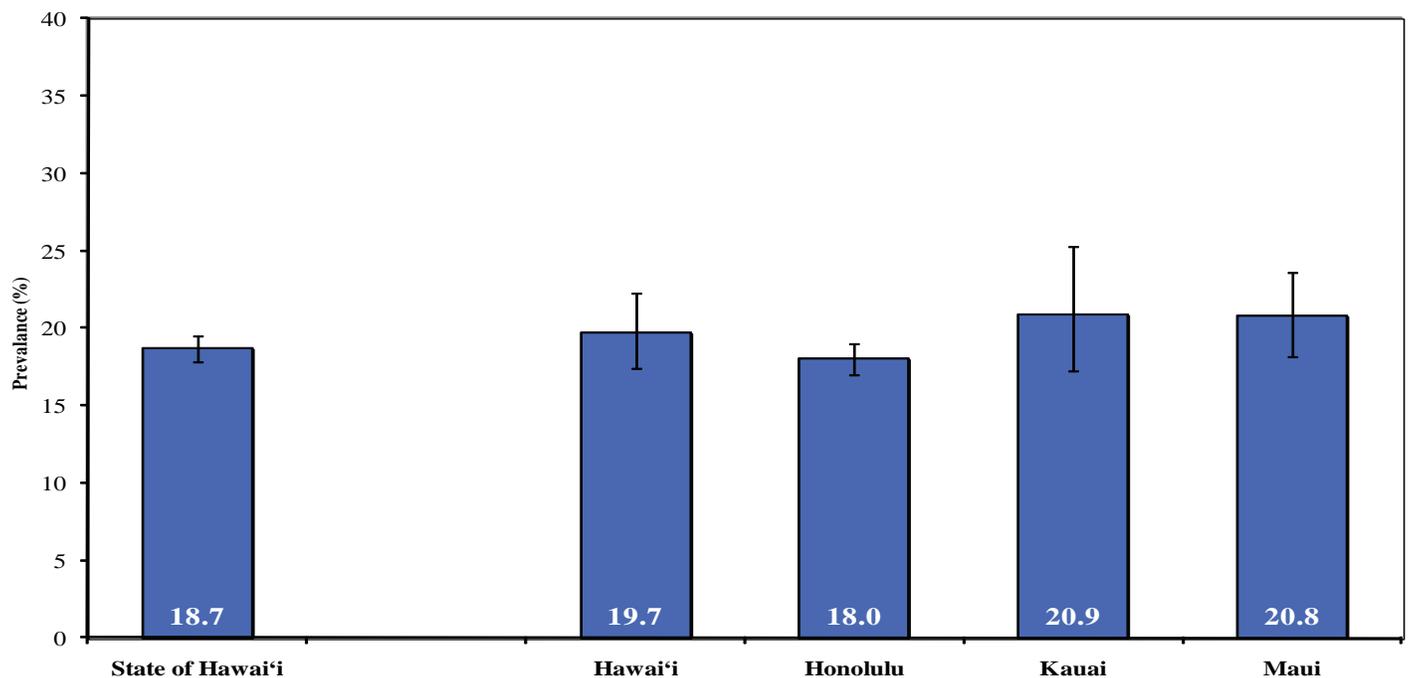
Overall, an estimated 18.7% of mothers reported binge drinking in the 3 months prior to pregnancy, with estimates similar across all Counties.

# Binge Drinking Prior to Pregnancy

## Binge Drinking Prior to Pregnancy, 2004-2008

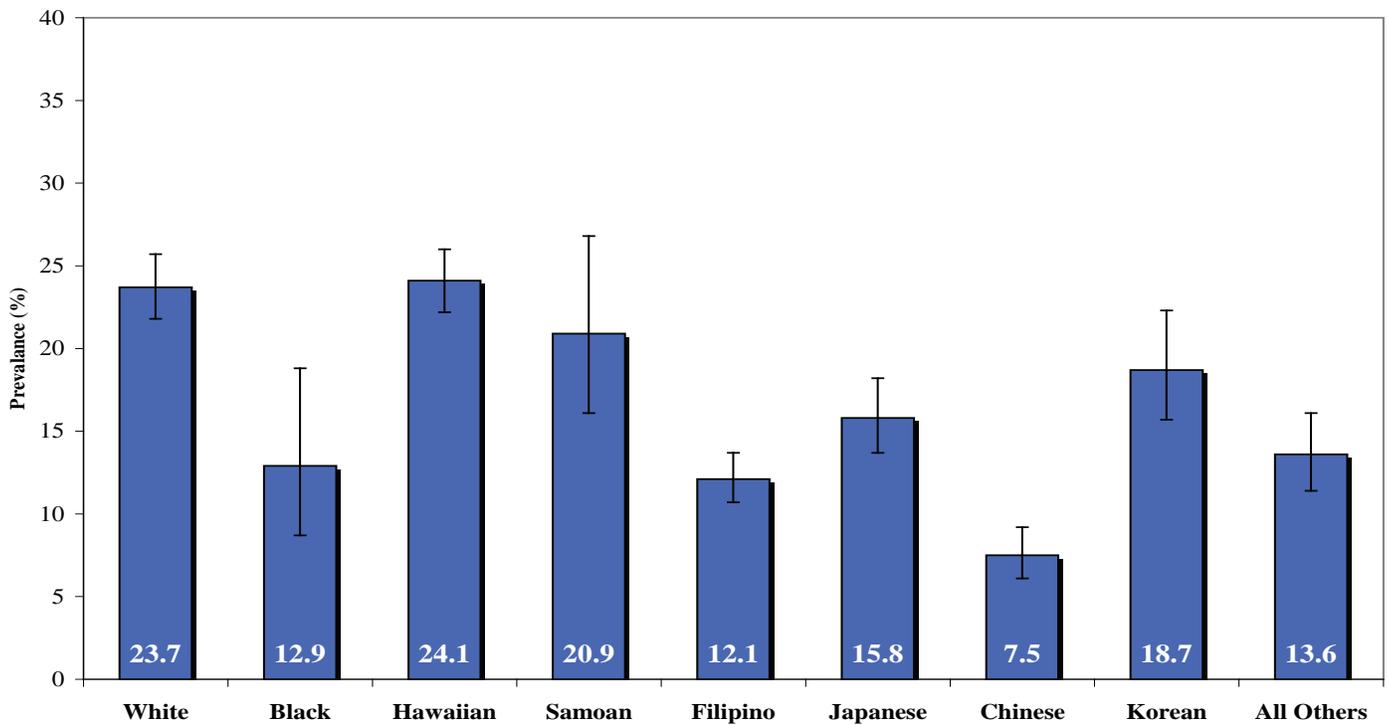


## Binge Drinking Prior to Pregnancy by County, 2004-2008

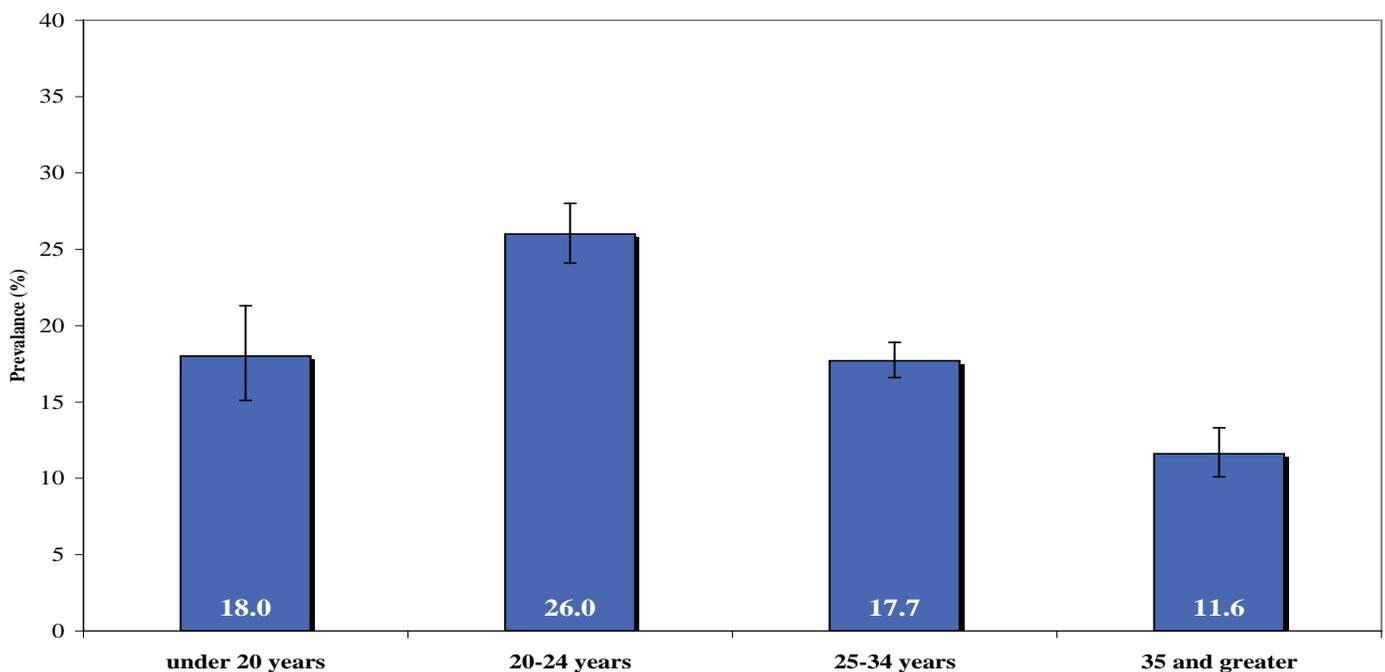


# Binge Drinking Prior to Pregnancy

**Binge Drinking Prior to Pregnancy by Race, 2004-2008**



**Binge Drinking Prior to Pregnancy by Age, 2004-2008**



# Binge Drinking Prior to Pregnancy

## **Differences Related to Maternal Race:**

Nearly a quarter of Hawaiian, White, and Samoan mothers, reported binge drinking in the 3 months prior to pregnancy. Korean, Japanese, and “All Others” reported intermediate estimates. Black, Filipino, and Chinese mothers also reported low estimates of binge drinking in the 3 months prior to pregnancy. The intermediate estimate in the “All Others” group was primarily attributed to the American Indian (24.8%; 95% CI = 17.6-33.7) and “Hispanic” (17.5%; 95% CI = 12.2-24.5) groups.

## **Differences Related to Maternal Age:**

Women under 25 years of age had the highest estimates of binge drinking in the 3 months prior to pregnancy, while those aged 25-34 had intermediate rates, and those 35 years and older had the lowest estimate of binge drinking in the 3 months prior to pregnancy.

## **Recommendations/Implications:**

There are significant disparities in the estimates of binge drinking in the 3 months prior to pregnancy. An estimated 18.7% of women who had a live birth reported binge drinking. An important and simple message to not drink at all while pregnant would prevent birth defects and other adverse outcomes related to drinking during pregnancy. Additionally, it is important to emphasize the reduction of episodes of binge drinking in women of reproductive age to decrease rates of unintended pregnancy and limit exposure of alcohol in the earliest period of pregnancy. Particular focus may include those of Hawaiian, White, Samoan, American Indian, and “Hispanic” race; and those under 25 years of age. Other potential correlates that would be beneficial to explore include those related to poverty and socio-economic conditions as they are likely to be associated with binge drinking prior to pregnancy.

# Smoking During Pregnancy

## **Background:**

Smoking is one of the most preventable causes of neonatal morbidity and mental retardation in developed countries. Research has determined that smoking during pregnancy is associated with premature delivery, low birth weight, and other adverse perinatal outcomes. In Hawai‘i, there has been significant legislation to create smoke-free work places and restaurants, and increase taxation in an effort to reduce the overall rate of smoking. The U.S. Healthy People 2010 Objective is for women to abstain from smoking during pregnancy. Smoking is often under-reported due to societal concerns and this under-reporting is likely even greater among women while they are pregnant.

## **PRAMS Definition:**

Smoking during pregnancy was defined by the report of smoking at least one cigarette per day in the last 3 months of the pregnancy.

## **Trends Over Time:**

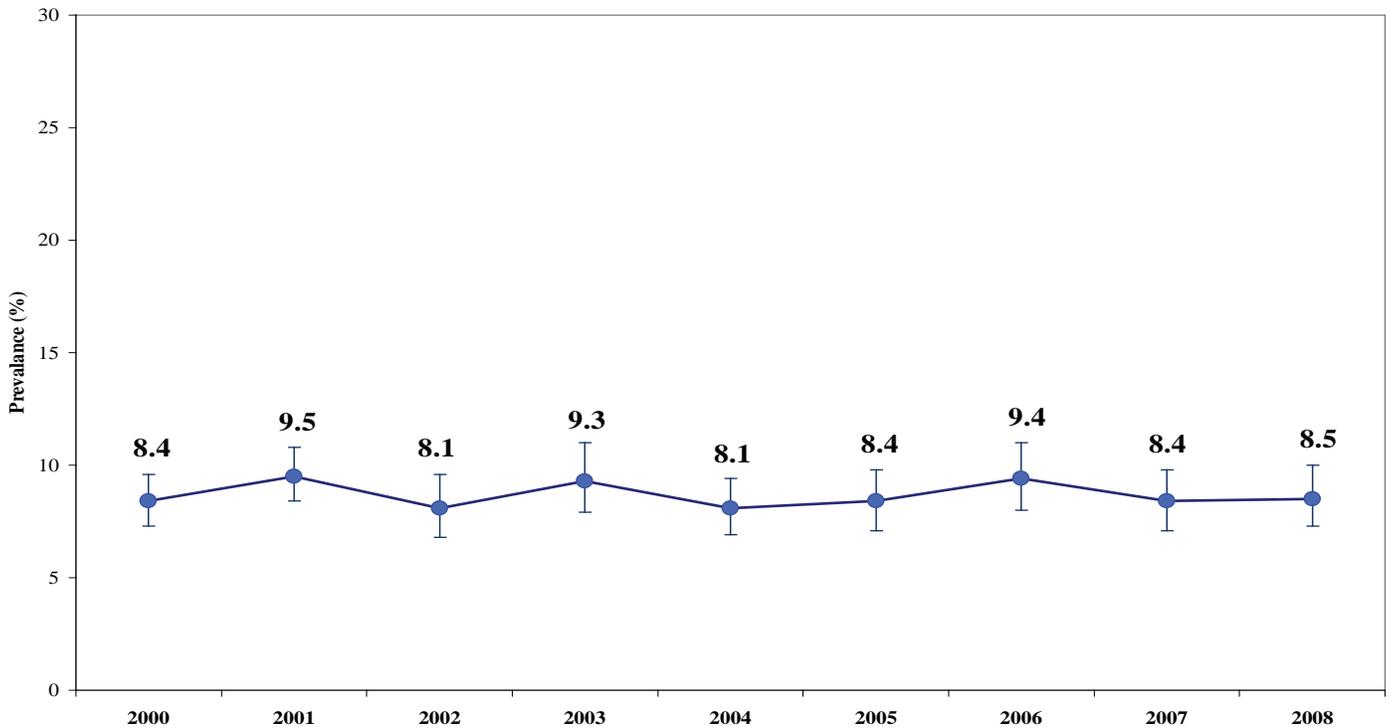
Smoking during the last 3 months of pregnancy has fluctuated over time from a low of 8.1% in 2002 and 2004 to a high of 9.5% in 2001. An estimated 8.5% reported smoking during the last 3 months of pregnancy in 2008.

## **Differences Related to County of Residence:**

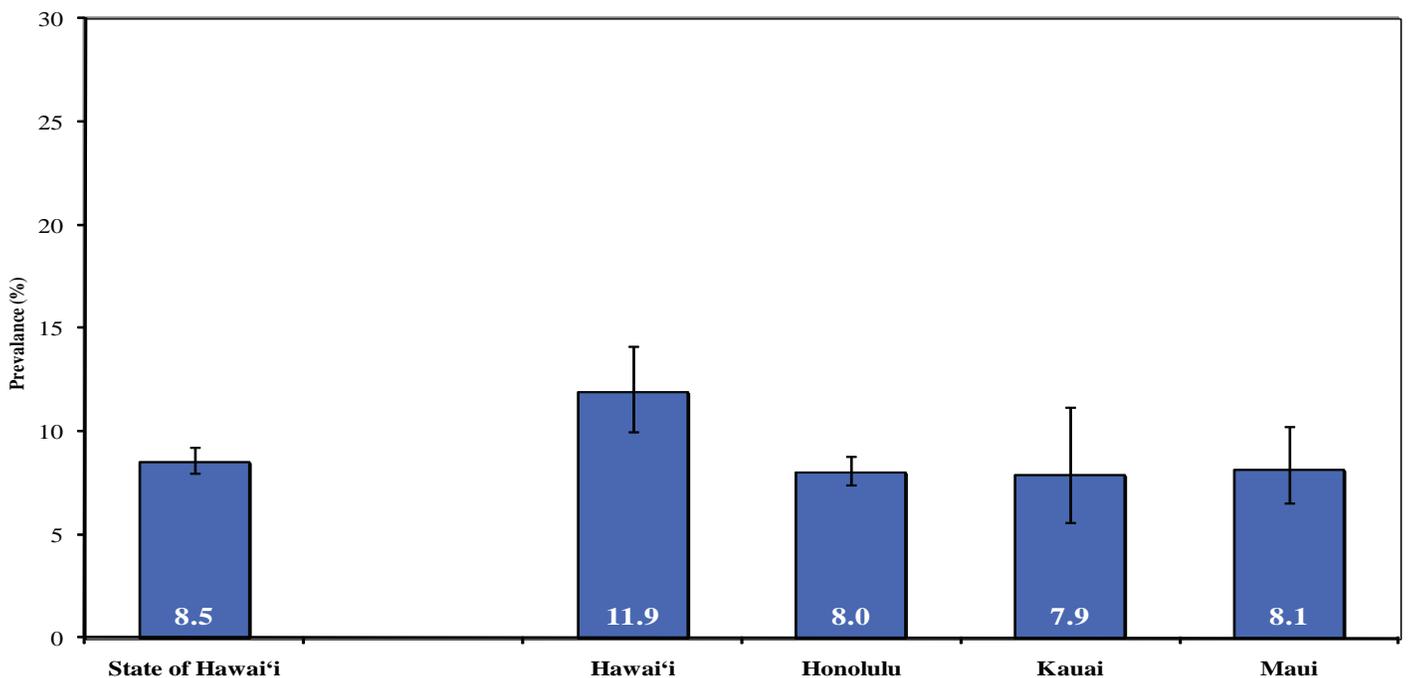
Overall, an estimated 8.5% of mothers reported smoking during the last 3 months of pregnancy, with the highest estimate in Hawai‘i County. Estimates were similar across all other Counties.

# Smoking During Pregnancy

## Smoking During Pregnancy, 2000-2008

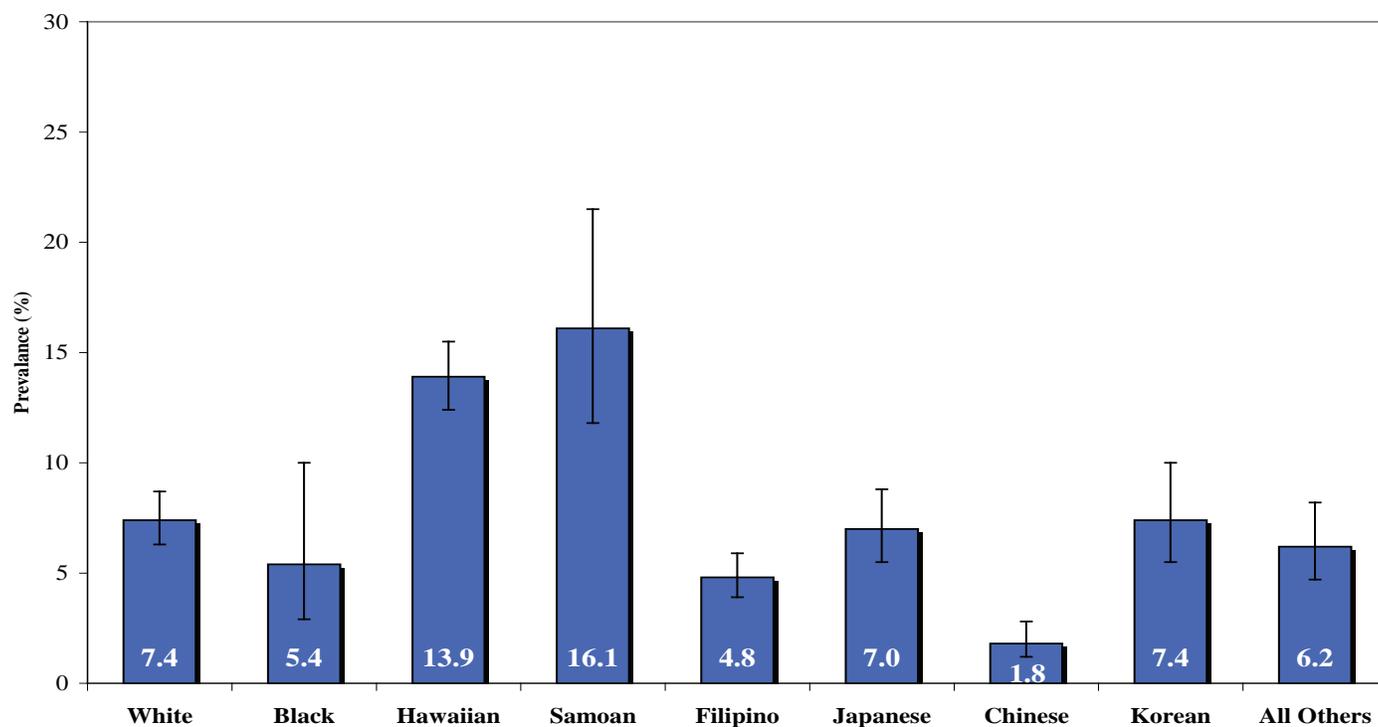


## Smoking During Pregnancy by County, 2004-2008

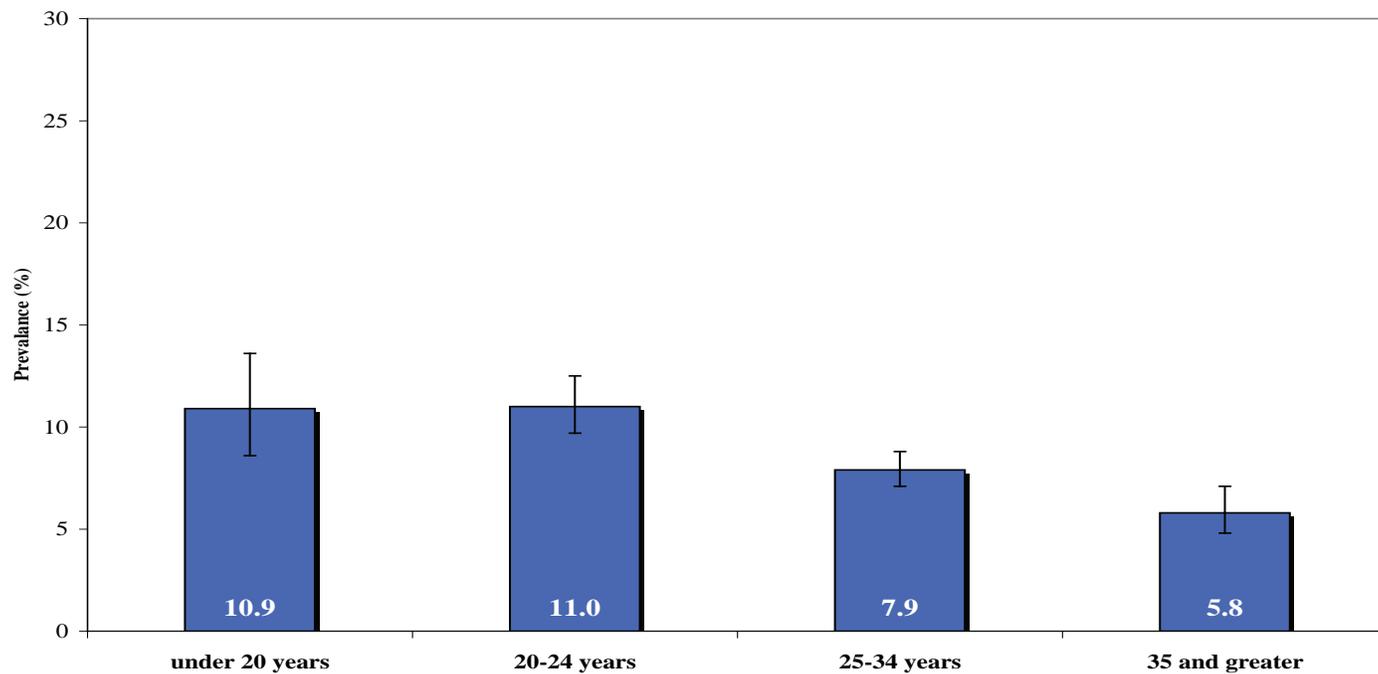


# Smoking During Pregnancy

## Smoking During Pregnancy by Race, 2004-2008



## Smoking During Pregnancy by Age, 2004-2008



# Smoking During Pregnancy

## **Differences Related to Maternal Race:**

Samoan and Hawaiian mothers reported the highest estimates of smoking during the last 3 months of pregnancy. Black, Japanese, White, Korean, and the “All Others” race group reported intermediate estimates of smoking during pregnancy. Chinese and Filipino mothers reported the lowest estimate. The estimate in the “All Others” was primarily attributed to the American Indian (19.0%; 95% CI = 12.5-27.7) group.

## **Differences Related to Maternal Age:**

Women under 25 years of age had the highest estimates of smoking in the last 3 months of pregnancy, while those aged 35 years and older had the lowest estimate of smoking in the last 3 months of pregnancy.

## **Recommendations/Implications:**

There are significant disparities in the rates of smoking during the last 3 months of pregnancy. An estimated 8.5% of women who had a live birth reported smoking during pregnancy with significant differences by geography, maternal race, and age. Although this is probably an under-estimate of the true burden, PRAMS provides us with some data that can inform the community. Emphasizing the reduction of smoking before, during, and after pregnancy in women of reproductive age could decrease rates and costs associated with adverse birth outcomes and promote healthy lifestyle behaviors across the life span. Particular focus may include those living in Hawai‘i County; those of American Indian, Samoan, and Hawaiian race; and those under 25 years of age. Other potential correlates that would be beneficial to explore include those related to poverty and socio-economic conditions as they are likely to be associated with smoking during the last three months of pregnancy.

# Drug Use During Pregnancy

## **Background:**

The use of drugs during pregnancy can have significant impacts on the developing fetus and cause adverse birth outcomes including prematurity, low birth weight, birth defects, and developmental delays. Those that use drugs often have other conditions and factors that may place their infant and families at increased risks for poor outcomes. Drug use is often under reported due to societal perceptions and this is likely even greater among women who are pregnant. The U.S. Healthy People 2010 objective is to abstain from drugs during pregnancy. Illicit drug use is often under-reported due to societal concerns and this under-reporting is likely even greater among women while they are pregnant.

## **PRAMS Definition:**

Drug use during 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 during the pregnancy.

## **Trends Over Time:**

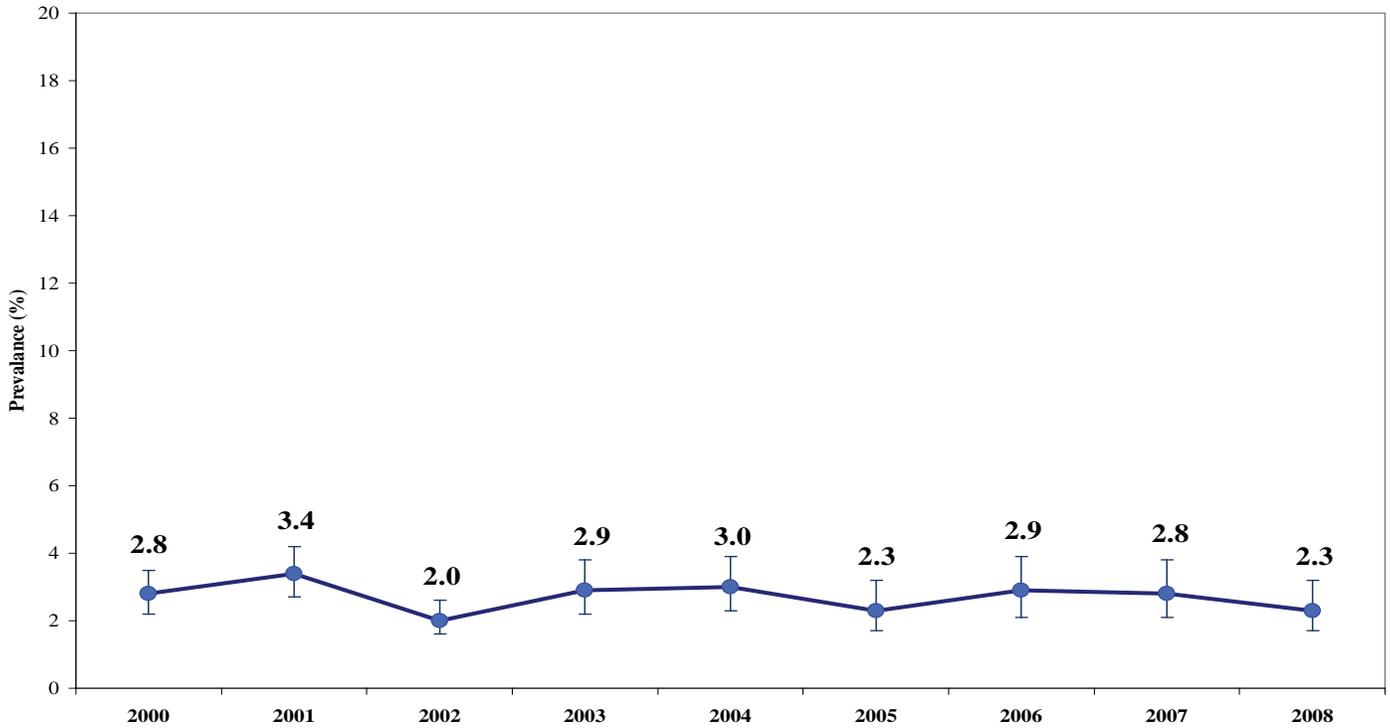
Drug use during pregnancy has changed little over time, ranging from a low of 2.0% in 2002 to a high of 3.4% in 2001. An estimated 2.3% reported drug use during pregnancy in 2008.

## **Differences Related to County of Residence:**

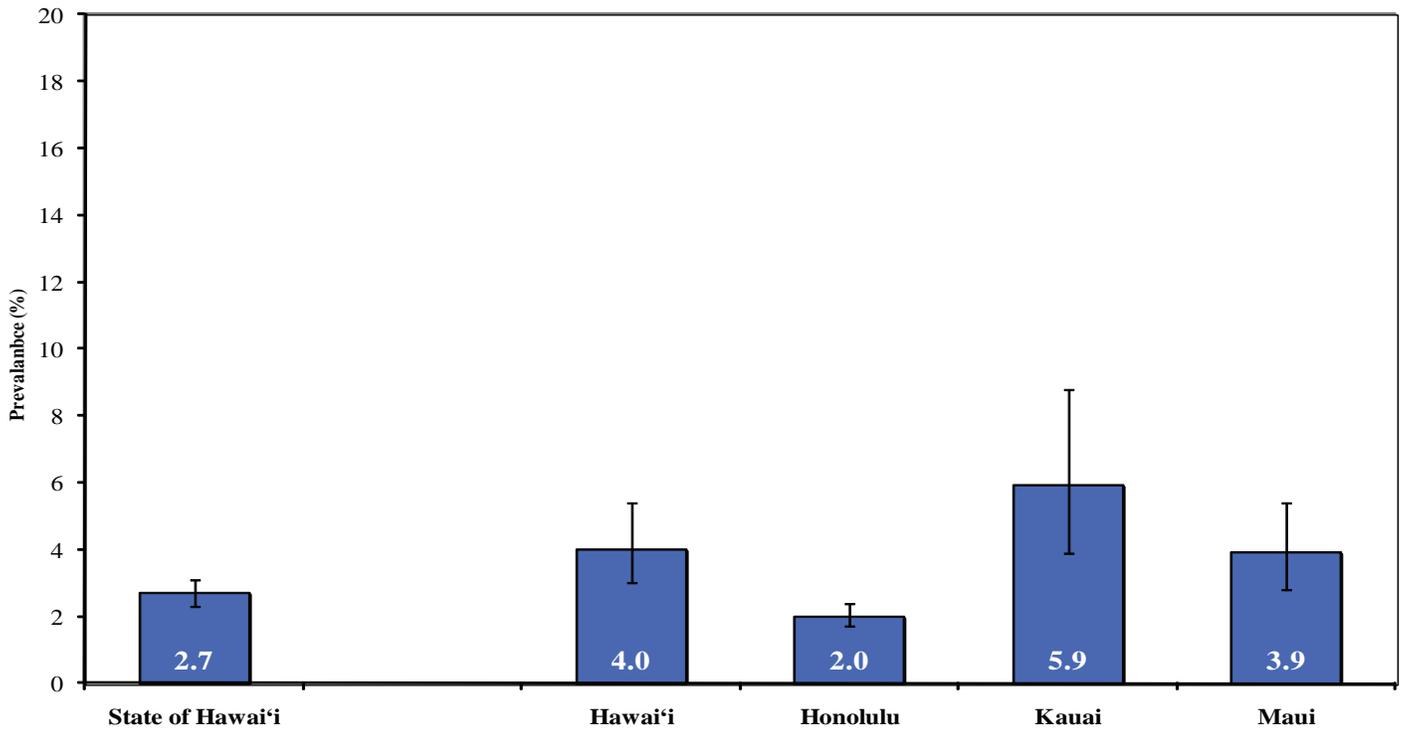
Overall, an estimated 2.7% of mothers reported using drugs during pregnancy, with estimates higher in Kauai, Hawai‘i, and Maui Counties compared to that in Honolulu County.

# Drug Use During Pregnancy

Drug Use During Pregnancy, 2000-2008

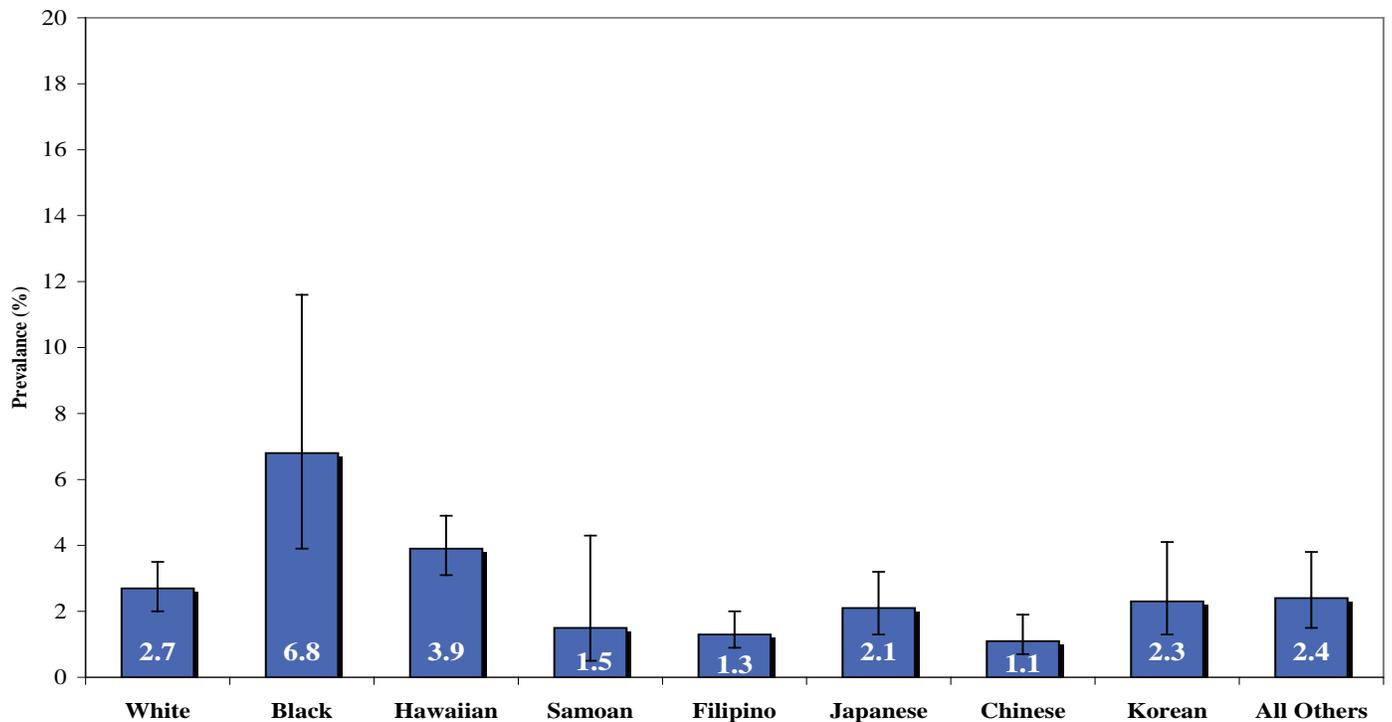


Drug Use During Pregnancy by County, 2004-2008

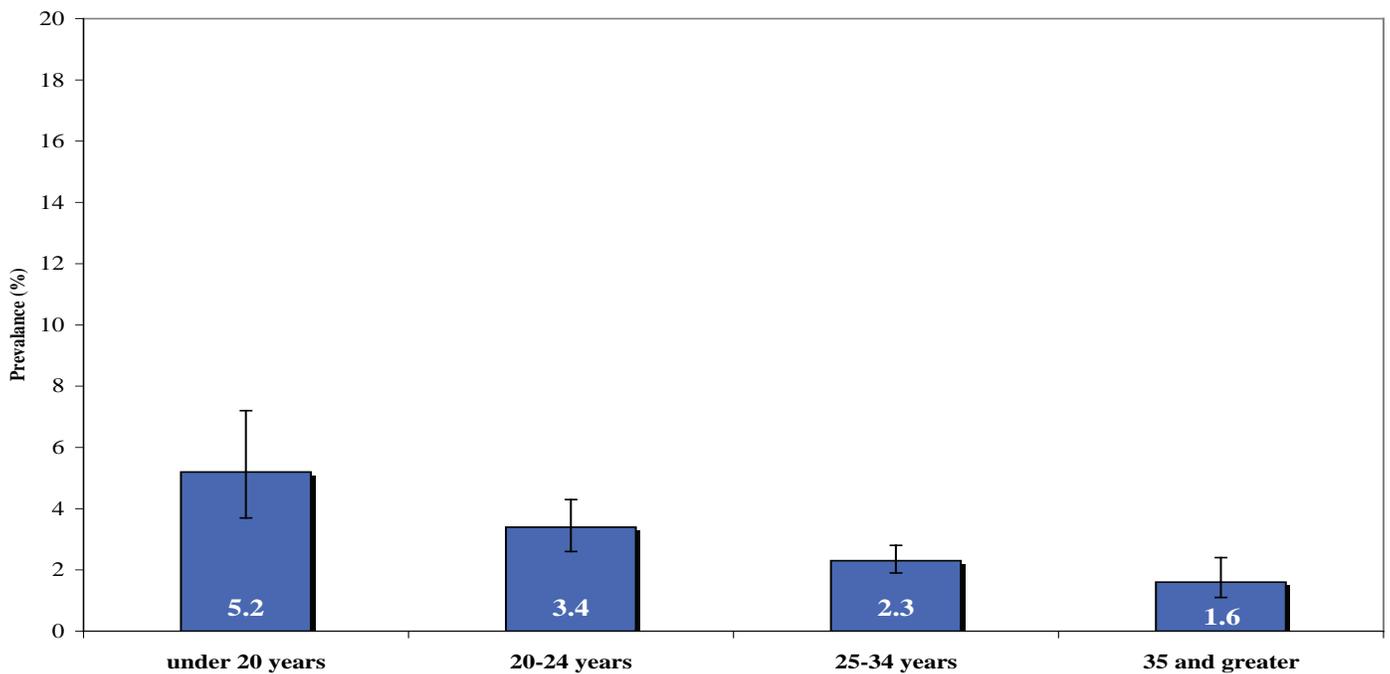


# Drug Use During Pregnancy

## Drug Use During Pregnancy by Race, 2004-2008



## Drug Use During Pregnancy by Age, 2004-2008



# Drug Use During Pregnancy

## **Differences Related to Maternal Race:**

Black and Hawaiian mothers reported the highest estimates of drug use during pregnancy. White and Korean mothers and those in the “All Others” group reported intermediate estimates with the remaining groups reporting low estimates of drug use during pregnancy. The intermediate estimate in the “All Others” was primarily attributed to the American Indian (7.6%; 95% CI = 3.8-14.8) group.

## **Differences Related to Maternal Age:**

Women under 25 years of age had the highest estimates of drug use during pregnancy, while those aged 25 years and older had lower estimates of drug use during pregnancy.

## **Recommendations/Implications:**

There are significant disparities in the use of drugs during pregnancy. An estimated 2.7% of women who had a live birth reported using illicit drugs during pregnancy with significant differences by geography, maternal race, and age. Although this is probably an under-estimate of the true burden, PRAMS provides us with some data that can inform the community. Emphasizing the reduction of illicit drugs before, during, and after pregnancy in women of reproductive age could decrease rates and costs associated with adverse birth outcomes and promote healthy lifestyle behaviors across the life span. Particular focus may include those living on neighbor islands; those of American Indian, Black, and Hawaiian race; and those under 25 years of age. Other potential correlates that would be beneficial to explore include those related to poverty and socio-economic conditions as they are likely to be associated with drug use during pregnancy.

# Cesarean Deliveries

## **Background:**

Cesarean 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 normal vaginal delivery. The decision to have a cesarean delivery is complex and is made in consultation between the medical provider, the pregnant women, and her family. The decision to have a cesarean delivery considers specific indications including medical risks, complications during labor, previous pregnancy outcomes, and other factors that could impact the health of both the mother and her infant.

## **PRAMS Definition:**

A 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:**

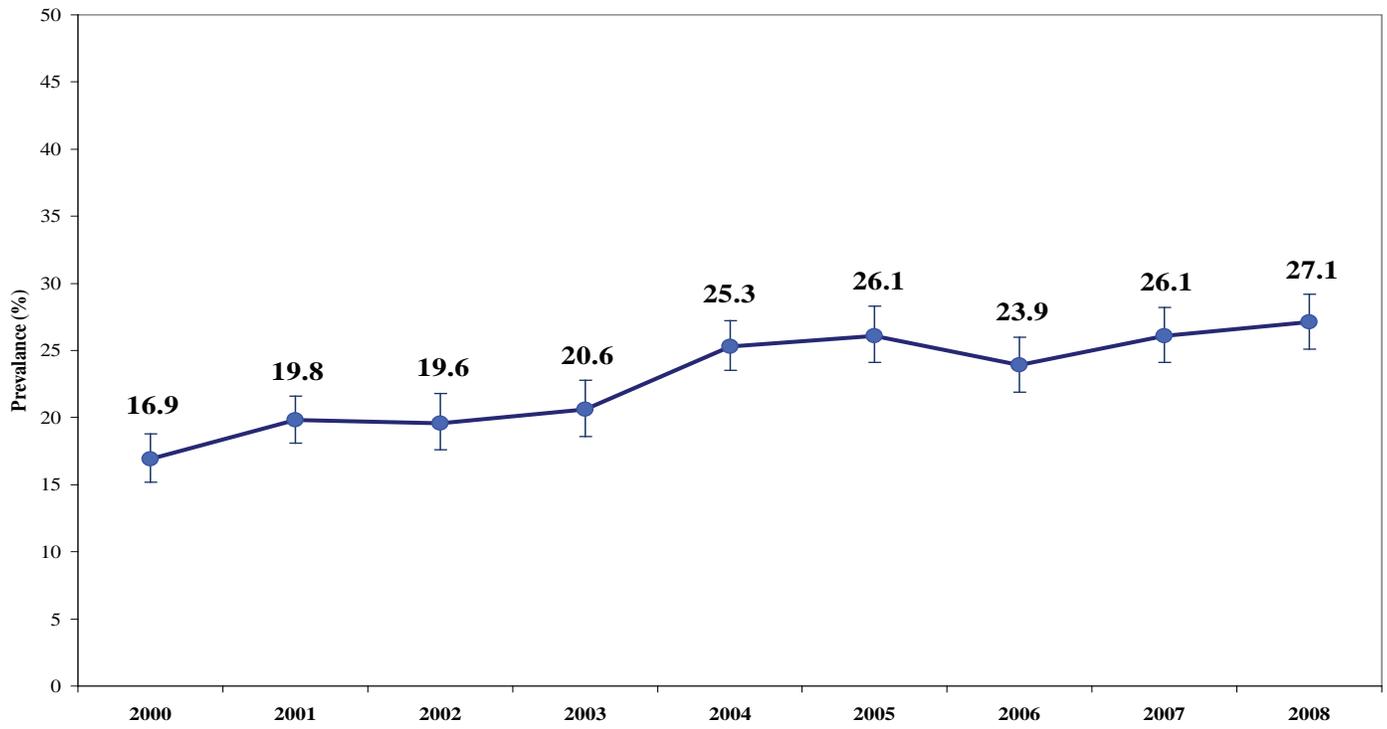
There is an increasing trend with an estimated 27.1% of all births in 2008 from a cesarean delivery compared to 16.9% of all births in 2000.

## **Differences Related to County of Residence:**

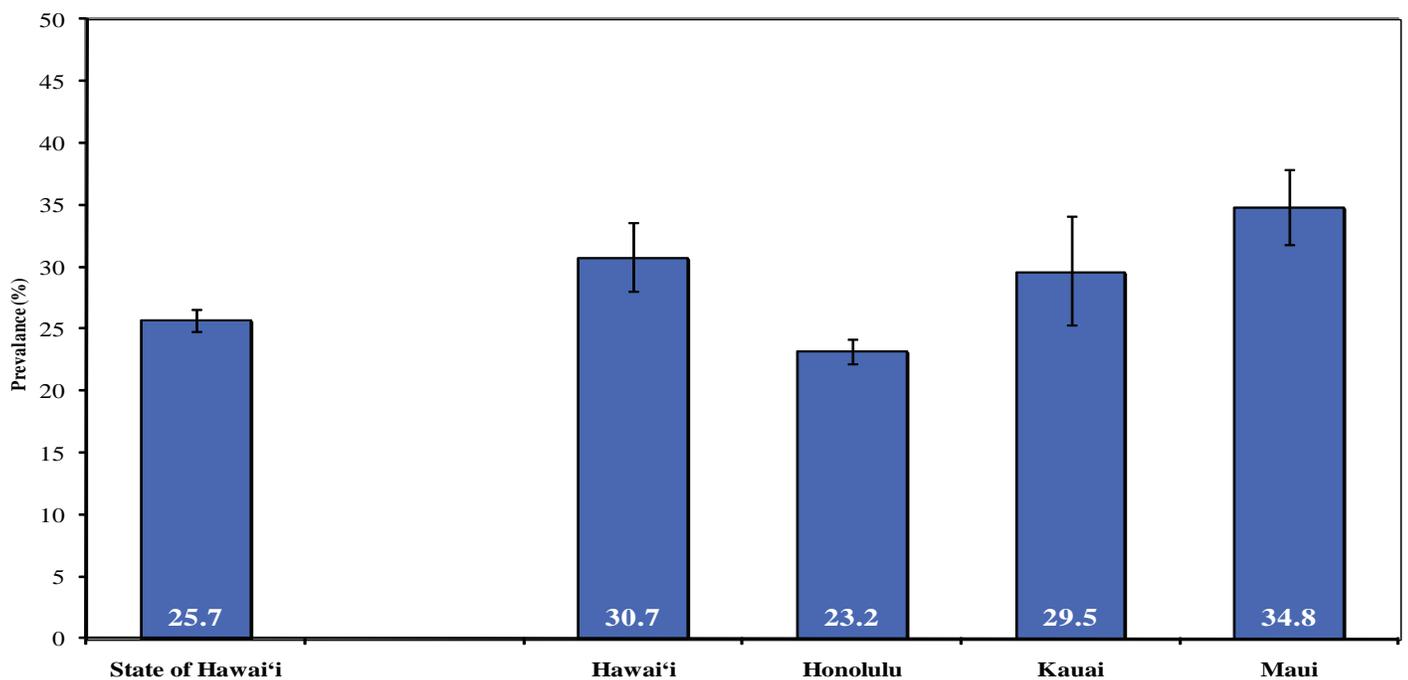
Overall, an estimated 25.7% of mothers had a cesarean delivery, with estimates higher in Hawai‘i, Maui, and Kauai Counties compared to Honolulu County.

# Cesarean Deliveries

## Cesarean Deliveries, 2000-2008

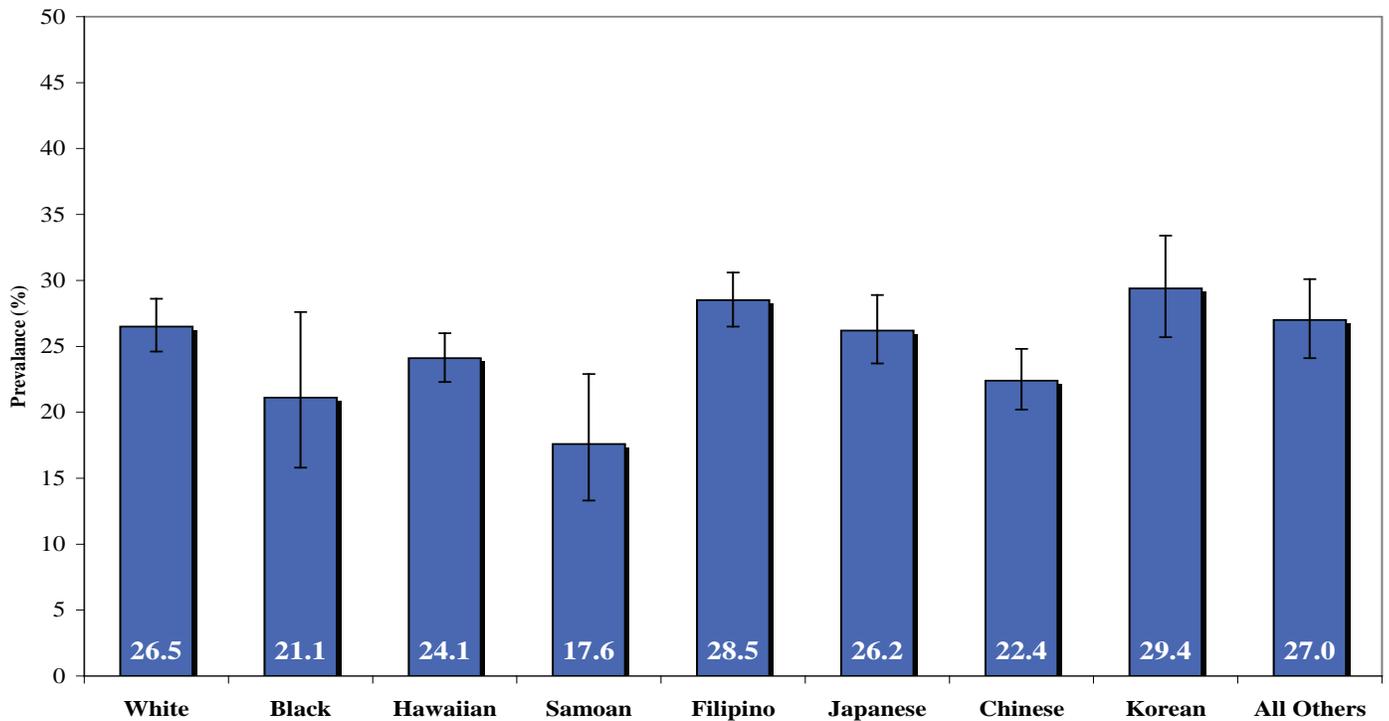


## Cesarean Deliveries by County, 2004-2008

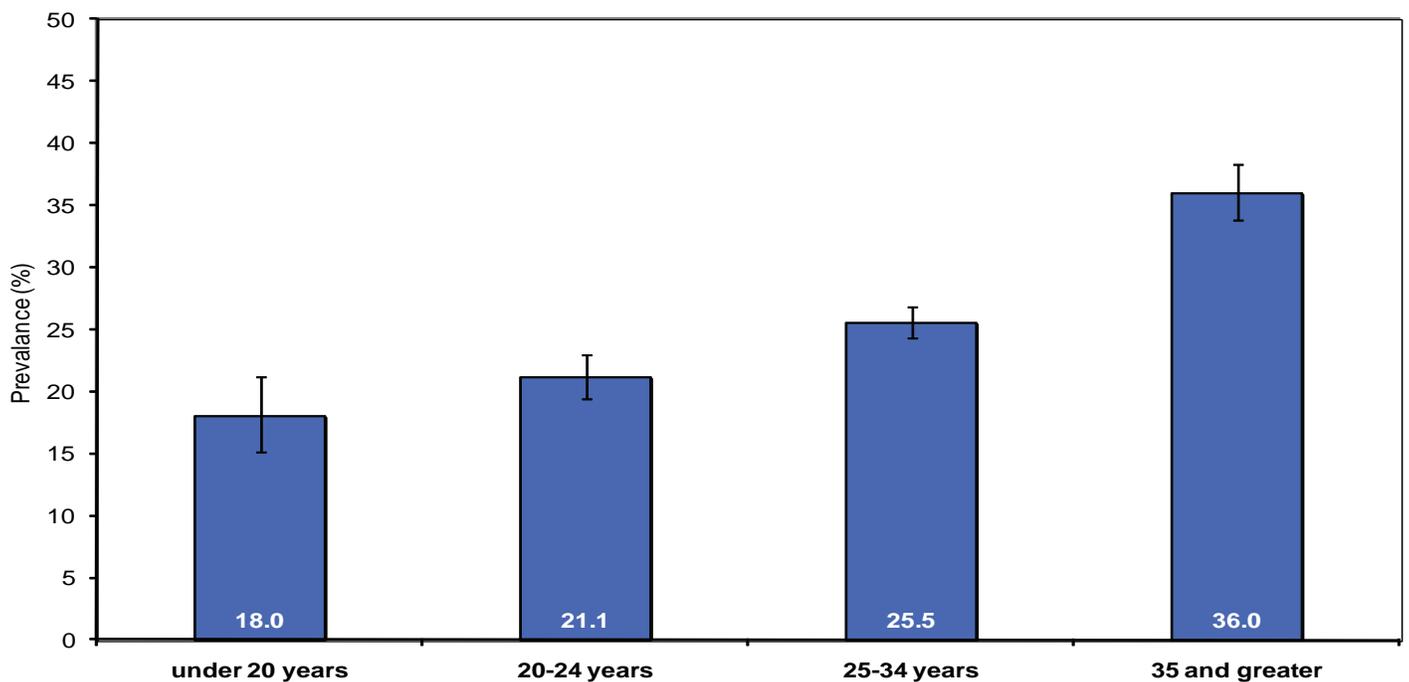


# Cesarean Deliveries

## Cesarean Deliveries by Race, 2004-2008



## Cesarean Deliveries by Age, 2004-2008



# Cesarean Deliveries

## **Differences Related to Maternal Race:**

Filipino, Korean, Japanese, and those in the “All Others” group had the highest estimates of cesarean delivery. Samoan, Chinese, Black, and Hawaiian mothers had lower estimates of cesarean delivery. The high estimates in the “All Others” group was primarily attributed to the “Other Asian” (31.6%; 95% CI = 25.0-39.1), American Indian (28.8%; 95% CI = 21.2-37.9), and “Other Pacific Islander” (26.2%; 95% CI = 22.0-30.9) groups.

## **Differences Related to Maternal Age:**

Women 35 years and older had the highest estimate of cesarean delivery, while those 25-34 years of age had an intermediate estimate. Those under 20 years of age and 20-24 years of age had similar and the lowest estimates of cesarean delivery.

## **Recommendations/Implications:**

An estimated 25.7% of women who had a live birth had a cesarean delivery with some differences by geography, maternal race, and age. The emphasis of healthy lifestyle choices before, during, and after pregnancy and ensuring access to timely and quality prenatal care may help decrease the overall rate of cesarean deliveries and promote optimal birth outcomes. Particular focus may include those living on neighbor islands; those of “Other Asian,” Korean, American Indian, Filipino, “Other Pacific Islander,” and Japanese race; and those 25 years of age and older. Exploration of medical indications and the differentiation between primary and repeat cesarean delivery estimates may provide insight into this complex issue. Other potential correlates that would be beneficial to explore include those related to insurance status, socio-economic conditions, and availability of services and providers as these are all likely associated with cesarean delivery.

# Intimate Partner Violence

## **Background:**

Violence between intimate partners whether physical and psychological has important health consequences. Intimate partner violence is related to adverse outcomes such as depression, premature labor, and low birth weight infants. Intimate partner violence is often under reported due to societal perceptions and this under-reporting is likely even greater among women that are pregnant.

## **PRAMS Definition:**

Intimate partner violence was defined by self-report from a mother who recently had a live birth that her husband, ex-husband, partner, or ex-partner ever “physically hurt” or “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.

## **Trends Over Time:**

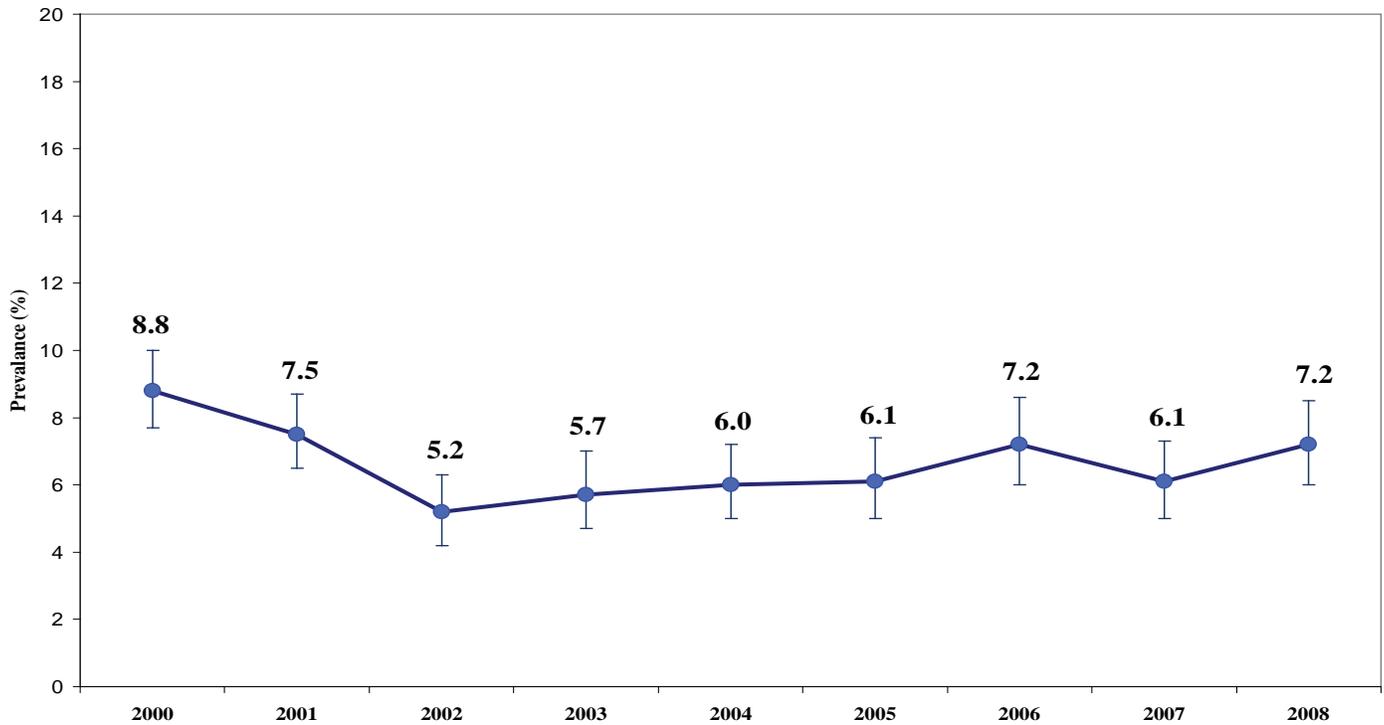
An estimated 7.2% of mothers with a recent live birth in 2008 reported experiencing intimate partner violence, compared to 8.8% in 2000. However, there was an increase between 2007 and 2008.

## **Differences Related to County of Residence:**

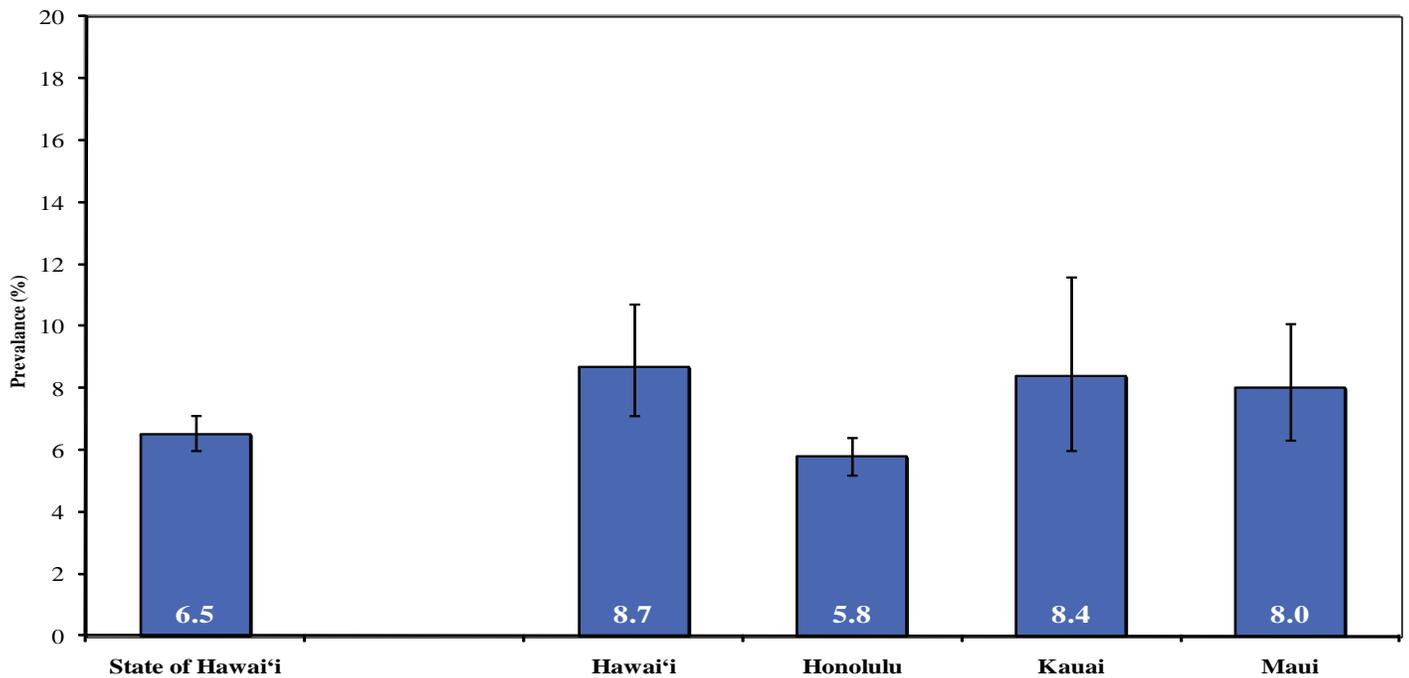
Overall, an estimated 6.5% of mothers reported experiencing intimate partner violence, with higher estimates in Hawai‘i, Kauai, and Maui Counties compared to Honolulu County.

# Intimate Partner Violence

Intimate Partner Violence, 2000-2008

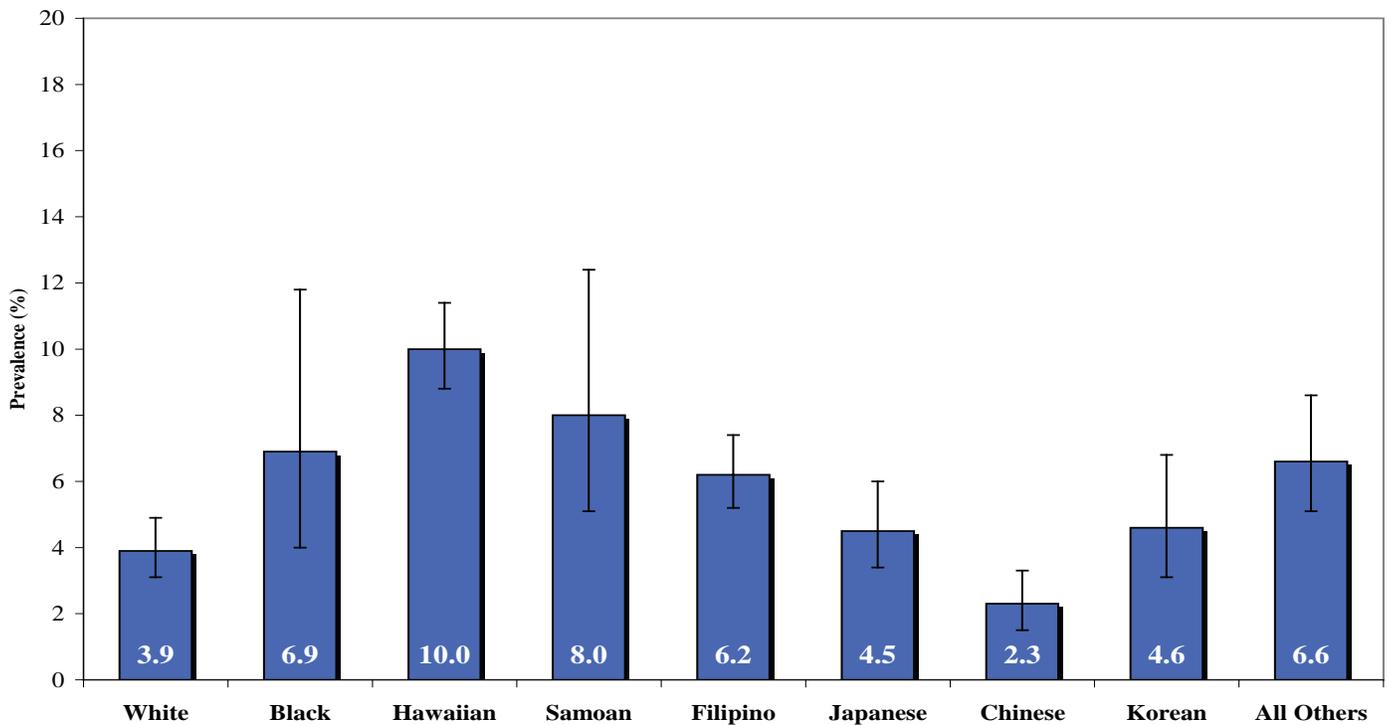


Intimate Partner Violence by County, 2004-2008

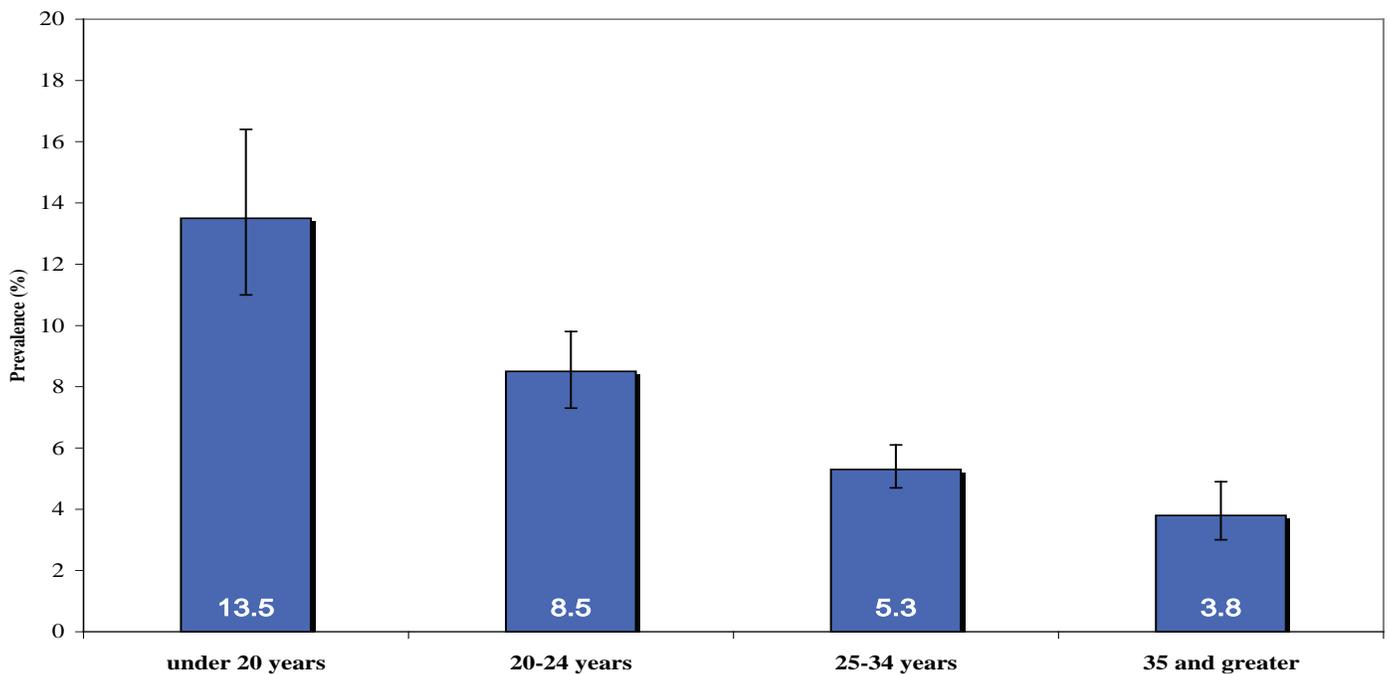


# Intimate Partner Violence

## Intimate Partner Violence by Race, 2004-2008



## Intimate Partner Violence by Age, 2004-2008



# Intimate Partner Violence

## **Differences Related to Maternal Race:**

Hawaiian, Samoan, Black, Filipino, and in those in the “All Others” group reported the highest estimates of intimate partner violence. Chinese, White, Japanese, and Korean reported lower estimates of intimate partner violence. The high estimates in the “All Others” was primarily attributed to the American Indian (13.5%; 95% CI = 8.1-21.5), “refused/unknown” (9.5%; 95% CI = 2.5-29.8), and “Other Pacific Islander” (6.6%; 95% CI = 4.4-9.7) groups.

## **Differences Related to Maternal Age:**

Women under 25 years of age had the highest estimate of intimate partner violence during pregnancy, which steadily declined with age group to those aged 35 years and older reporting the lowest estimates.

## **Recommendations/Implications:**

An estimated 6.5% of women who recently had a live birth reported intimate partner violence in the year before and during the most recent pregnancy with significant differences by geography, maternal race, and age. The questions in PRAMS only looks at the physical nature of intimate partner violence and does not include the strong psychological components that may cause an even greater impact. Although this is probably an under-estimate of the true burden, PRAMS provides us with some data that can inform the community. Emphasizing the availability of resources, increased awareness, and the promotion of appropriate coping skills may reduce both physical and psychological components of intimate partner violence. Particular focus may include those living on neighbor islands; those of American Indian, Hawaiian, Samoan, Black, and “Other Pacific Islander” race; and those under 25 years of age. Other potential correlates that would be beneficial to explore include those related to poverty and socio-economic conditions as they are likely to be associated with intimate partner violence.

# Dental Visit During Pregnancy

## **Background:**

Oral health is an essential and integral component of health throughout life and is associated with increased health care costs, decreased productivity, increased absenteeism, and can result in significant illness, disease, and even death.

Regular dental visits provide an opportunity for early diagnosis, prevention, and treatment of oral and associated disease among persons of all ages.

Pregnancy is an important time to visit the dentist for continuity of regular professional care and due to the potential increase of adverse birth outcomes associated with poor oral health.

## **PRAMS Definition:**

This measure of utilization of oral health services was based on a self-reported visit to a dentist or dental clinic during pregnancy.

## **Trends Over Time:**

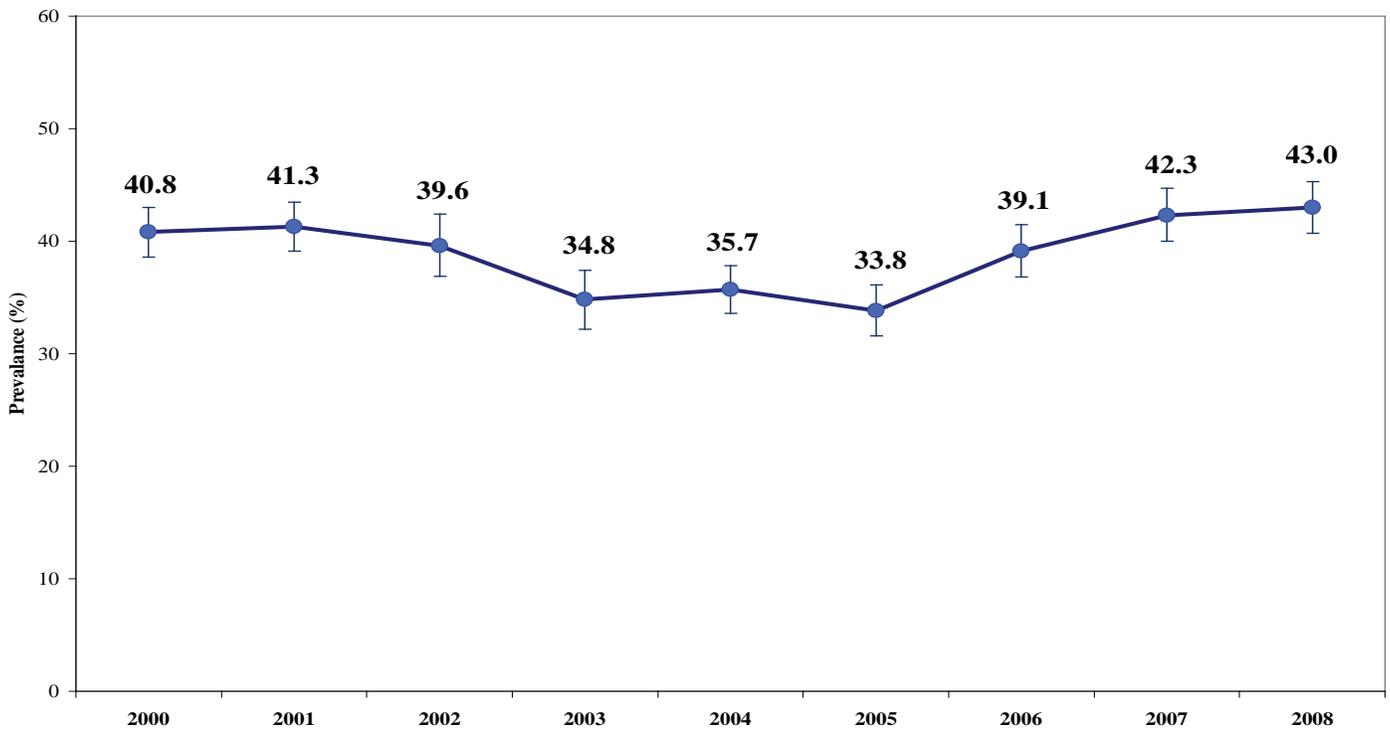
Some changes over time with a dental visit during pregnancy ranging from 33.8% in 2005 to 43.0% in 2008. The overall decline in 2003-2005 to levels of 33-35% appears to have reverted to the previously higher estimates above 40% in 2007 and 2008.

## **Differences Related to County of Residence:**

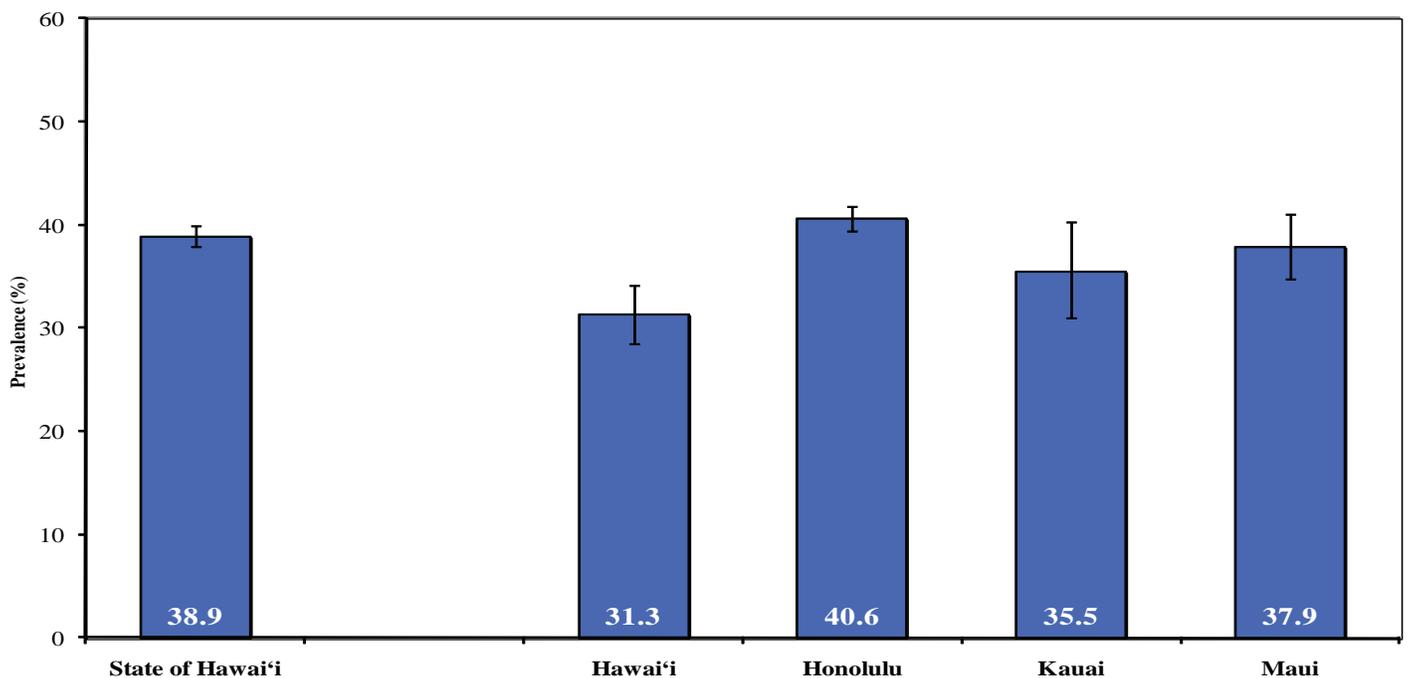
Overall, an estimated 38.9% of mothers reported a dental visit during their pregnancy. Those living in Hawai'i, Kauai, and Maui County have lower estimates of dental visits compared to those living in Honolulu County.

# Dental Visit During Pregnancy

## Dental Visit During Pregnancy, 2000-2008

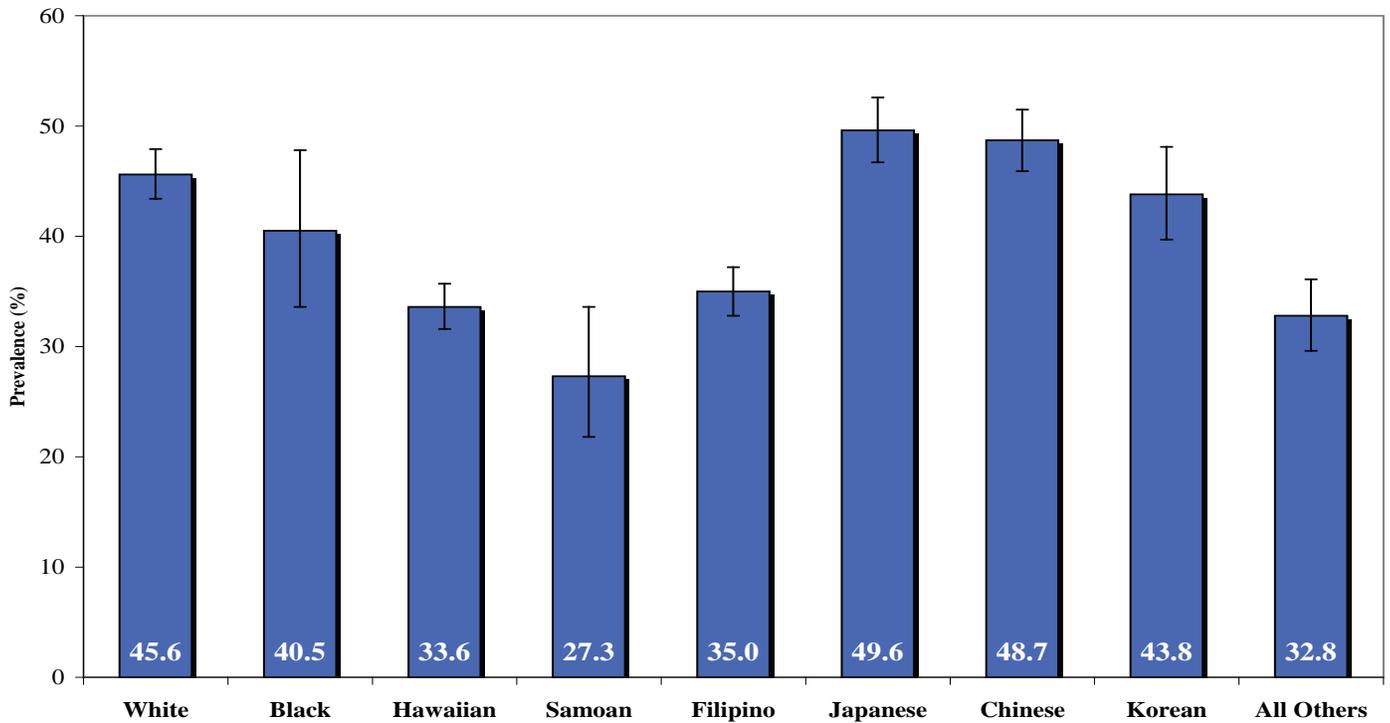


## Dental Visit During Pregnancy by County, 2004-2008

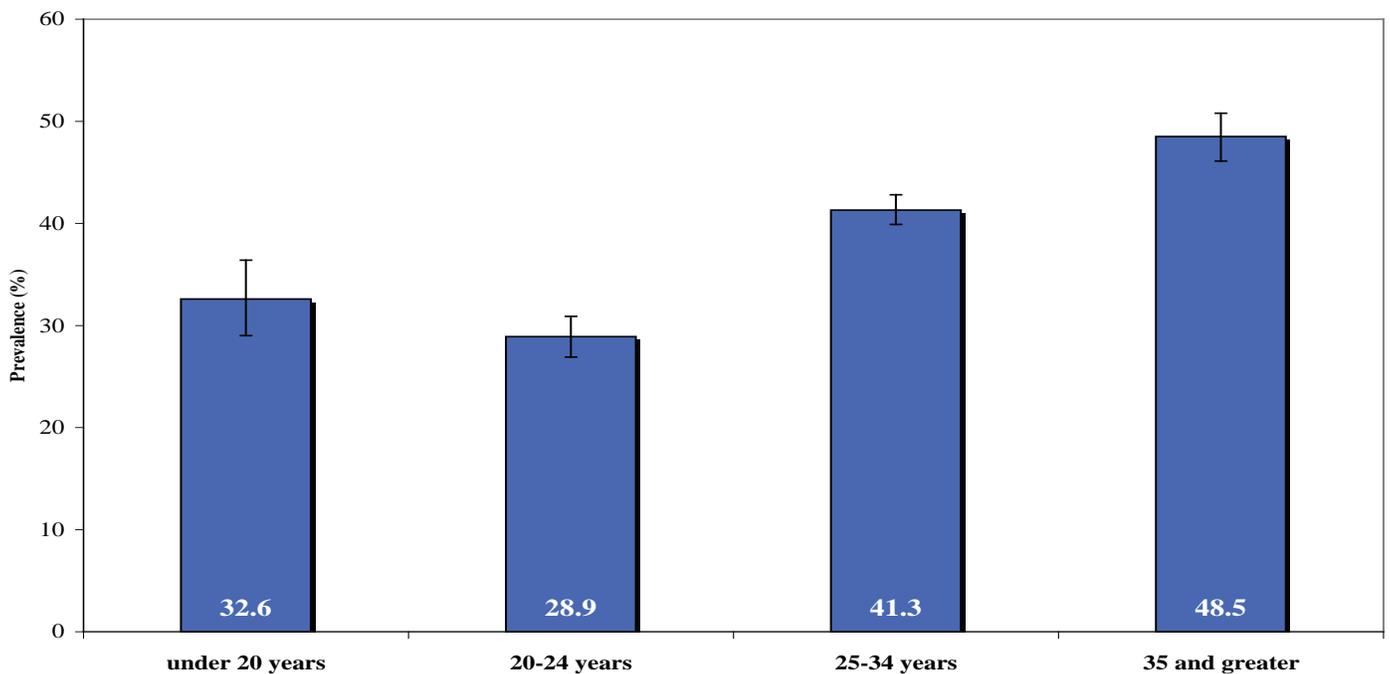


# Dental Visit During Pregnancy

## Dental Visit During Pregnancy by Race, 2004-2008



## Dental Visit During Pregnancy by Age, 2004-2008



# Dental Visit During Pregnancy

## **Differences Related to Maternal Race:**

Samoan, Hawaiian, Filipino, and those in the “All Others” reported the lowest estimates of dental visits during pregnancy. Japanese and Chinese mothers reported the highest estimates of dental visits during pregnancy. The low estimates in the “All Others” group was primarily attributed to the “refused/unknown” (16.7%; 95% CI = 6.5-36.5), “Hispanic” (6.7%; 95% CI = 20.2-34.5), and “Other Pacific Islander” (27.6%; 95% CI = 23.3-32.5) groups.

## **Differences Related to Maternal Age:**

Women under 20 years and 20-24 years of age had the lowest estimates of dental visits, while those that were 25-34 years of age had an intermediate estimate. Nearly half of those aged 35 years and older had a dental visits during their pregnancy.

## **Recommendations/Implications:**

An estimated 38.9% of women who had a live birth reported a dental visit during their most recent pregnancy with significant differences by geography, maternal race, and age. Emphasizing appropriate access to services including oral health may promote healthy birth outcomes and overall health across the life span. This could include increasing awareness of the impact that oral health can have on pregnancy outcomes. Particular focus may include those living in Hawai‘i and Kauai Counties; those of “Hispanic,” Samoan, “Other Pacific Islander,” Hawaiian, and Filipino race; and those under 25 years of age. Other potential correlates that would be beneficial to explore include those related to poverty and socio-economic conditions, insurance status, and the availability of providers as they are likely to be associated with accessing a dentist during pregnancy.

# 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 and ear infections. Breastfeeding mothers report fewer sick visits and improved work productivity for mothers and society. The U.S. Healthy People 2010 objective is to increase the initiation of breastfeeding in the early postpartum period to 75% of newborns and to improve breastfeeding rates to 50% of infants at age 6 months and 25% at 1 year.

## **PRAMS Definition:**

Self-reported measures of timing of breastfeeding for at least 8 weeks was calculated. 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:**

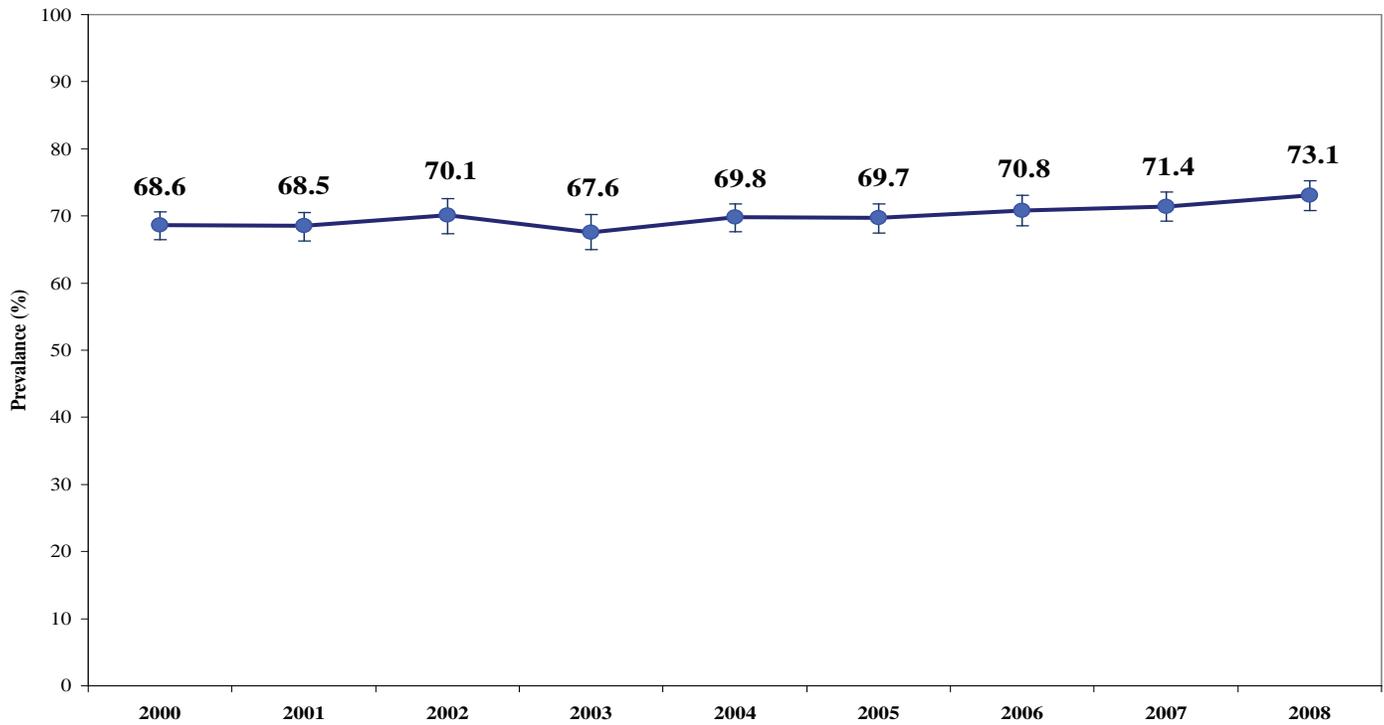
There has been an overall increase in breastfeeding for at least 8 weeks with to 73.1% of mothers in 2008 compared to 68.6% of mothers in 2000.

## **Differences Related to County of Residence:**

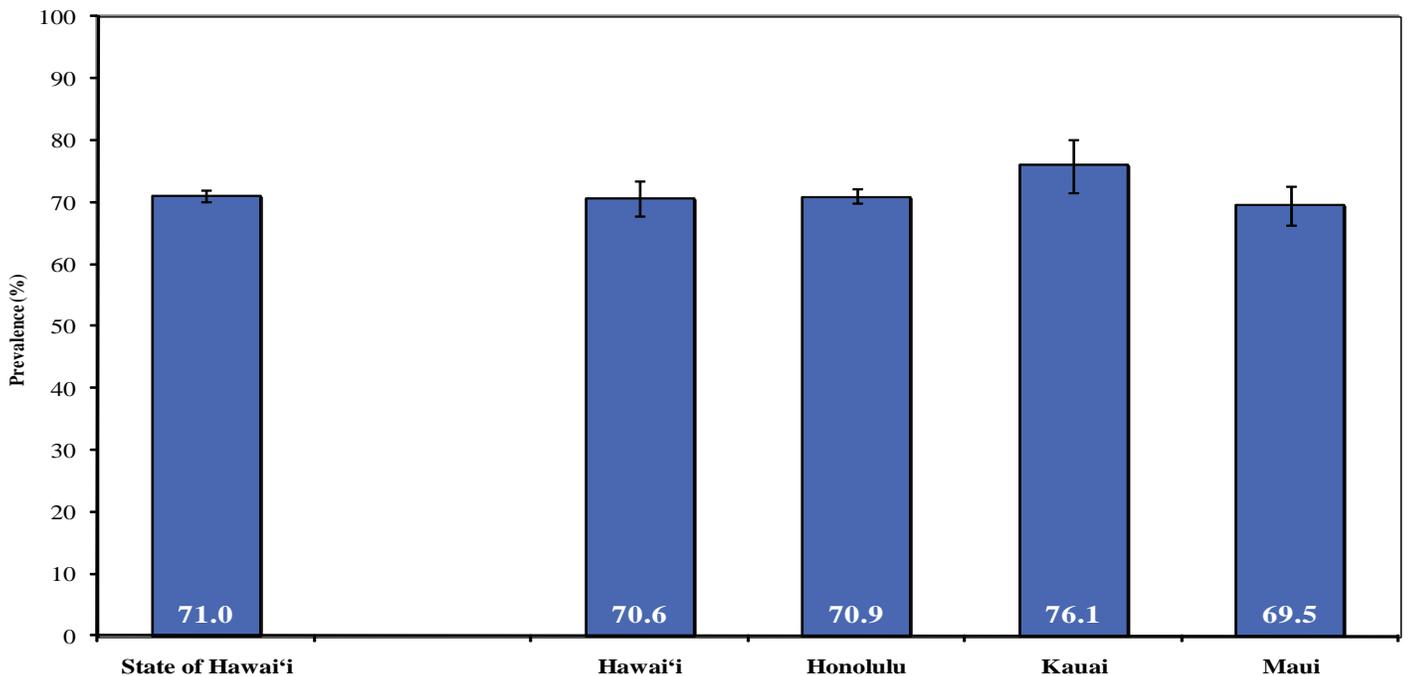
Overall, an estimated 71.0% of mothers reported breastfeeding at least 8 weeks with no difference in estimates by county of residence.

# Breastfeeding Eight Weeks

## Breastfeeding Eight Weeks, 2000-2008

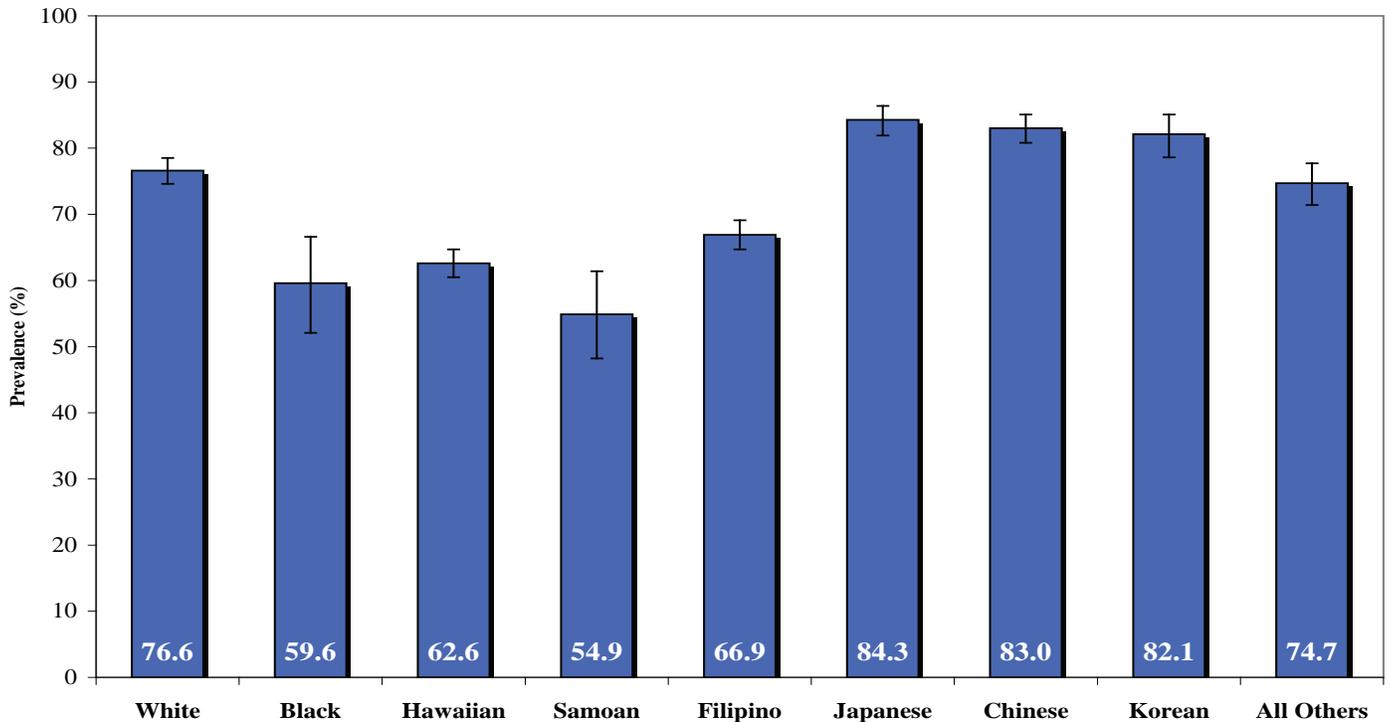


## Breastfeeding Eight Weeks by County, 2004-2008

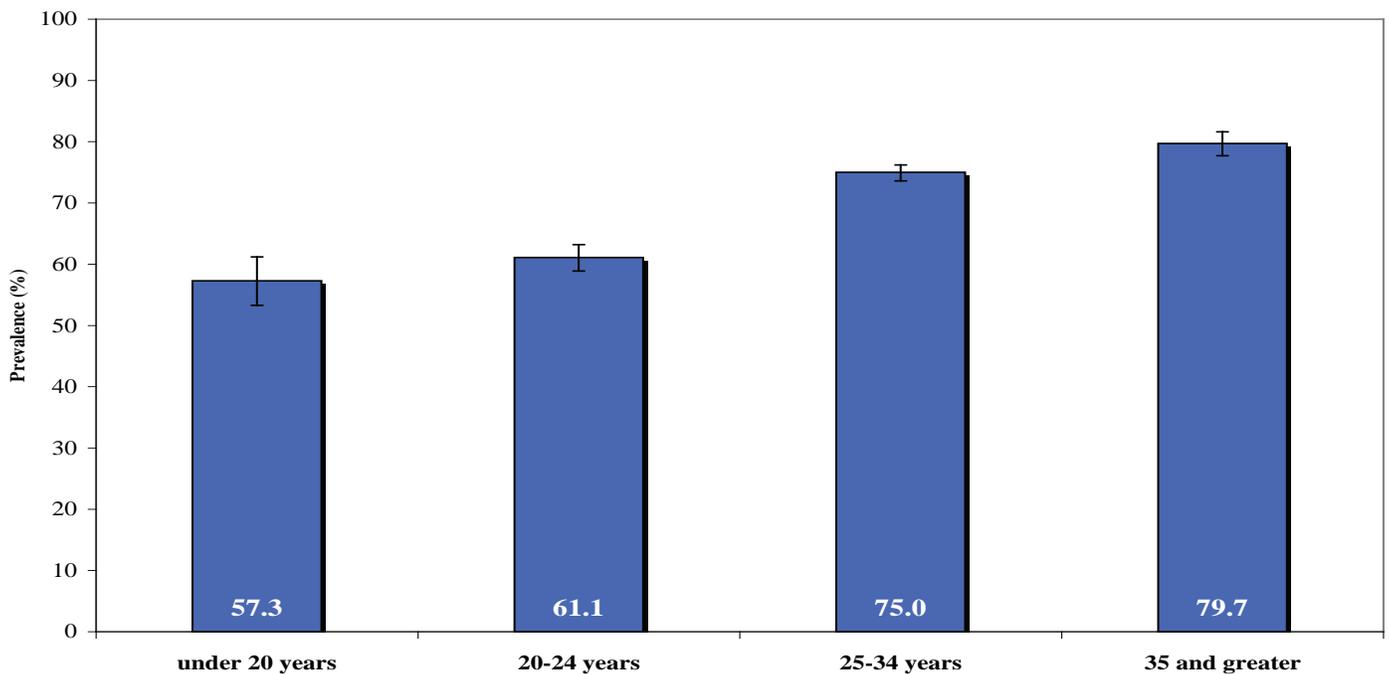


# Breastfeeding Eight Weeks

## Breastfeeding Eight Weeks by Race, 2004-2008



## Breastfeeding Eight Weeks by Age, 2004-2008



# Breastfeeding Eight Weeks

## **Differences Related to Maternal Race:**

Samoan, Hawaiian, Black, and Filipino mothers reported the lowest estimates of breastfeeding at least 8 weeks. Japanese, Chinese, Korean, those in the “All Others” group, and White mothers reported the highest estimates of breastfeeding at least 8 weeks. The lowest estimates in the “All Others” group was primarily attributed to the “Other Asians” (70.5%; 95% CI = 62.4-77.5), “refused/unknown” (73.2%; 95% CI = 52.9-86.9), “Hispanic” (74.2%; 95% CI = 66.5-80.6), and “Other Pacific Islander” (75.0%; 95% CI = 70.2-79.2) groups.

## **Differences Related to Maternal Age:**

Women under 20 years and 20-24 years of age had the lowest estimates of breastfeeding at least 8 weeks, while those that were 25-34 years of age had an intermediate estimate. Nearly eight out of 10 women aged 35 years and older breastfeeding at least 8 weeks.

## **Recommendations/Implications:**

An estimated 71.0% of women who had a live birth reported breastfeeding at least 8 weeks with significant differences by geography, maternal race, and age. Emphasizing appropriate support and education on the benefits of sustained breastfeeding may promote healthy outcomes across the life span. Individual barriers to breastfeeding could be reduced by increasing mothers’ access to lactation consultants, trained breastfeeding peer counselors, and support groups. Societal level barriers could be reduced with hospital policies and workplace environments that support breastfeeding. Particular focus may include those of Samoan, Hawaiian, Black, Filipino, “Other Asian,” “Other Pacific Islander,” and “Hispanic” race; and those under 25 years of age. Other potential correlates that would be beneficial to explore include those related to poverty and socio-economic conditions as they are also likely associated with duration of breastfeeding.

# Infant Sleep Position

## **Background:**

Sudden Infant Death Syndrome (SIDS), the sudden, 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 risks for sudden infant death syndrome (SIDS). This is because infants are more likely to suffocate when placed on their stomach or side to sleep. The “Back to Sleep” public health campaign in the United States dramatically improved back sleep position from 13% in 1992 to 67% in 1999 with a corresponding 50% decline in SIDS. The U.S. Healthy People 2010 goal is to increase the proportion of infants placed on their backs to sleep to 70%.

## **PRAMS Definition:**

Back sleep positioning was determined from the self-reported measure of “how do you most often lay your baby down to sleep,” was categorized as back only compared to all other positions or combinations.

## **Trends Over Time:**

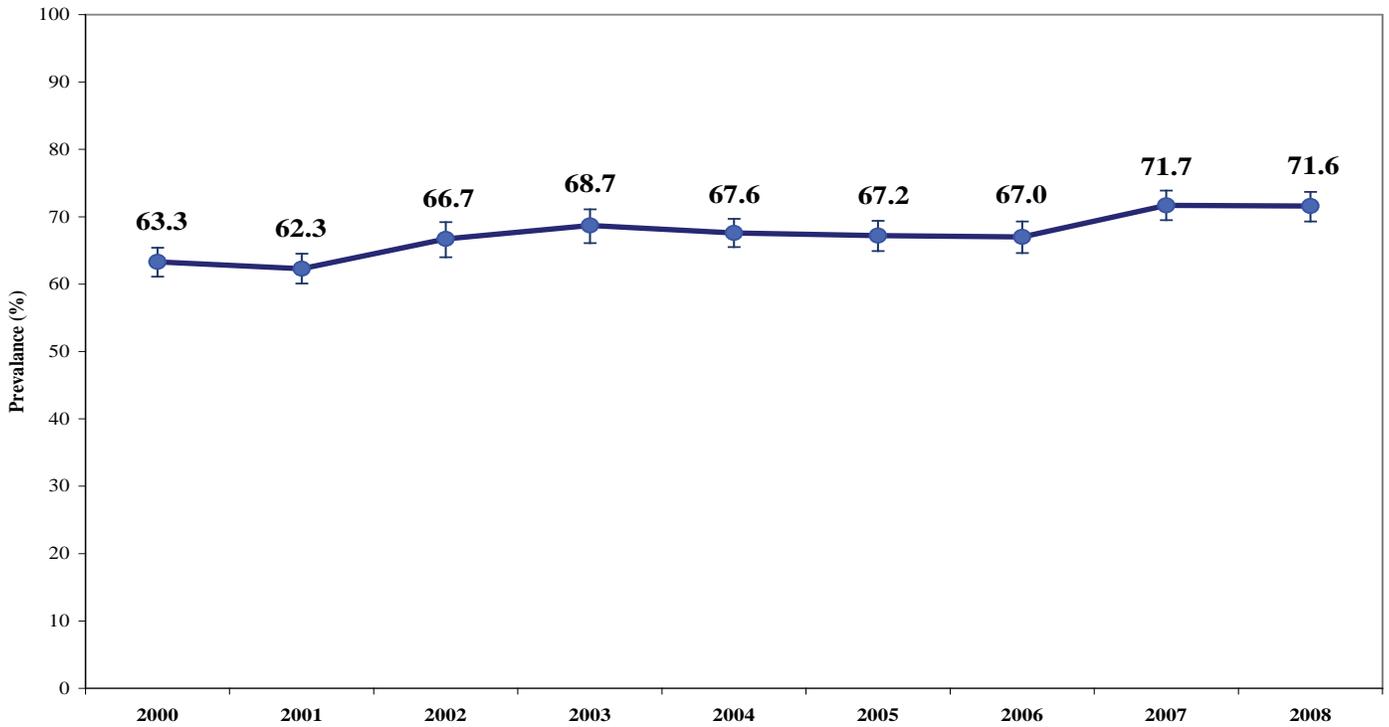
The proportion of mothers who place their infant on their back to sleep has increased from 63.3% in 2000 to 71.6% in 2008.

## **Differences Related to County of Residence:**

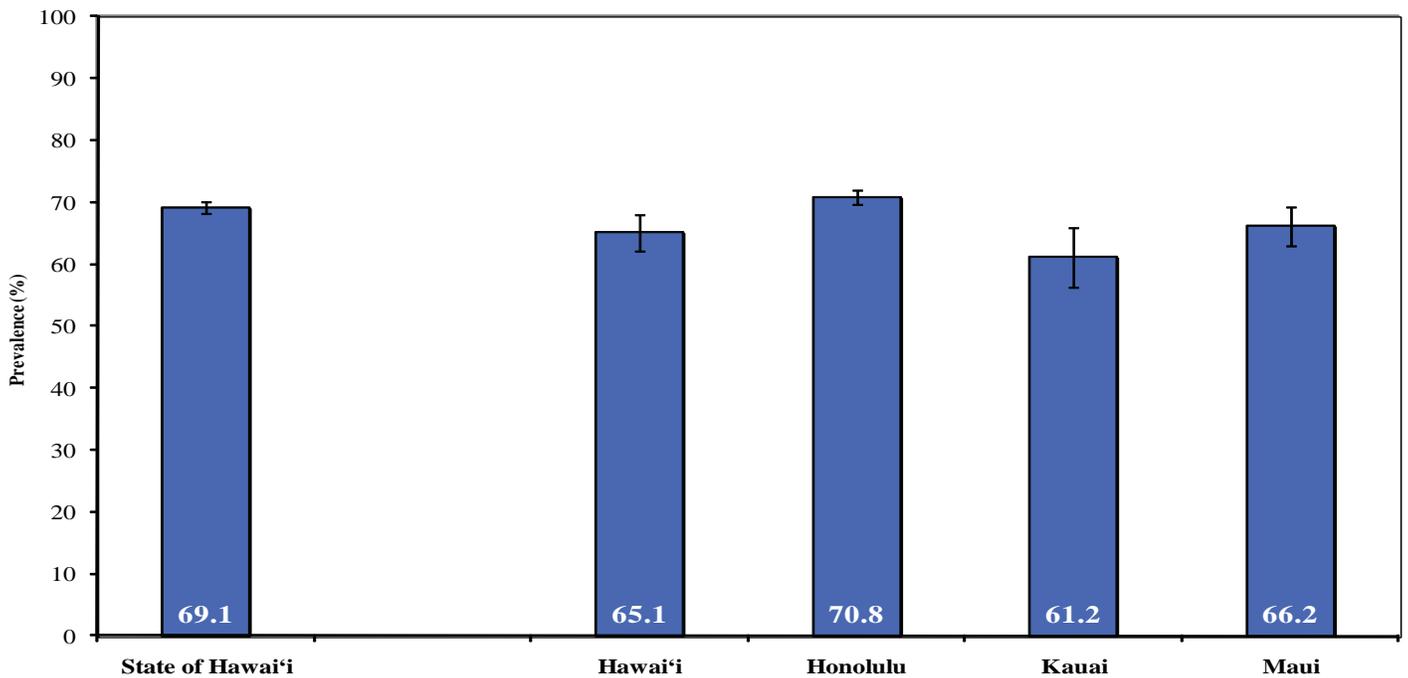
Overall, an estimated 69.1% of mothers reported a back sleep position for their infants. The highest estimate of back sleep positioning was in Honolulu County, with lower estimates in the neighboring counties.

# Infant Sleep Position

## Infant Back Sleep Position, 2000-2008

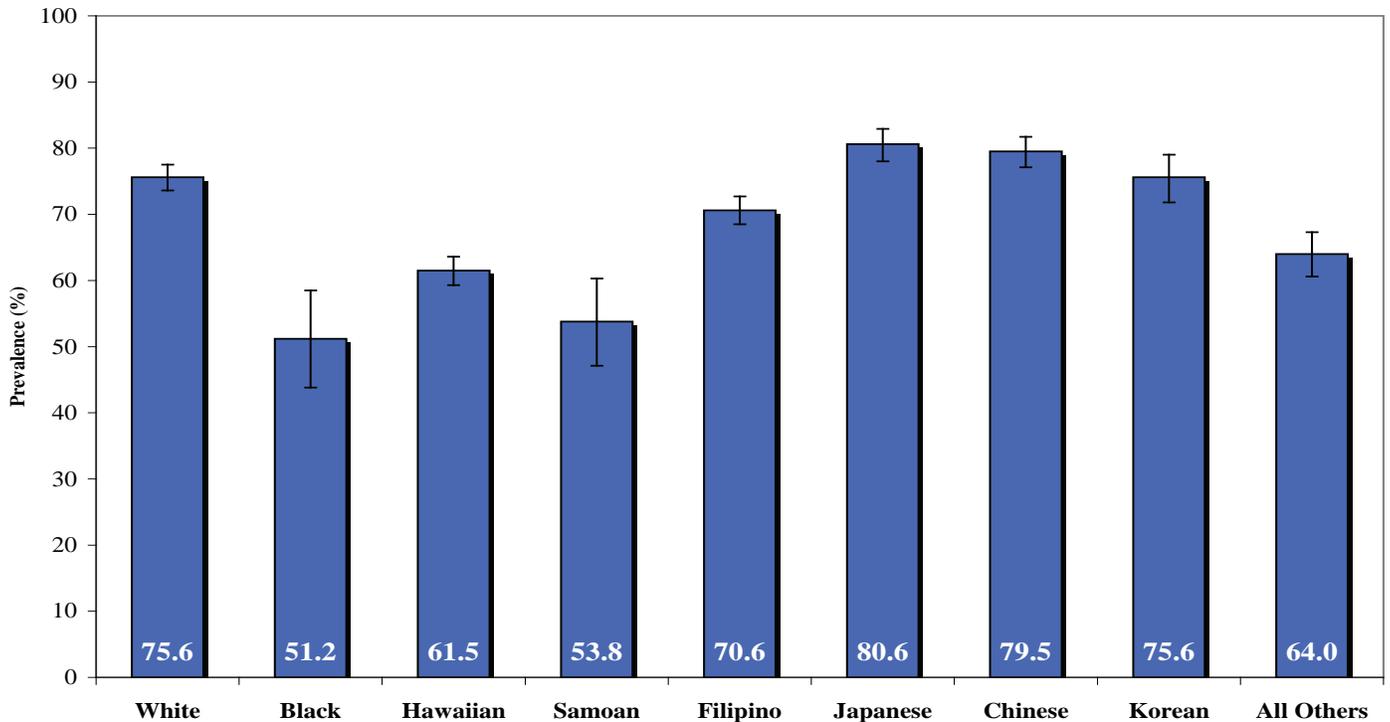


## Infant Back Sleep Position by County, 2004-2008

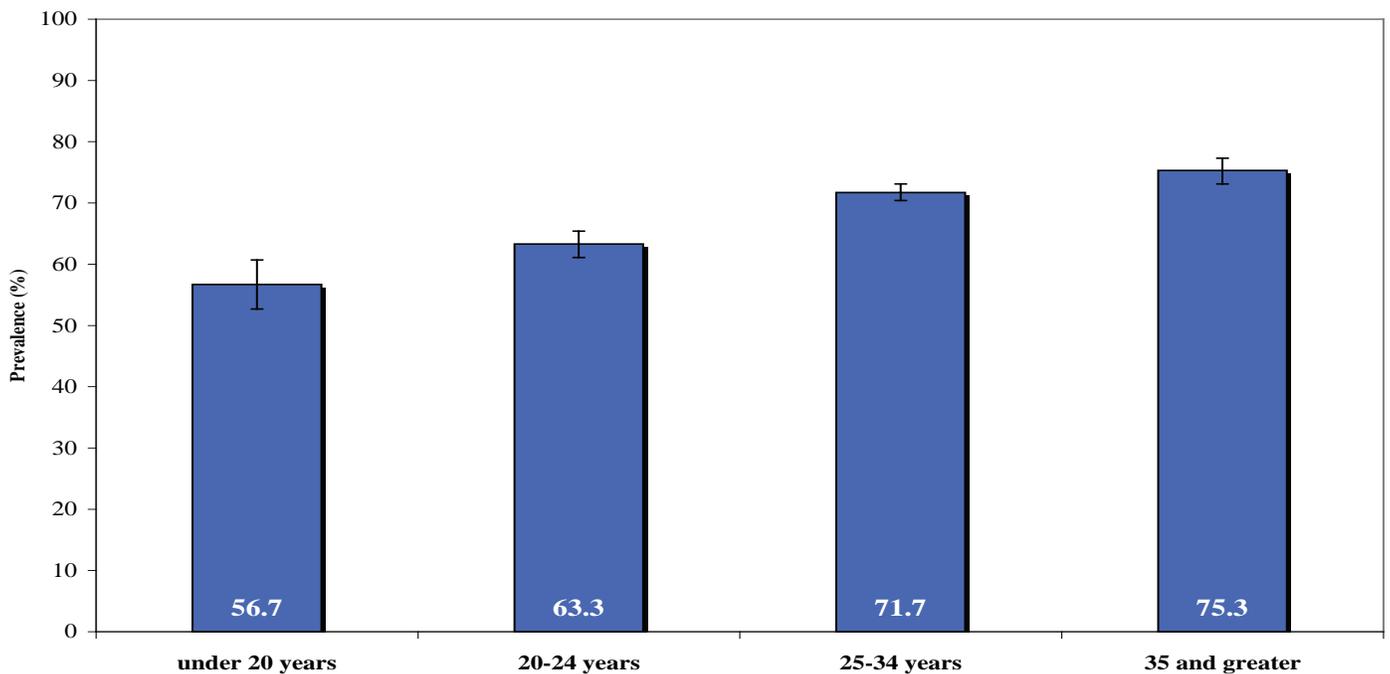


# Infant Sleep Position

## Infant Back Sleep Position by Race, 2004-2008



## Infant Back Sleep Position by Age, 2004-2008



# Infant Sleep Position

## **Differences Related to Maternal Race:**

Samoan, Black, Hawaiian mothers, and those in the “All Others” group reported the lowest estimates of back sleep position. Japanese, Chinese, Korean, and White mothers reported the highest estimates of back sleep position. The low estimates in the “All Others” group was primarily attributed to the “Other Pacific Islander” (56.7%; 95% CI = 51.5-61.7) and “refused/unknown” (61.4%; 95% CI = 41.4-78.2) groups.

## **Differences Related to Maternal Age:**

Women under 20 years and 20-24 years of age had the lowest estimates of back sleep positioning, while those that were 25-34 and 35 years of age and older had higher estimates of placing their infants to sleep on their back.

## **Recommendations/Implications:**

An estimated 69.1% of women who had a live birth reported placing their infants down to sleep in a back sleeping position with significant differences by geography, maternal race, and age. Because most infants placed on their side to sleep will naturally roll to their stomach, this sleep position is considered to be equally dangerous. In addition to a back sleep position, other factors such as appropriate bedding are important to ensure a safe sleep environment for infants. Educating mothers, families, and caregivers in the hospital with reinforcement in the outpatient setting may decrease some preventable infant deaths and improve the health of families in Hawai‘i. Particular focus may include those living on neighbor islands; those of Samoan, Black, “Other Pacific Islander,” and Hawaiian race; and those under 25 years of age. Other potential correlates that would be beneficial to explore include those related to poverty, socio-economic conditions, and cultural issues as they are likely to be associated with safe sleep environments.

# 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.

## **PRAMS 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. These questions were not asked in Hawai‘i PRAMS prior to 2004 so this report only includes data from 2004 to 2008.

## **Trends Over Time:**

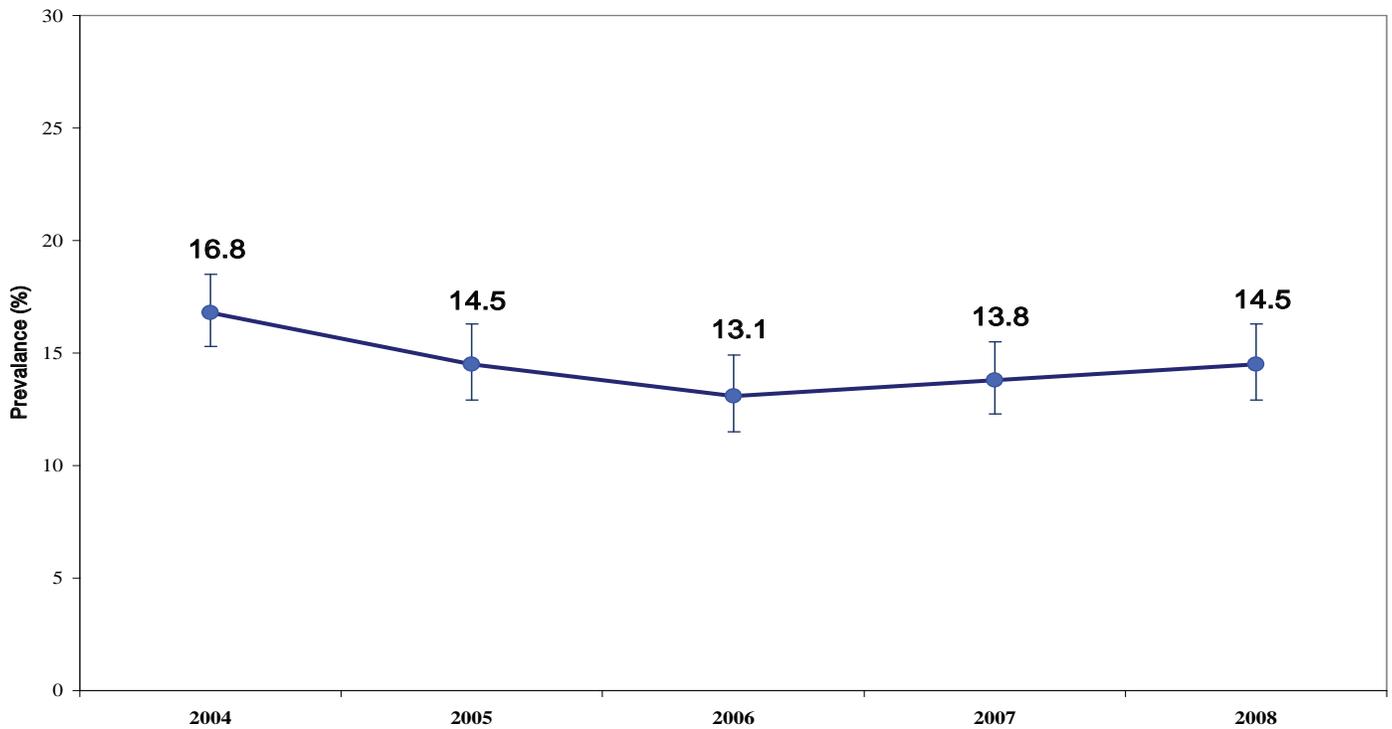
Some fluctuation over time with 16.8% reporting self-reported postpartum depressive symptoms in 2004 and 14.5% in 2008.

## **Differences Related to County of Residence:**

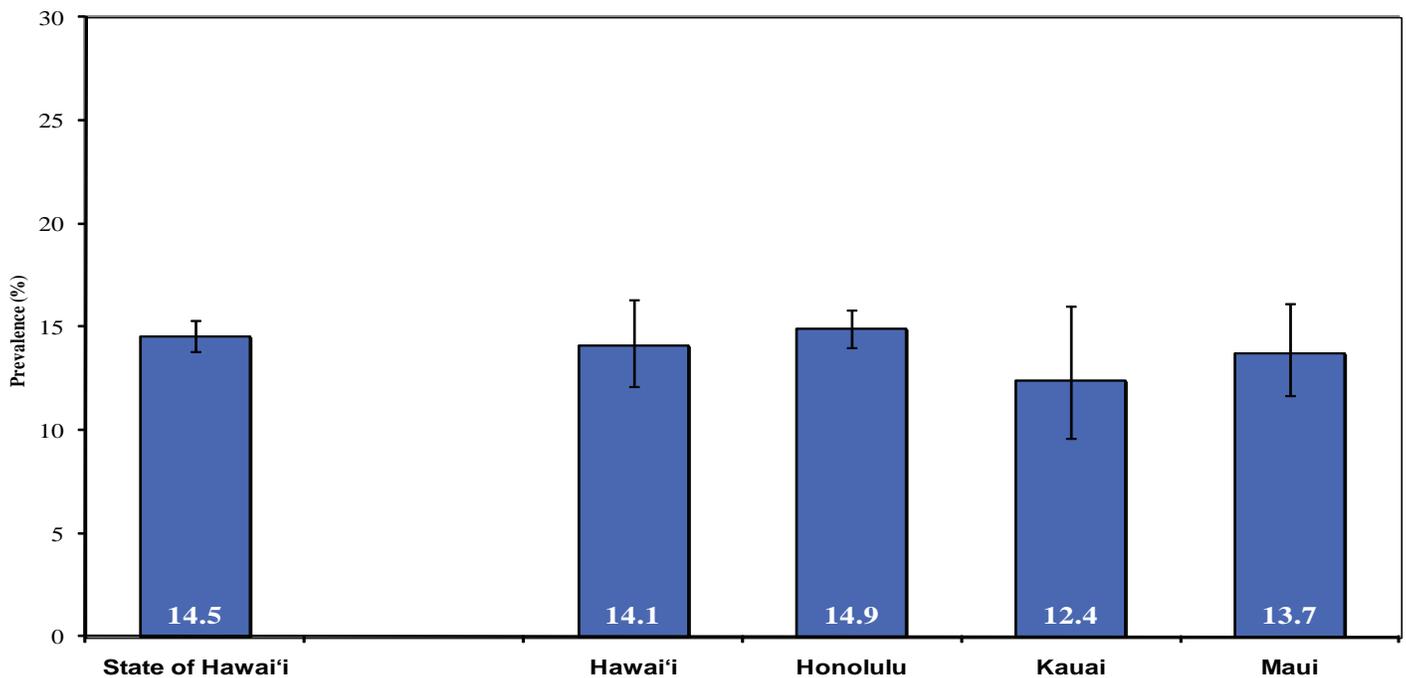
Overall, an estimated 14.5% of mothers had self-reported postpartum depressive symptoms, with estimates similar across all Counties.

# Postpartum Depression

## Postpartum Depression, 2004-2008

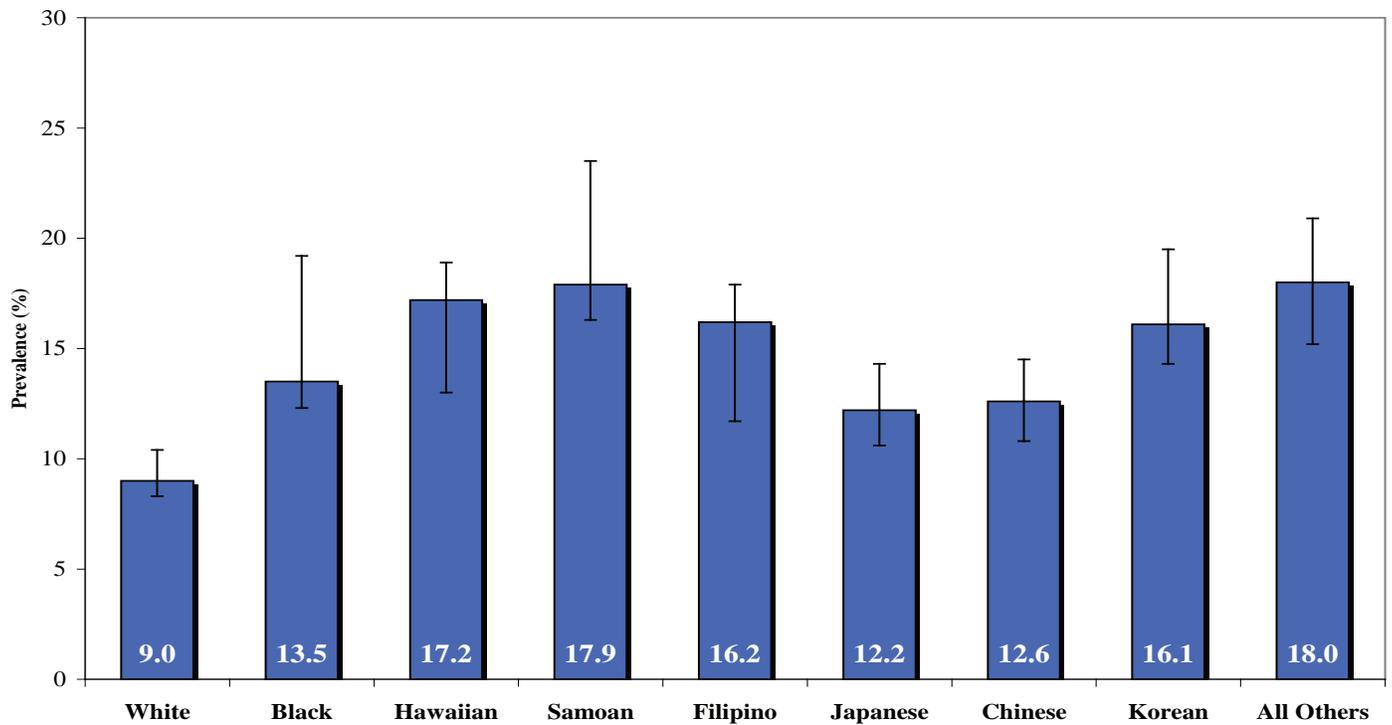


## Postpartum Depression by County, 2004-2008

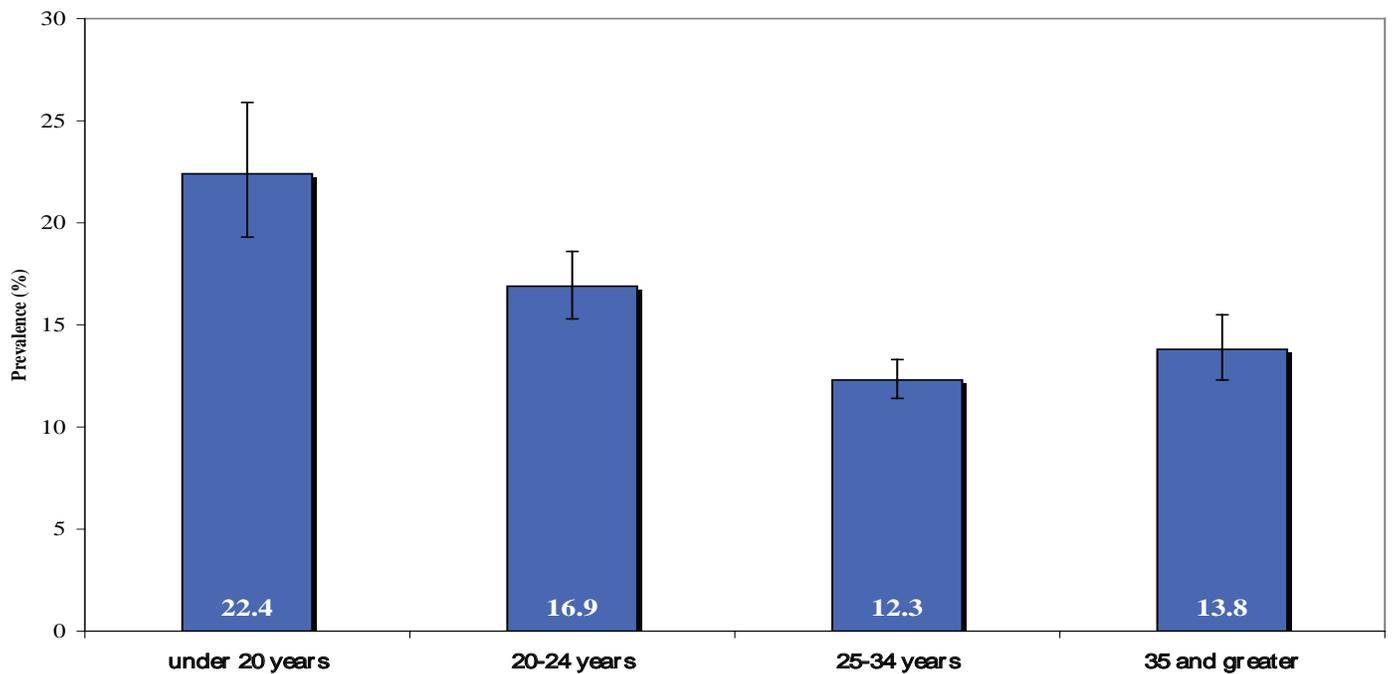


# Postpartum Depression

## Postpartum Depression by Race, 2004-2008



## Postpartum Depression by Age, 2004-2008



# Postpartum Depression

## **Differences Related to Maternal Race:**

Filipino, Samoan, Hawaiian, Korean, and those in the “All Others” group have the highest estimates of self-reported postpartum depressive symptoms. Somewhat lower estimates were seen among White mothers. The high estimates in the “All Others” group was primarily attributed to the “refused/unknown” (21.9%; 95% CI = 10.0-41.7), “Other Pacific Islander” (19.7%; 95% VI = 16.0-24.1), and “Other Asian” (18.4%; 95% CI = 13.2-25.1) groups.

## **Differences Related to Maternal Age:**

Women under 20 and 20-24 years of age had similar estimates, while those 25-34 and 35 years and older had the lowest estimates of self-reported postpartum depressive symptoms.

## **Recommendations/Implications:**

Almost 1 out of 6 women who had a live birth had self-reported postpartum depressive symptoms with significant differences by maternal race, and age. To improve health in Hawai‘i, it will be important to develop culturally appropriate programs that will increase awareness of postpartum depression and highlight the burden on society. Those that work with women during and after their pregnancy should be aware of postpartum depression, be able to do a brief assessment, and be aware of appropriate resources so that women with postpartum depression and society can enjoy the rewards and excitement of childbirth and raising a child. Particular focus may include those of Filipino, Samoan, Chinese, Korean, “Other Pacific Islander,” and “Other Asian” race; and those under 35 years of age. Other potential correlates that would be beneficial to explore include those related to poverty, socio-economic conditions, substance abuse, and intimate partner violence as they are likely to be associated with postpartum depression.

# Postpartum Contraception

## **Background:**

Sufficient spacing of births helps to promote optimal maternal and infant health outcomes. Effective use of contraception in the inter-conception period 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 in PRAMS are not having sex, not wanting to use birth control, and other reasons (e.g. absent partner, breastfeeding, ambivalence).

## **PRAMS Definition:**

Postpartum contraception was assessed among the response to the question “are you or your husband doing anything now to keep from getting pregnant?” Accompanying text in the question included not having sex at certain times, withdrawal, using birth control methods such as pills, condoms, cervical ring, intrauterine device, having their tubes tied, or their partner having a vasectomy.

## **Trends Over Time:**

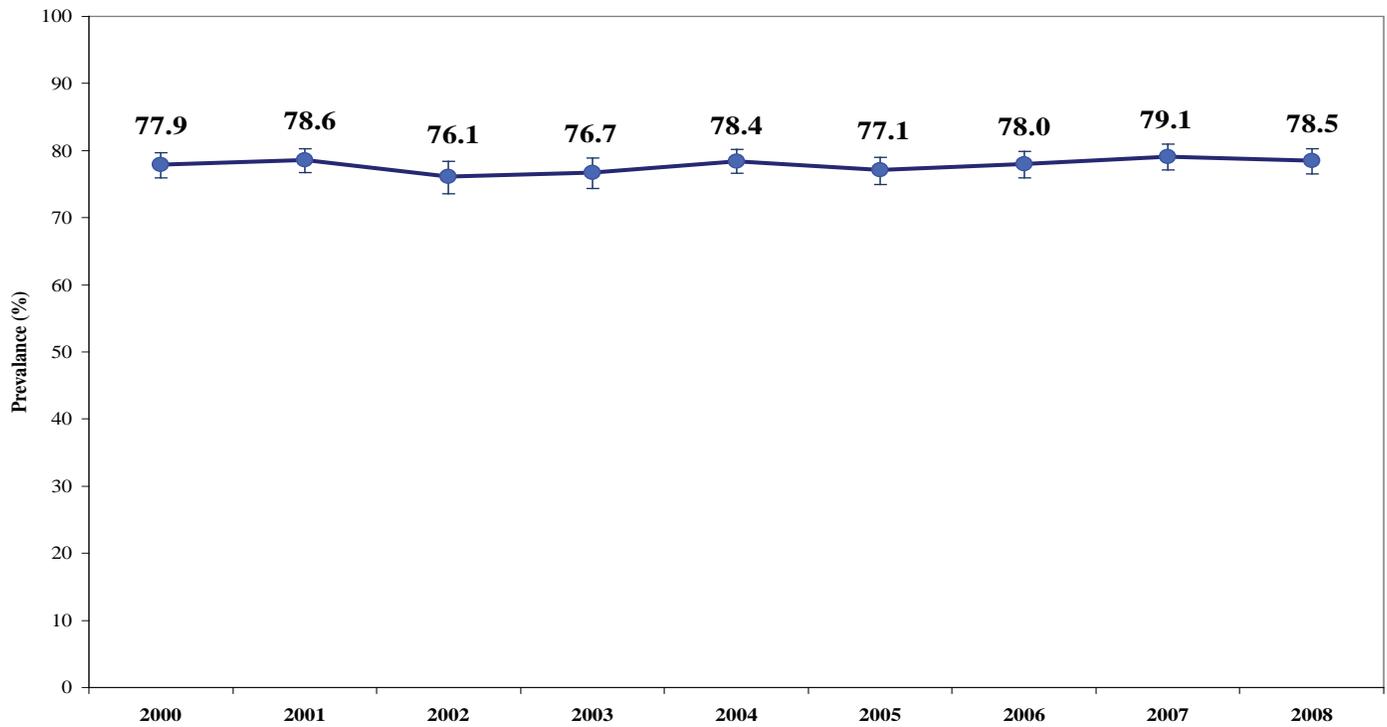
Some fluctuation over time ranging from 76.1% using some method of postpartum contraception in 2002 to 78.5% in 2008. Overall, little change since 2000 when 77.9% reported using postpartum contraception.

## **Differences Related to County of Residence:**

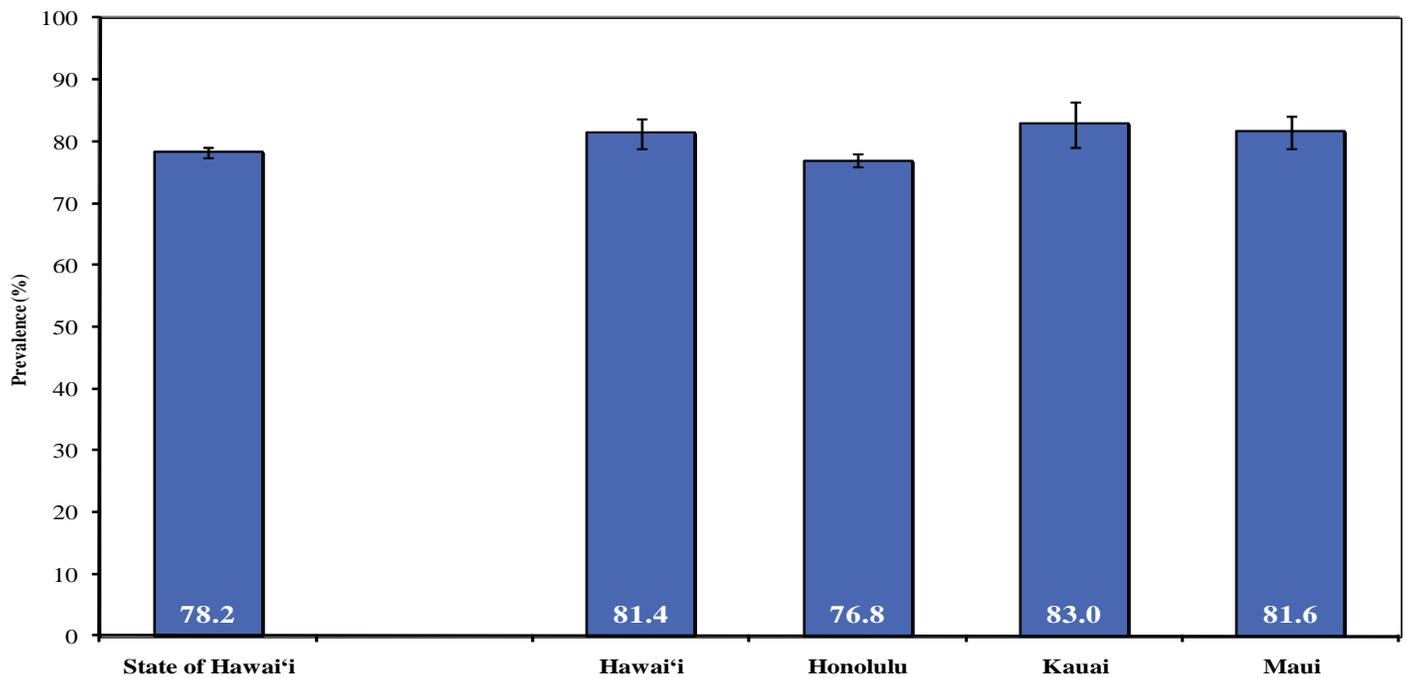
Overall, an estimated 78.2% of mothers used postpartum contraception, with the lowest estimate in Honolulu County, compared to all others.

# Postpartum Contraception

## Postpartum Contraception, 2000-2008

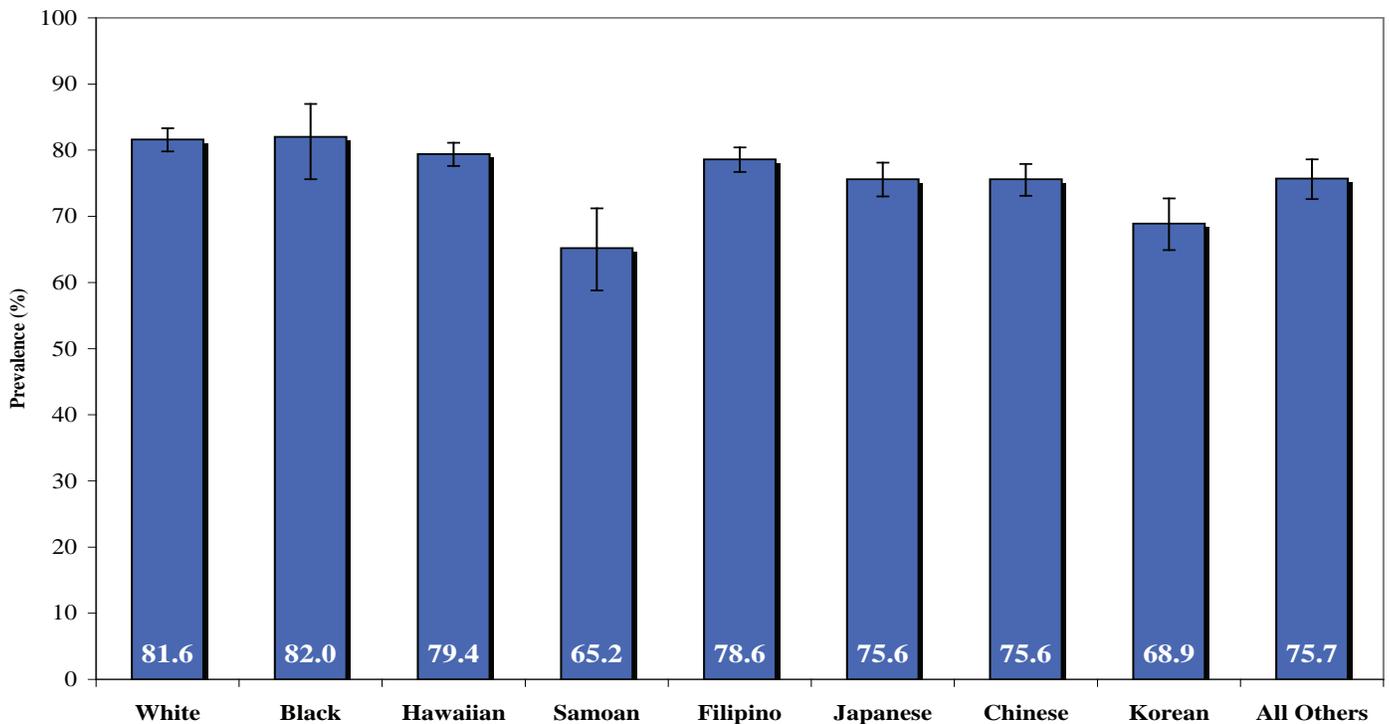


## Postpartum Contraception by County, 2004-2008

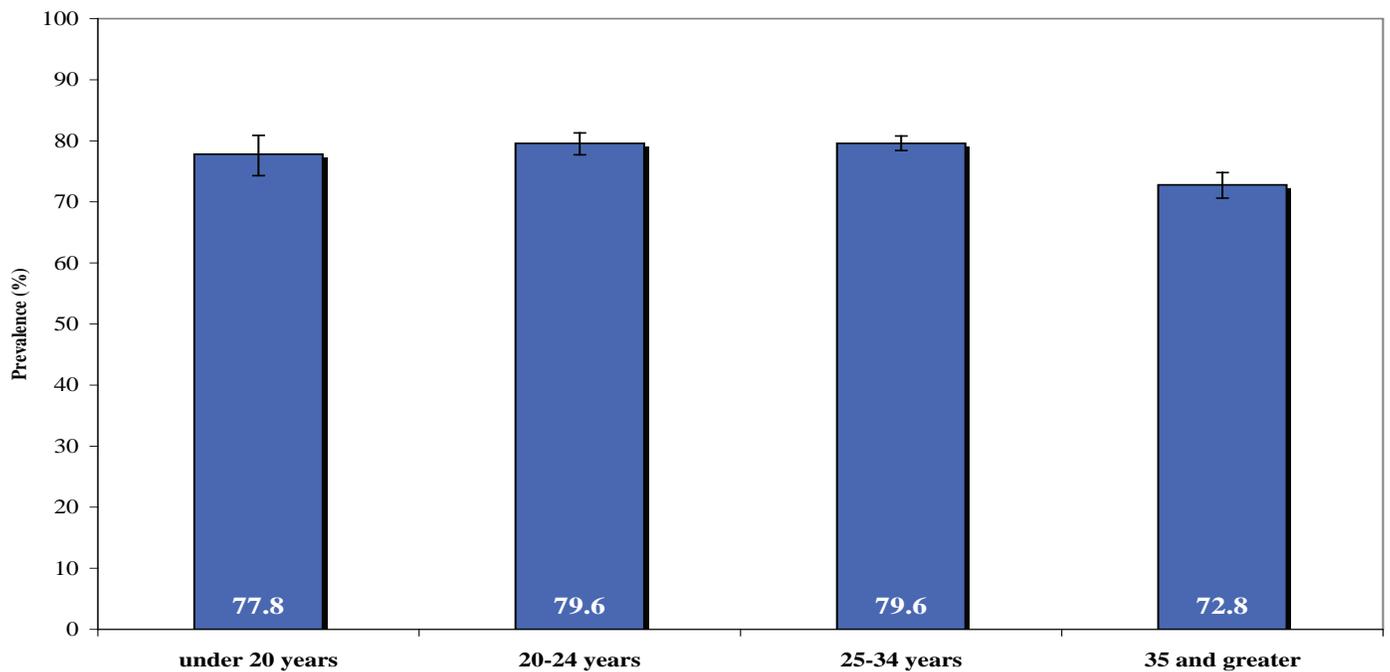


# Postpartum Contraception

## Postpartum Contraception by Race, 2004-2008



## Postpartum Contraception by Age, 2004-2008



# Postpartum Contraception

## **Differences Related to Maternal Race:**

Samoan and Korean mothers reporting the lowest estimates of using postpartum contraception. Filipino, Chinese, Japanese, Korean, and those in the “All Others” group had intermediate estimates. The highest estimates were seen in Black, White, and Hawaiian mothers. The lowest estimates in the “All Others” group was primarily attributed to the “Other Pacific Islander” (69.8%; 95% CI = 64.8-74.4) group.

## **Differences Related to Maternal Age:**

Women 35 years and older had the lowest estimates of using postpartum contraception, while those under 20, 20-24, and 25-34 years of age reported similar estimates of postpartum contraception.

## **Recommendations/Implications:**

An estimated 78.2% of women who had a live birth reported using postpartum contraception with some differences by geography, maternal race, and age. Emphasizing the use of postpartum contraception can help improve birth spacing and promote healthier outcomes across the life course. Particular focus may include those living in Honolulu County; those of Samoan, Korean, and “Other Pacific Islander” race; and those 35 years of age and older. Other potential correlates that would be beneficial to explore include those related to poverty, insurance status, and socio-economic conditions as they are likely to be associated with not receiving postpartum care including coverage for postpartum contraception.

# Infant Exposure to Secondhand Smoke

## **Background:**

Exposure to secondhand smoke increases the risk of childhood respiratory illnesses, ear infections, and sudden infant death. Exposure to secondhand smoke could come from being in the same room as a smoker including the parents, other family members, and caregivers. There is also concern related to contact with someone who has a residual amount of smoke on the clothes that they were wearing while smoking elsewhere. Although more than half of smokers quit by the last three months of pregnancy, only a third remained smoke free in the postpartum period when infants can suffer respiratory afflictions and other health problems related to secondhand smoke exposure.

## **PRAMS Definition:**

Infant exposure to smoke was determined by the self-report of the infant being present in the same room with someone who is smoking for at least one hour on an average day. This definition does not include those who have family members or care givers who closely handle an infant after smoking in a different area.

## **Trends Over Time:**

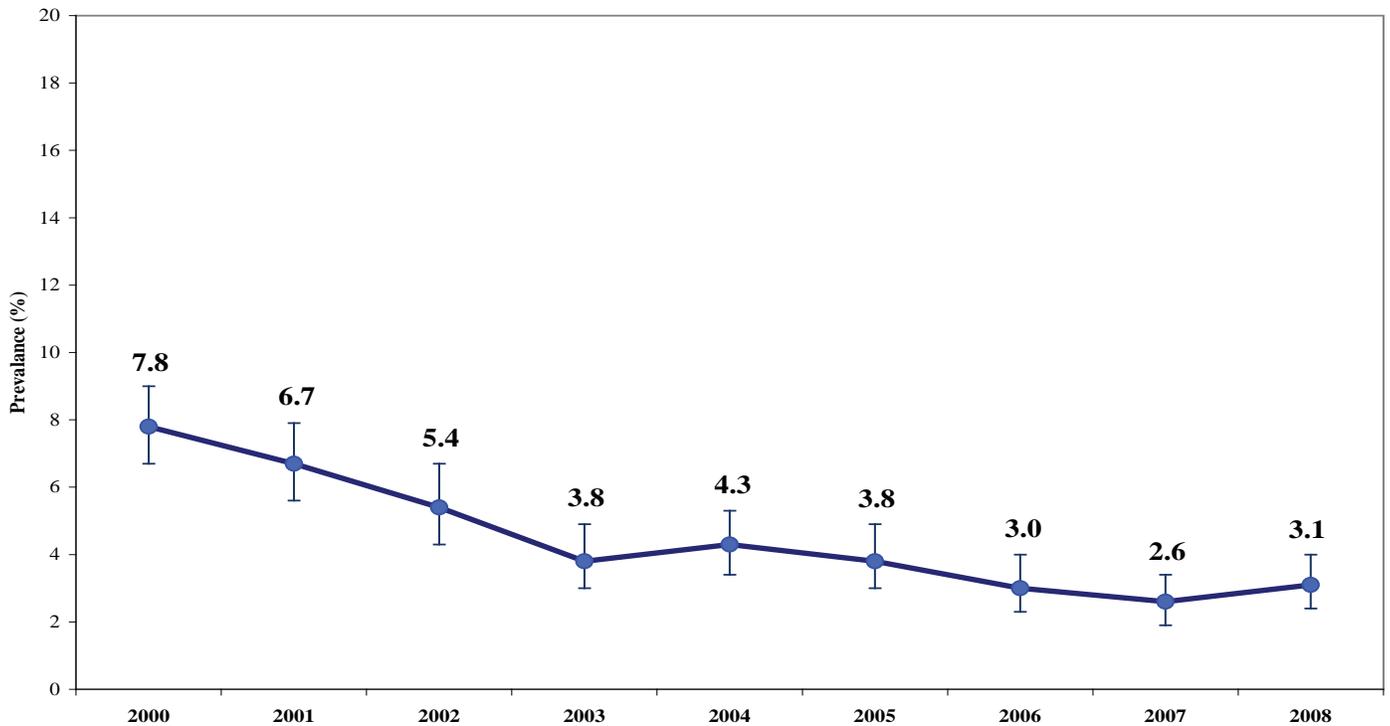
There has been an impressive decline in infant exposure to secondhand smoke from 7.8% in 2000 to 3.1% in 2008.

## **Differences Related to County of Residence:**

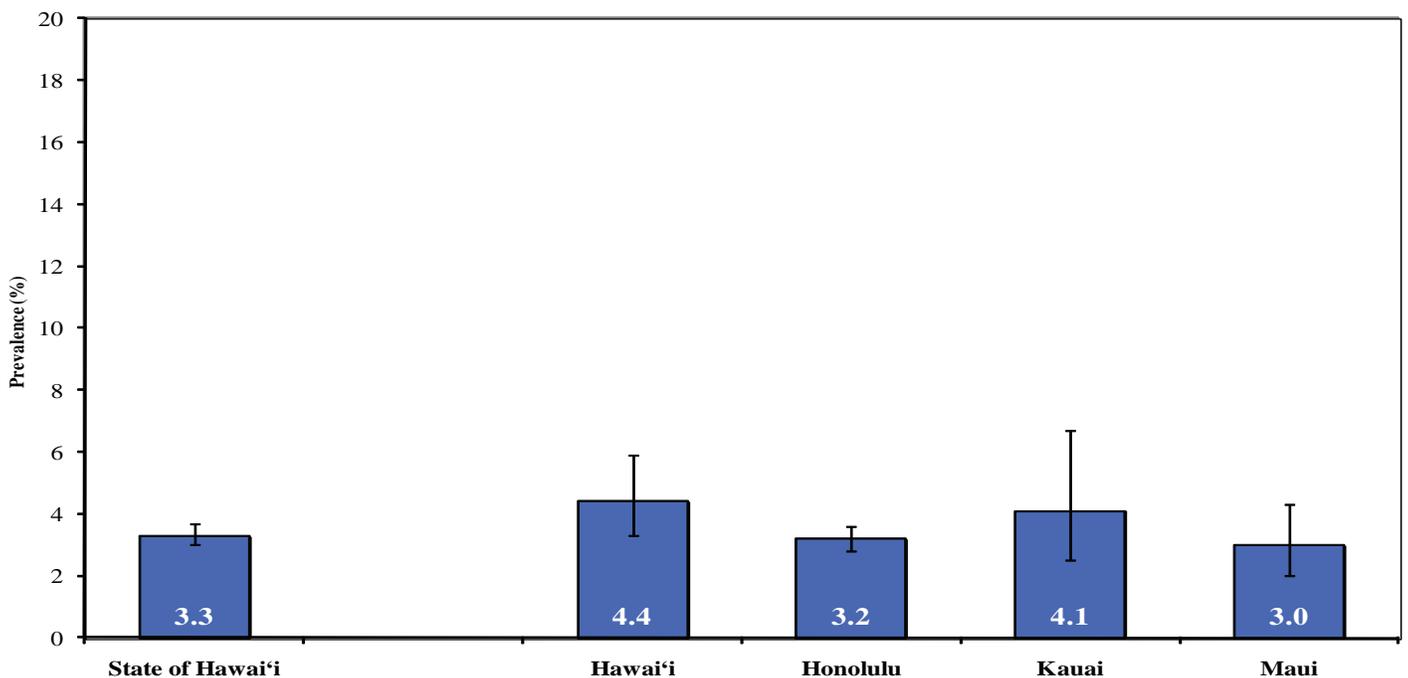
Overall, an estimated 3.3% of mothers reported their infants were exposed to smoke with higher estimates in Hawai'i and Kauai Counties, compared to Honolulu and Maui Counties.

# Infant Exposure to Secondhand Smoke

## Infant Exposure to Secondhand Smoke, 2000-2008

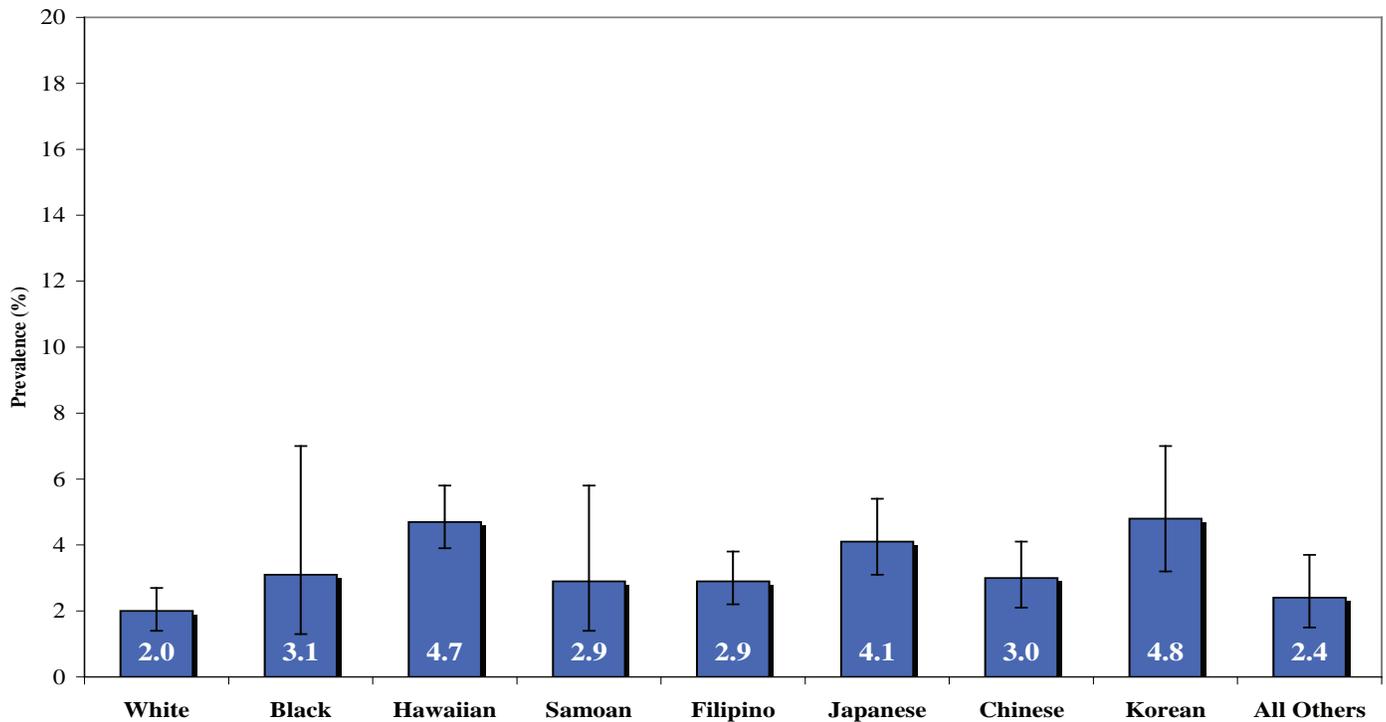


## Infant Exposure to Secondhand Smoke by County, 2004-2008

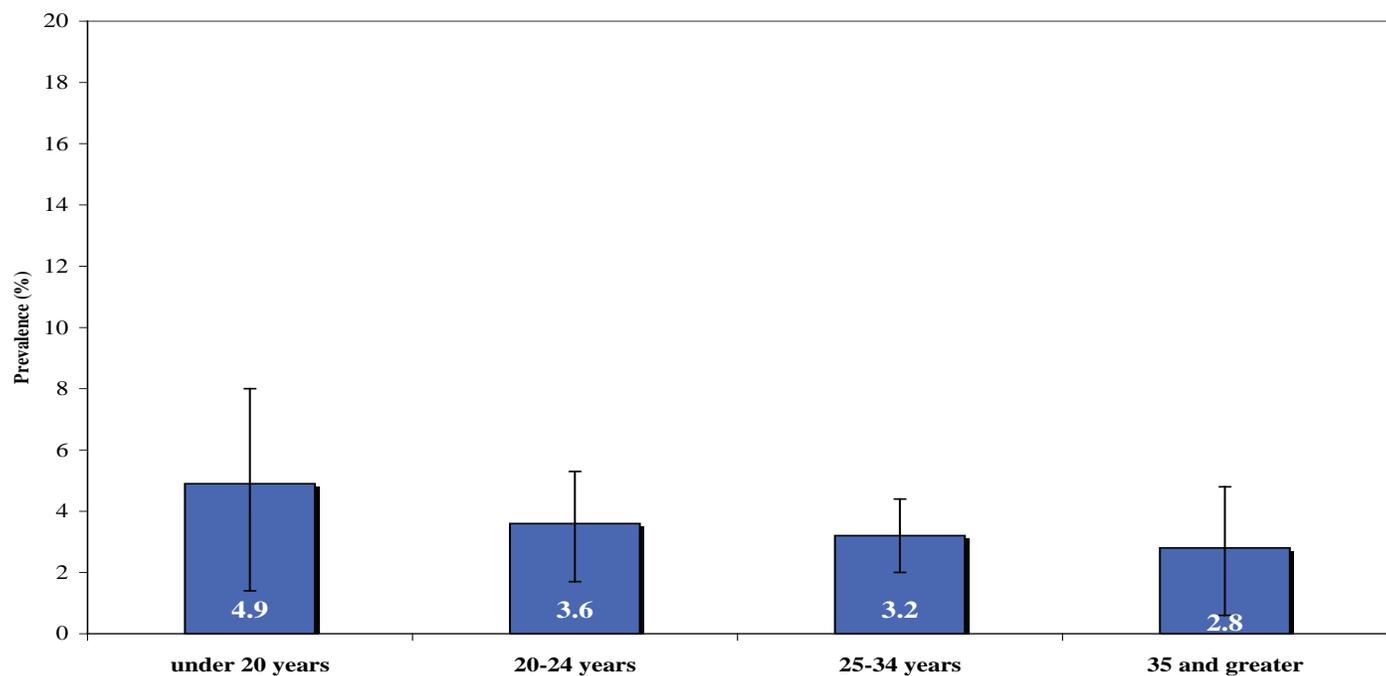


# Infant Exposure to Secondhand Smoke

**Infant Exposure to Secondhand Smoke by Race, 2004-2008**



**Infant Exposure to Secondhand Smoke, by Age, 2004-2008**



# Infant Exposure to Secondhand Smoke

## **Differences Related to Maternal Race:**

Hawaiian, Korean, and Japanese mothers reported high estimates of infant exposure to smoke. Intermediate estimates were seen in Black, Samoan, Chinese, Filipino, those in the “All Others” group. The lowest estimate was seen in White mothers. The estimate in the “All Others” group was primarily attributed to the “Other Asian” (3.8%; 95% CI = 1.6-8.4), American Indian (3.4%; 95% CI = 1.1-9.6), and “Hispanic” (2.9%; 95% CI = 1.1-7.3) groups.

## **Differences Related to Maternal Age:**

Women under 20 years of age reported the highest estimates of infant exposure to smoke, with those 20-24, 25-34, and 35 years of age and older reporting similar estimates of infant exposure to smoke.

## **Recommendations/Implications:**

An estimated 3.3% of women who had a live birth reported infant exposure to smoke averaging at least 1 hour daily with some differences by geography, maternal race, and age. The improvement seen since 2000 is due to many factors and likely includes an increased awareness of the danger of smoking, increased taxes on cigarettes, and changes related to smoking in public. Emphasizing the importance of decreasing exposure to smoke among infants may promote healthier outcomes across the life course. Particular focus may include those living in Hawai‘i and Kauai Counties; those of Hawaiian, Korean, Japanese, “Other Asian,” American Indian, and “Hispanic” race; and those under 20 years of age. Other potential correlates that would be beneficial to explore include those related to poverty and socio-economic conditions as they are likely to be associated with infant smoke exposure.

# Summary Comments

The Hawai‘i PRAMS data provides information on many common issues related to the health of the mother and her baby. Describing this unique population with questions that are included in PRAMS adds significantly more information to that obtained through vital statistics or hospital discharge data. This report was designed to illustrate some of the topics collected within the Hawai‘i PRAMS since 2000. Throughout the report, we have highlighted some of the major changes over time and pointed out significant differences based on county of residence, maternal race, and age groups. 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 of 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 to characterize why they exist and what can be done to eliminate them.

Common recommendations identified include 1) The need for further analysis between poverty and socio-economic determinants of health; 2) Improved access and availability of services; 3) Promotion of preconception health; and 4) Development of effective culturally appropriate interventions through collaborations with community partners.

Hawai‘i PRAMS is committed to provide valuable data and promote awareness of issues facing mothers, children, and their families. Additional data and information is available and those interested are encouraged to contact Hawai‘i PRAMS.

# Acknowledgements

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## Acknowledgements:

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Jane Awakuni, PRAMS Data Manager, Maternal and Child Health Branch  
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## Special Thanks to:

Mothers that responded to the PRAMS survey  
Office of Health Status and Monitoring, Hawai‘i Department of Health  
Tuyet Hayes, MEd

## Suggested Citation:

Hawai‘i PRAMS. Hawai‘i *PRAMS Trend Report 2000-2008*. Honolulu, HI.  
Hawai‘i Department of Health. Family Health Services Division. August 2010.

## Additional Resources:

<http://Hawaii.gov/health/family-child-health/mchb/programs/prams.html>

<http://www.cdc.gov/prams/index.htm>

\* position supported by the Family Health Services Division; the MCH Epidemiology Program, Centers for Disease Control and Prevention; and the MCH Bureau, Health Resources and Services Administration

\*\*position supported by the Family Health Services Division; the MCH Epidemiology Program, Centers for Disease Control and Prevention; and the Council of State and Territorial Epidemiologists Fellowship Program

## Comments from Hawai‘i PRAMS moms:

*“I hope my answers will help you know more about the health of mothers and babies in Hawaii.”*

*“Everyone should breastfeed their babies. I love the special bond I have with my little girl. This bond carries on till they’re adults. Mothers and babies would be more healthy.”*

*“During my pregnancy, I enjoyed walking as any form of exercise. It really helped me when I gave birth.”*

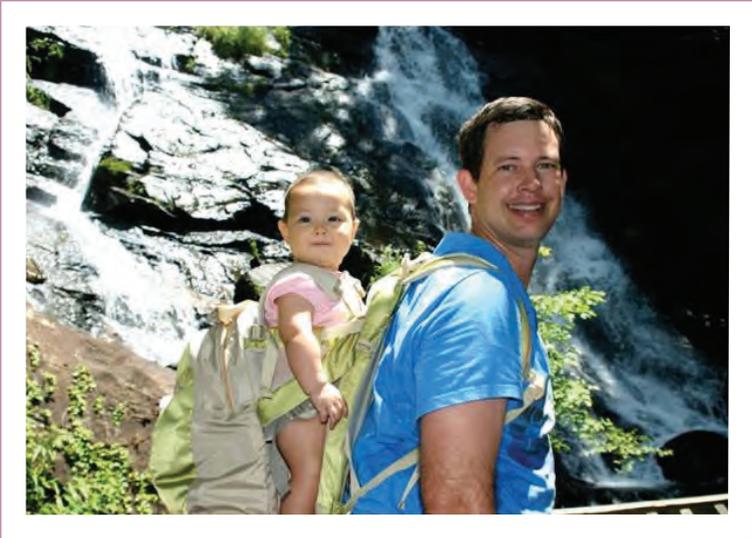
*“Babies are a true blessing no matter how hard the pregnancy is.”*

*“Parents smoking around kids should be fined as it’s putting the children at such a disadvantage.”*

*“I see so many parents/grandparents putting infants in dangerous car situations--no car seat, poorly installed car seat, riding in front seats. I feel there needs to be more education given to other family members-aunties/uncles/grandparents.”*

*“I believe the need for more emotional support for new mothers is important.”*

*“I would just like to say ‘Thank You!’ for caring and being there for all mothers and keiki of Hawai‘i and abroad. It’s people like you who make it easy for us to get better care for our families and ourselves.”*



# Hawai'i PRAMS

## Trend Report

**2000-2008**

**Family Health Services Division  
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Honolulu, Hawai'i 96816**

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Kauai: (808) 274-3141 ext. 34060#

Lanai & Molokai: 1-800-468-4644 ext. 34060#

This document is also available online at:

**<http://Hawaii.gov/health/doc/pramstrendreport2010.pdf>**

We value your feedback, please complete the evaluation form online at:

**<http://hawaii.gov/health/doc/eval.pdf>**

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The Hawai'i PRAMS project is funded through the Centers for Disease Control & Prevention (CDC), Division of Reproductive Health through grant number 5UR6DP000490. The publication of this report was made possible by grant number H18MC00012 from the U.S. Department of Health and Human Services (HHS). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of HHS.