Oral Health Surveillance in Hawaii, 2014

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Family Health Services Division

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Public Health Surveillance

- "Public health surveillance is considered as the systematic, ongoing assessment of health risks related to the community based on the collection, interpretation, analysis, and dissemination of information…Public health action is based on its majority to an effective, timely and reliable surveillance system."[1]

- Whole Population vs. Specific Groups
  - Age, Race, Gender, Income, Medicaid, etc…

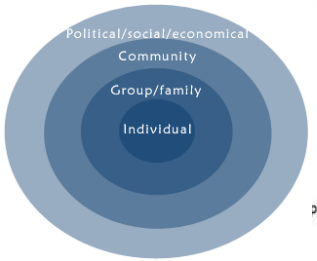
Dr. Arana, CDC, http://publichealthobserver.com/definition-of-surveillance-system/

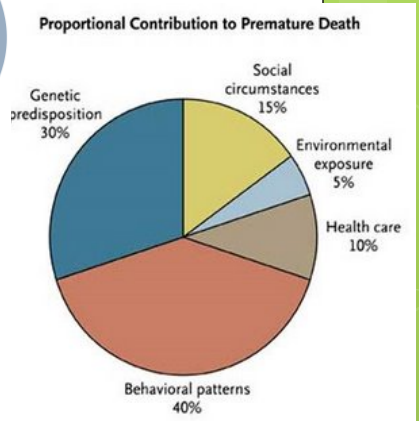
Disparities

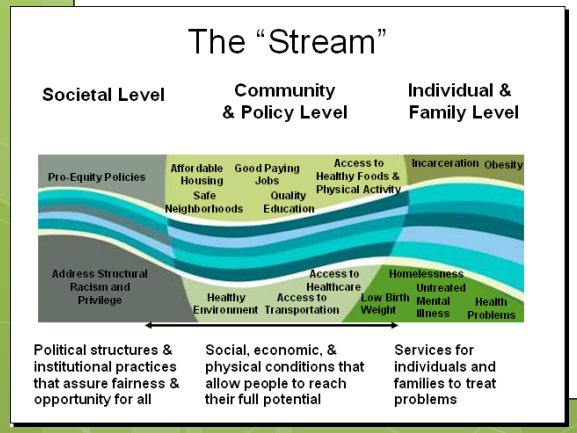
- Disease and Health doesn't randomly affect people
- Differences are seen between populations
  - Age
  - Race/ethnicity
  - Socio-economic
  - Geographic
  - Insurance status
  - ……..
- These differences are often called disparities
- Are these differences impactful? Unjust? Inequitable
- Health inequity---may be due to the inability for certain populations to access care or other factors?

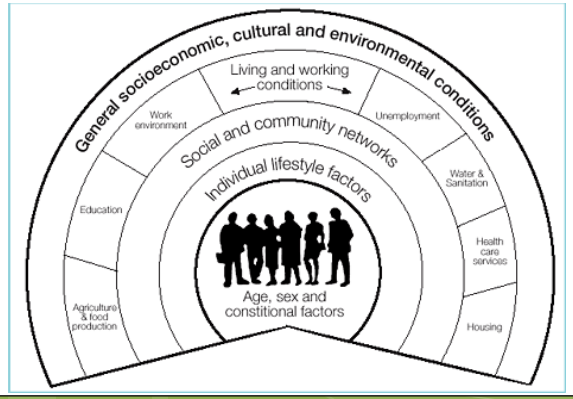
Social Determinants

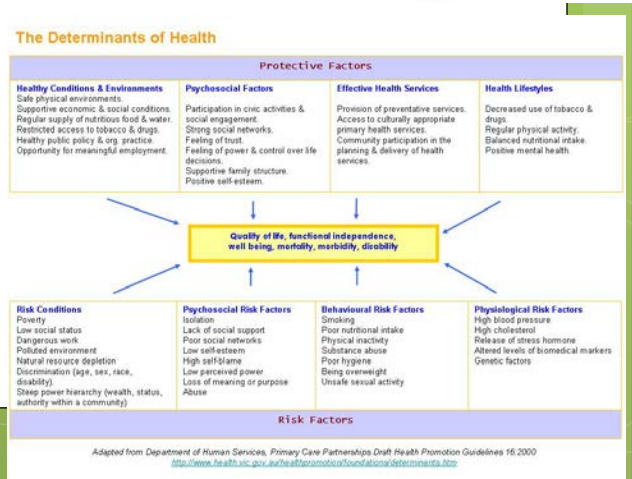
"The social determinants of health are the conditions in which people are born, grow, live, work and age, including the health system. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels, which are themselves influenced by policy choices. The social determinants of health are mostly responsible for health inequities - the unfair and avoidable differences in health status seen within and between countries." (WHO)







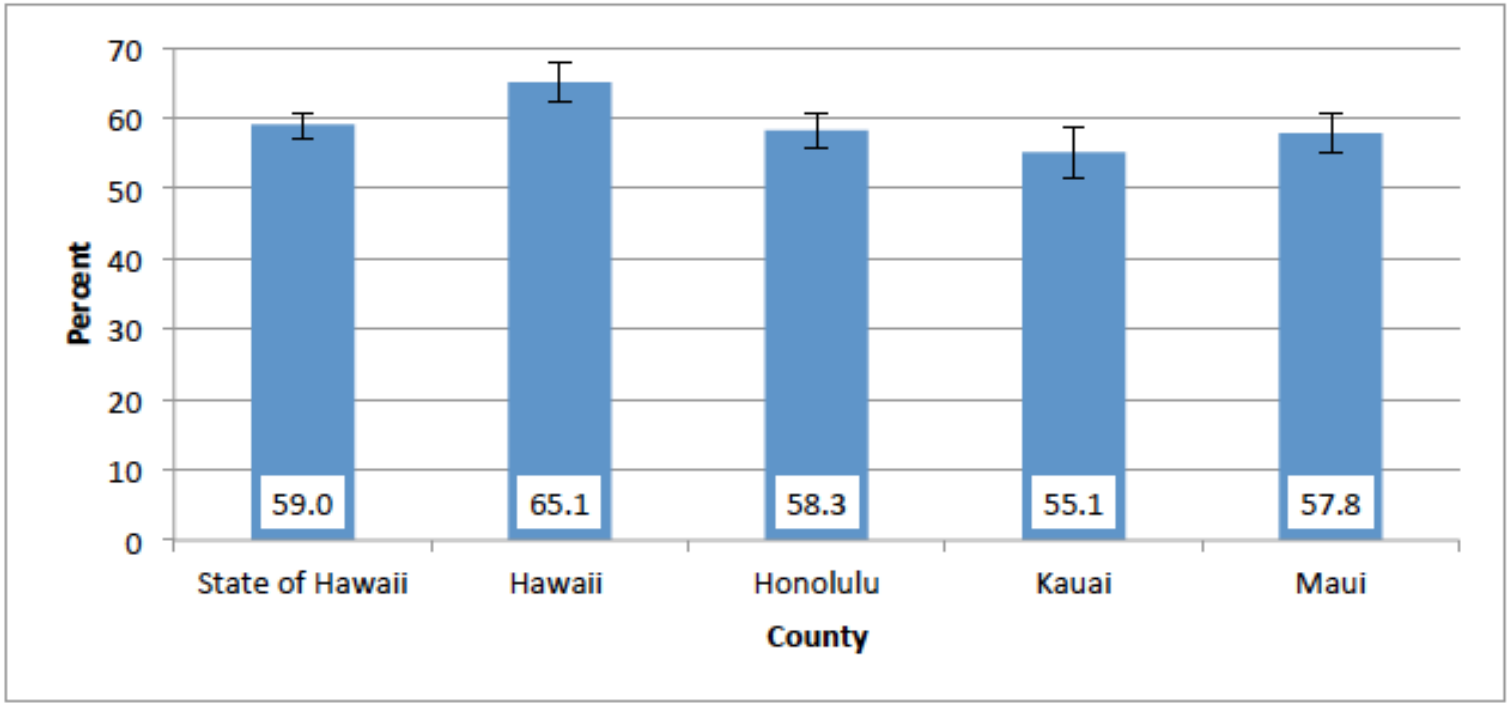




Pregnancy Risk Assessment Monitoring System (PRAMS)

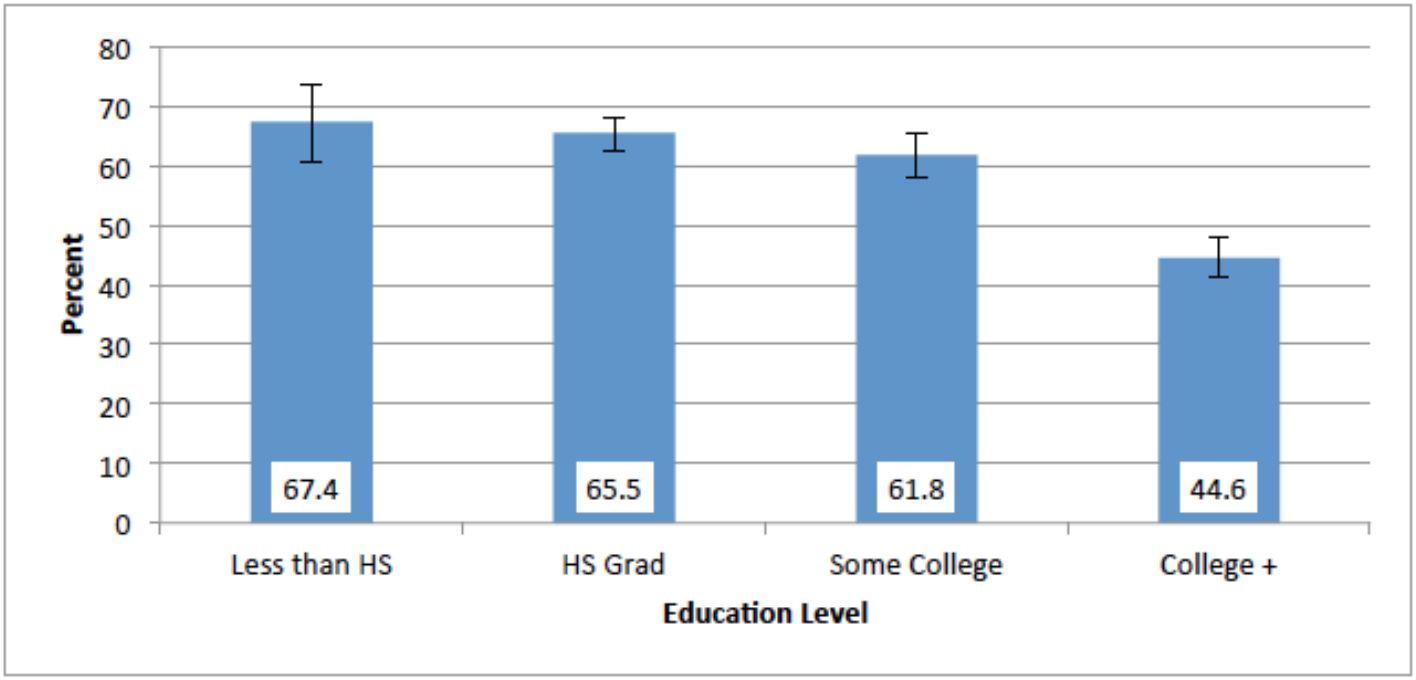
- Population based survey of mothers and their infants: Experiences before, during, after
- CDC survey (mail with telephone f/u)
- 39 states in 2010
- Annual sample size ~2000
- Common subgroup populations: **Maternal Age, Maternal Race, Maternal Education, Federal Poverty Level, Insurance, County of Residence**

Percent of Mothers With no Dental Visit During Pregnancy, by State and County (PRAMS 2009-2011)



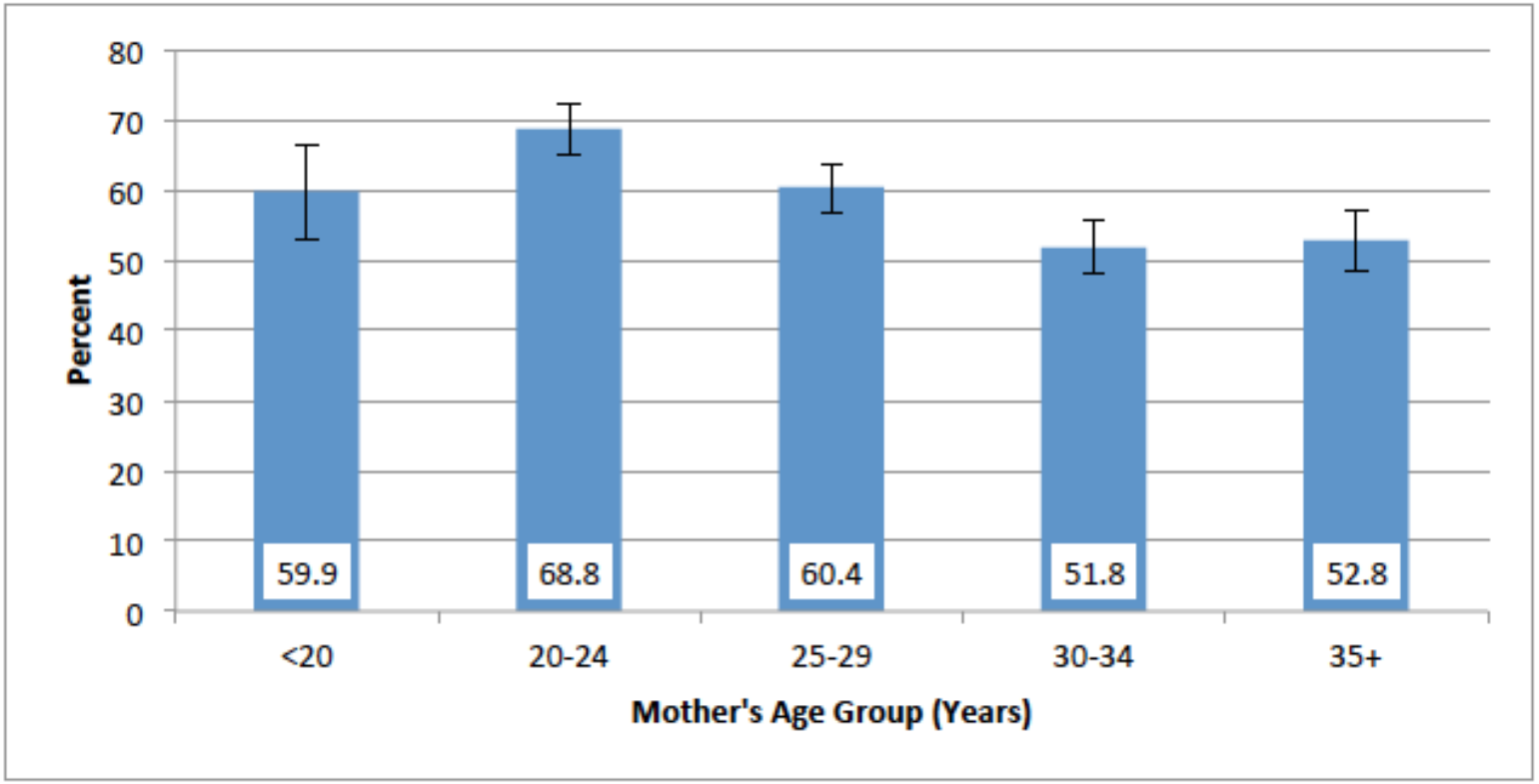
The highest prevalence of no dental visit is among mothers in Hawaii County (65.1%) and the lowest prevalence of no dental visit is among mothers in Kauai County (55.1%). The estimate for Hawaii County is significantly higher than the overall State estimate of 59.0%.

Percent of Mothers With no Dental Visit During Pregnancy, by Education Level (PRAMS 2009-2011)



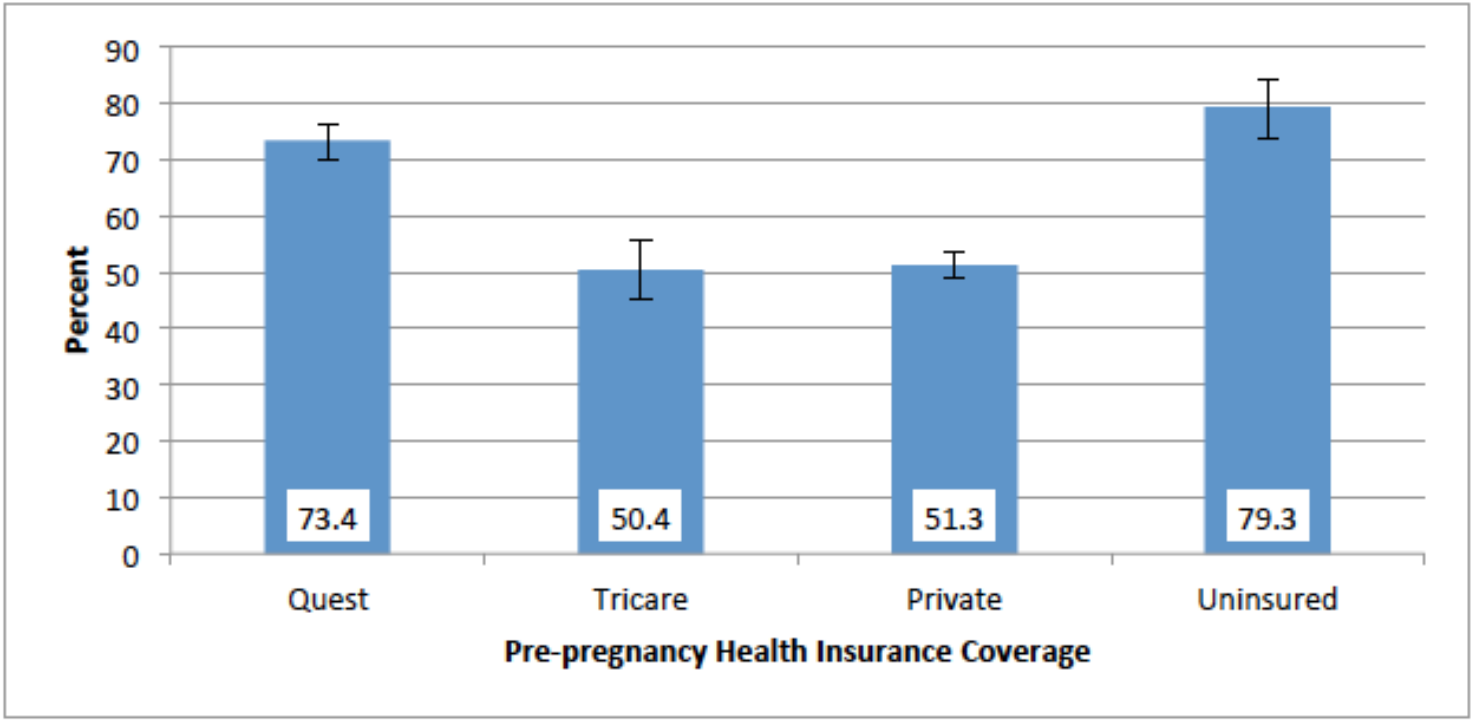
Mothers with a less than high school education have the highest prevalence of no dental visit (67.4%) and mothers with a college and beyond education level have the lowest prevalence of no dental visit (44.6%).

Percent of Mothers With no Dental Visit During Pregnancy, by Mother's Age (PRAMS 2009-2011)



The highest prevalence is among mothers that were 20-24 year olds (68.8%) and the lowest prevalence is among mothers aged 30-34 years (51.8%) and 35 years and older (52.8%).

Percent of Mothers With no Dental Visit During Pregnancy, by Pre-pregnancy Health Insurance Coverage (PRAMS 2009-2011)



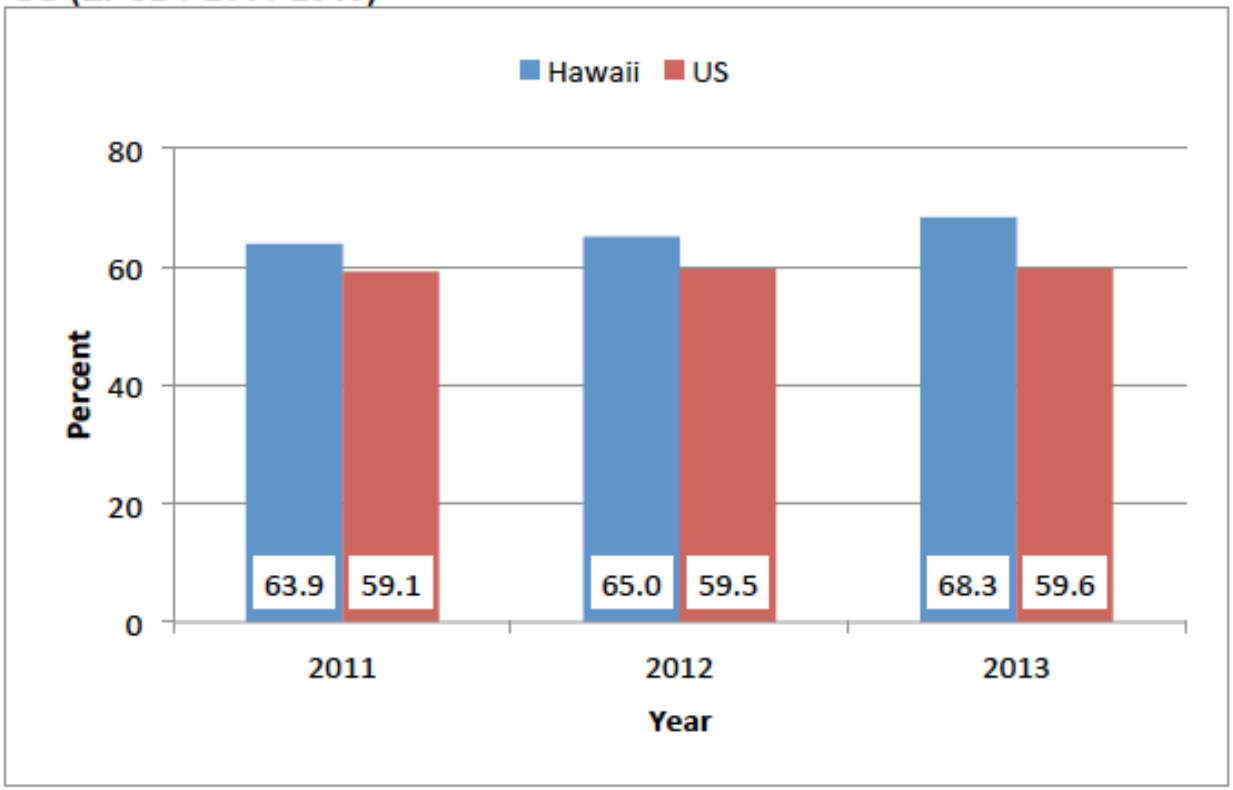
Mothers who are uninsured or have Quest/Medicaid health insurance pre-pregnancy have the highest prevalence of no dental visit during pregnancy (79.3% and 73.4%, respectively) while mothers on Tricare military insurance or private insurance have the lowest prevalence of no dental visit during pregnancy (50.4% and 51.3%, respectively).

Early and Periodic Screening Diagnostic and Treatment (EPSDT)

- Medicaid/Quest
  - Claims Data?
  - EPSDT Child data (Form 416)
  - Other EPSDT data?

- EPSDT Data accessible via the internet, comparable data across states, reported on an annual basis, limited to children
- No subgroups other than specific age groups available

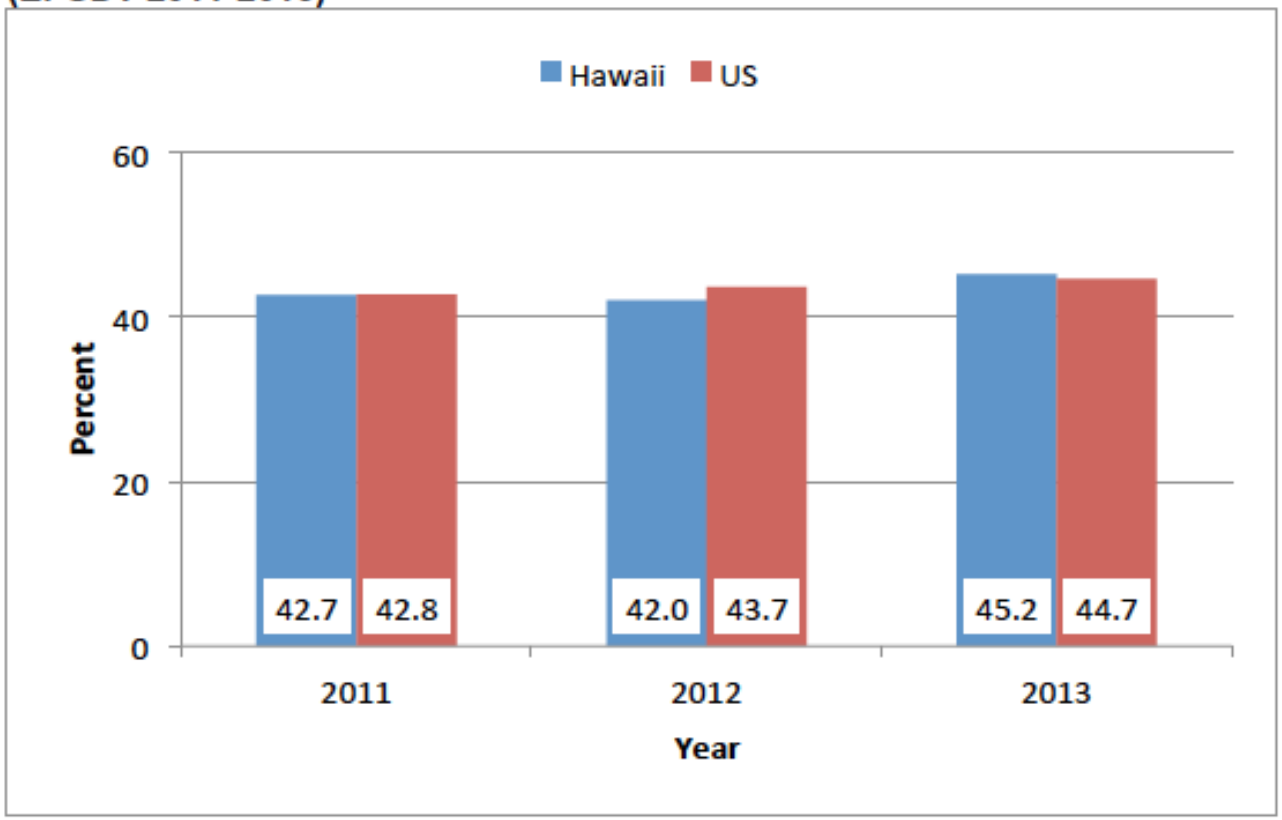
Percent of EPSDT children aged 6-9 years old, Receiving dental services in the past year by Year, Hawaii and US (EPSDT 2011-2013)



Note: 95% Confidence Intervals not available

The percent of EPSDT eligible children aged 6-9 years receiving dental services in the past year increased from 63.9% in 2011 to 68.3% in Hawaii in 2013. Nationally, the estimate for EPSDT children aged 6-9 years has been lower than Hawaii with an estimate of 59.6% in 2013.

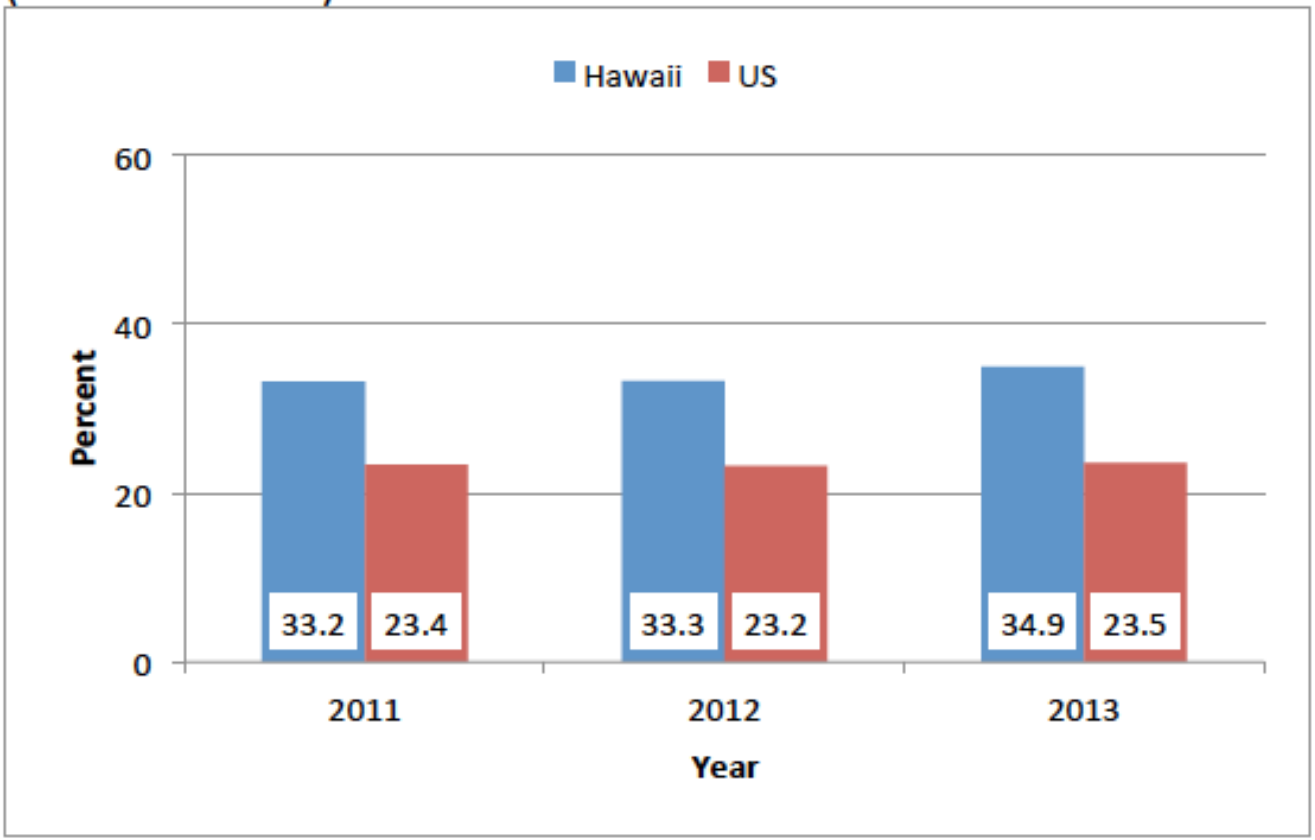
Percent of Hawaii EPSDT Children Receiving Preventive Dental Services by Year, Hawaii and US (EPSDT 2011-2013)



Note: 95% Confidence Intervals not available

The percent of children receiving preventive dental services increased slightly over time in both the US and Hawaii. The estimate in Hawaii in 2013 was 45.2% similar to the 44.7% for the US.

Percent of Hawaii EPSDT Children Receiving Dental Treatment Services by Year, Hawaii and US (EPSDT 2011-2013)



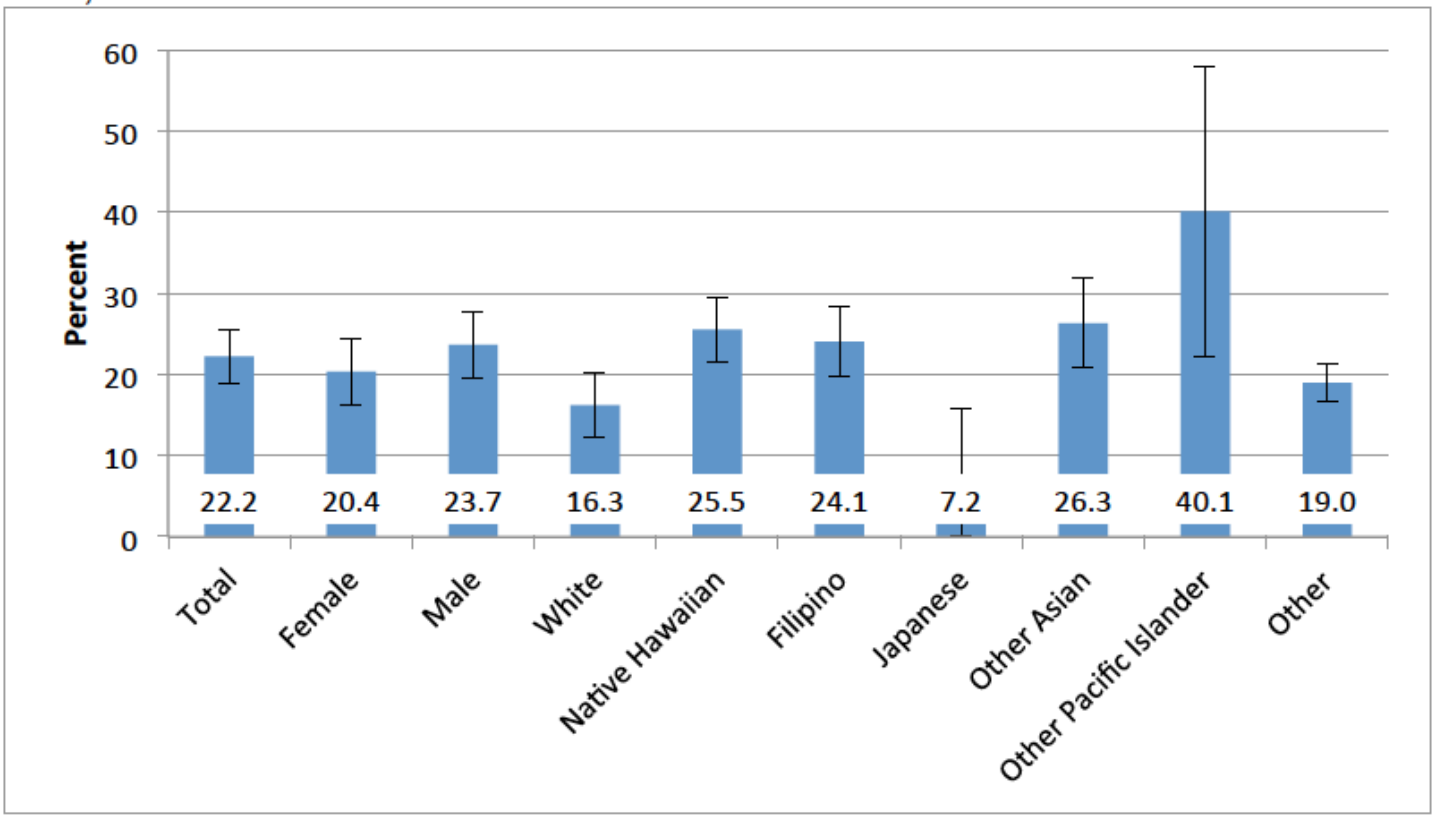
Note: 95% Confidence Intervals not available

The percent of children receiving dental treatment services was higher in Hawaii than the US with about the same proportions over the time period.

Youth Risk Behavior Survey (YRBS)

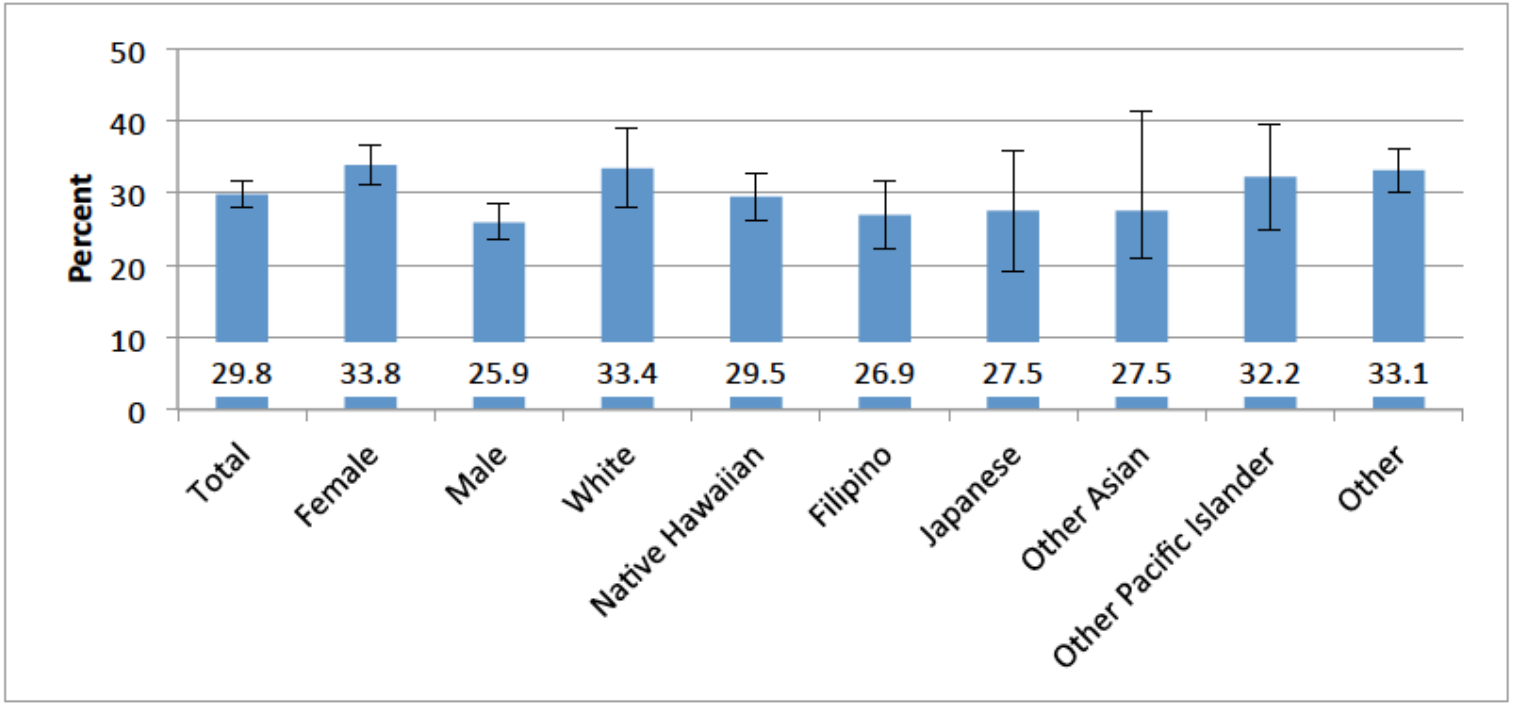
- Public Middle and High School Students
- CDC survey-In person
- All 50 states
- Administered in odd years
- Annual Hawaii sample size ~6000
- Common Subgroup Populations: **Age, Grade, Race, Sex, County of Residence**

Percent of Public Middle School Students with No Dental Visit in Past 12 Months, by Sex and Race, YRBS 2013



The overall percent of Hawaii middle school students with no dental visit in the past 12 months is 22.2%. The prevalence of no dental visit among middle school students does not vary by sex. The prevalence does vary by race with 40.1% of "Other Pacific Islander" middle school students not having seen a dentist in the past year. Intermediate estimates were found in Native Hawaiian (25.5%), Filipino (24.1%), and "Other Asian" (26.3%) students. Japanese middle school students have the lowest prevalence of no dental visit (7.2%).

Percent of Public Middle School Students with a Toothache in Past 12 Months, by Sex and Race, YRBS 2013

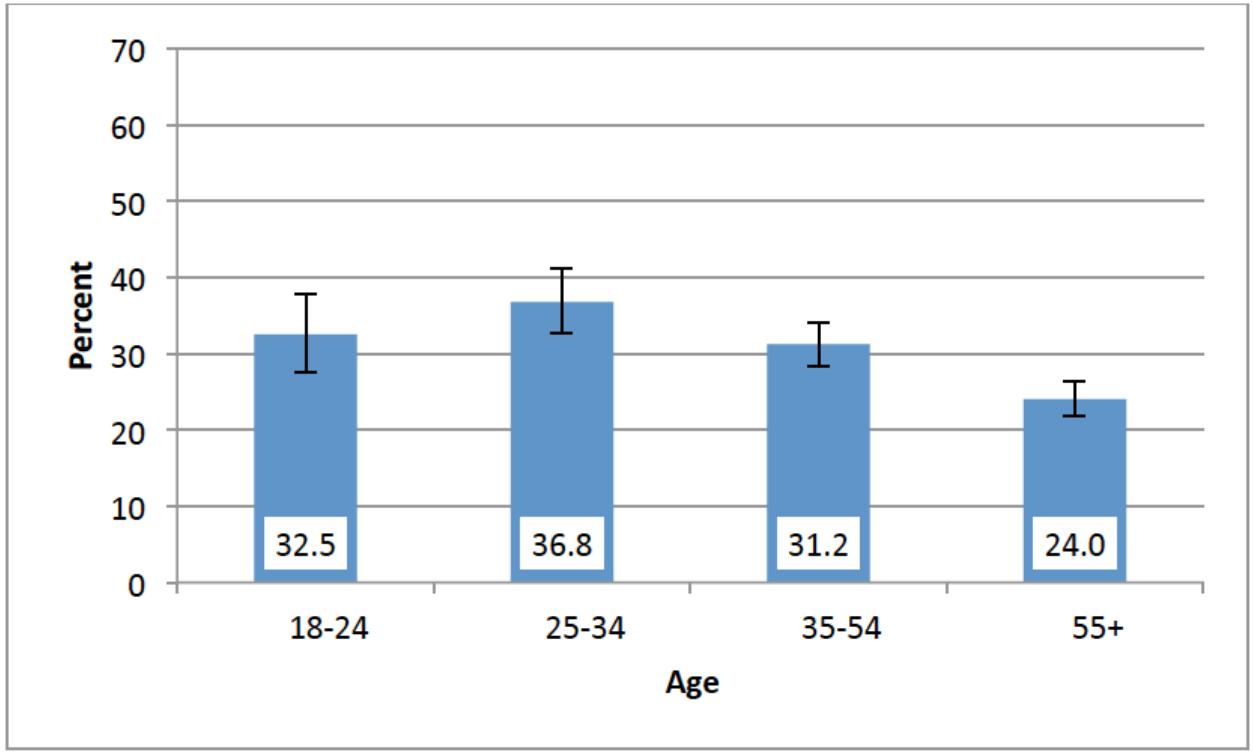


The overall percent of Hawaii middle school students with a toothache in the past 12 months is 29.8%. The prevalence of toothache among high school students varies by sex with males less likely to have had a toothache (25.9%) compared to females (33.8%). There is minimal variation by race groups.

Behavioral Risk Factor Surveillance System

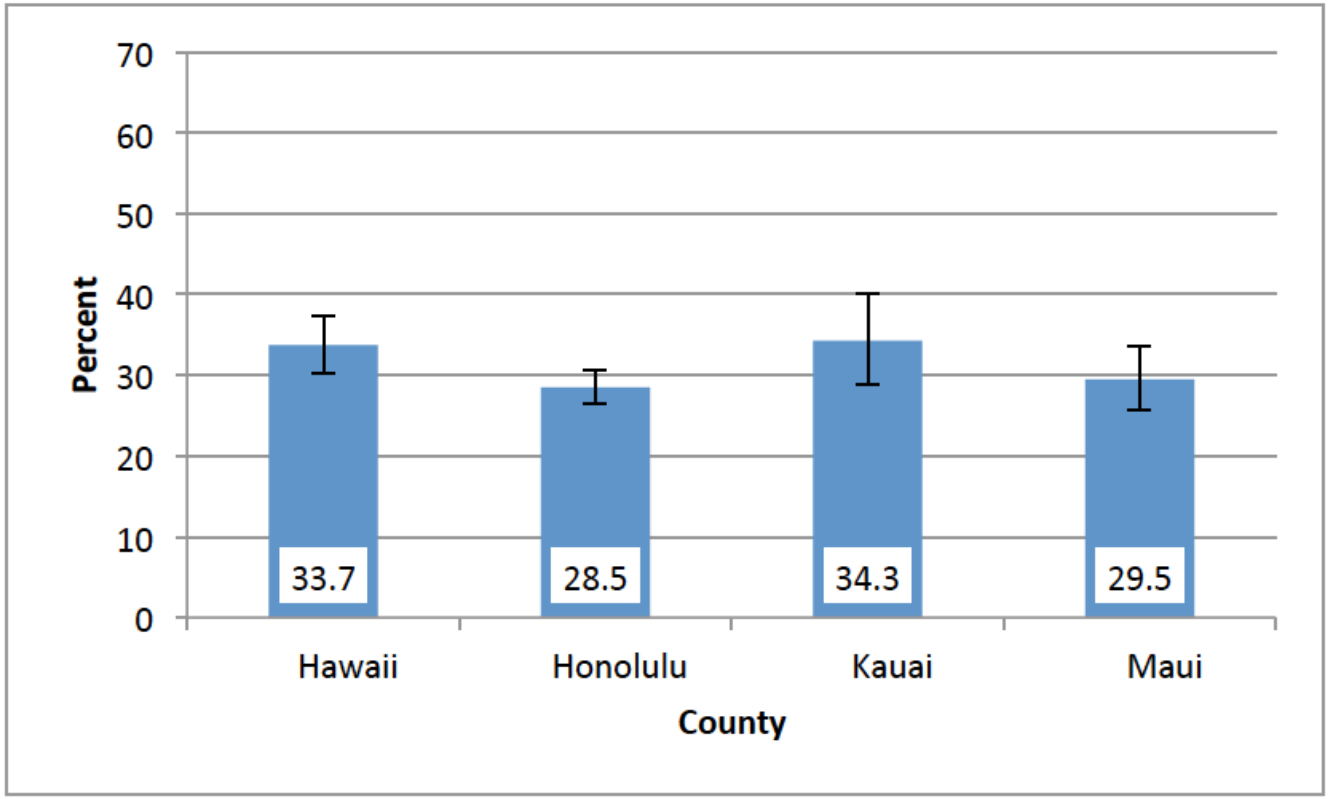
- Population Based survey of adults (18 and older)
- CDC-Survey telephone based
- All 50 states
- Oral Health Questions in even years
- Annual Hawaii sample size ~6000
- Common Subgroup Populations: **Age, Race, Sex, Education, Federal Poverty Level, Uninsured, Community, County of Residence**

Percent of Adults with No Dental Visit in the Past Year, by Age Group (BRFSS 2012)



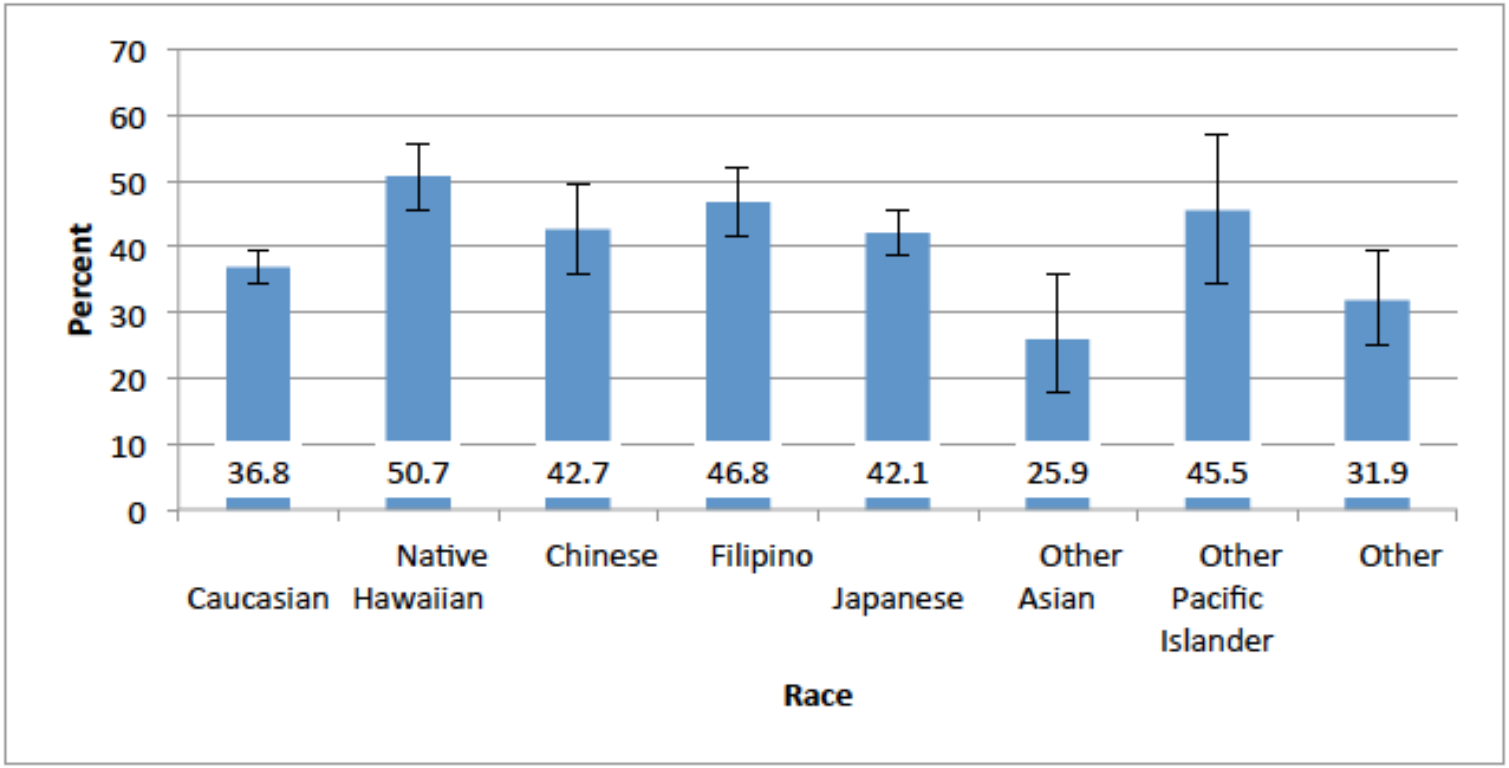
The highest prevalence of no dental visit in the past year was among 25-34 year olds (36.8%) and the lowest prevalence estimates were among those 55 and older (24.0%).

Percent of Adults with No Dentist Visit in the Past Year, by County (BRFSS 2012)



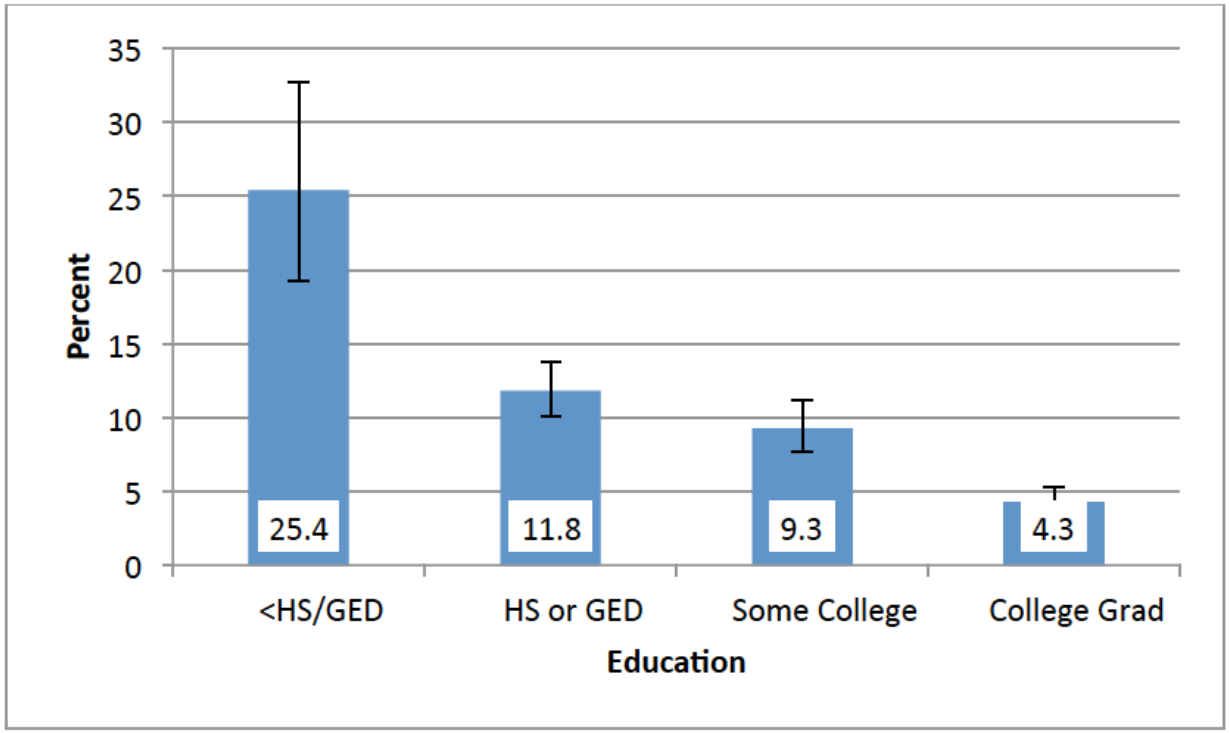
In Hawaii, the prevalence of no dental visit varied somewhat by county with Kauai County having the highest prevalence (34.3%).

Percent of Adults with at Least One Permanent Tooth Extracted, by Race (BRFSS 2012)



The highest prevalence of any teeth removed is among Native Hawaiian, "Other Pacific Islander" and Filipino adults (50.7%, 45.5% and 46.8%, respectively). The lowest prevalence of any teeth removed in adults was among "Other Asian" and "Other" adults (25.9% and 31.9%, respectively).

Percent of Adults With at Least Six Permanent Teeth Extracted, by Education (BRFSS 2012)



Adults with less than a high school education have the highest prevalence of prevalence of substantial tooth loss (25.4%) and adults who are college graduates have the lowest prevalence of substantial tooth loss (4.3%).

HOSPITAL/ER DISCHARGE DATA

ER-Claims data (ICD codes 521-522*)

- 520 Disorders of tooth development and eruption
- 521 Diseases of hard tissues of teeth
- 522 Diseases of pulp and periapical tissues
- 523 Gingival and periodontal diseases
- 524 Dentofacial anomalies, including malocclusion
- 525 Other diseases and conditions of the teeth and supporting structures
- 526 Diseases of the jaws
- 527 Diseases of the salivary glands
- 528 Diseases of the oral soft tissues excluding lesions specific for gingiva and tongue
- 529 Diseases and other conditions of the tongue

Nationally:

Principal Dx in 830,590 visits to ER's in 2009 (a **16%** increase from 2006);

Any-listed Dx increase of **22**%

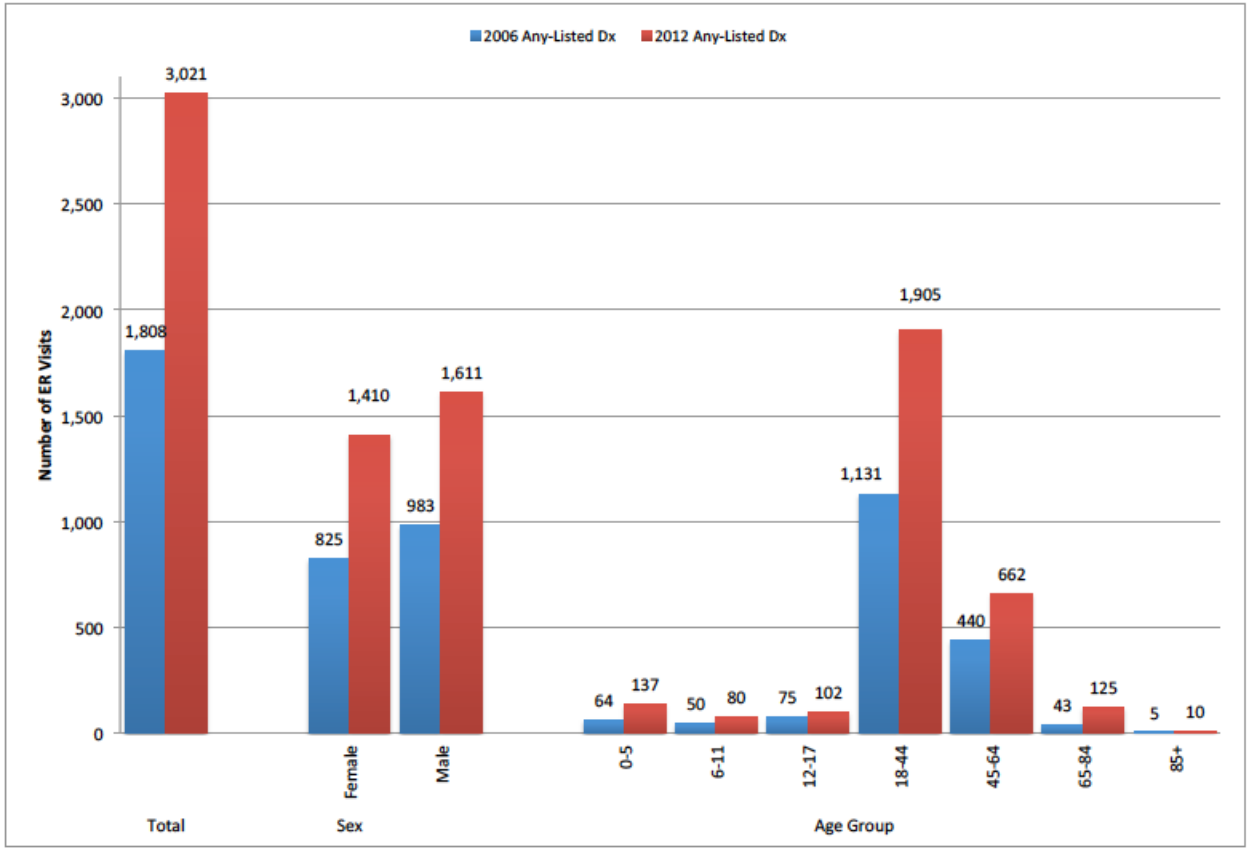
Hawaii data (From Hawaii Health Information Corporation):

Principal Dx in 1,935 visits in 2012 (a **39%** increase from 2006);

Any-listed Dx —**67%** increase from 2006 (3,021 ER visits--does not even include the 176 admitted to hospital or any visits to the Tripler Emergency room)

*Pew Children's Dental Campaign. A costly dental destination: Hospital Care Means States Pay Dearly. Pew Center on the States. Issue Brief. February 2012. available onlline at www.pewcenteonthestates.org/dental

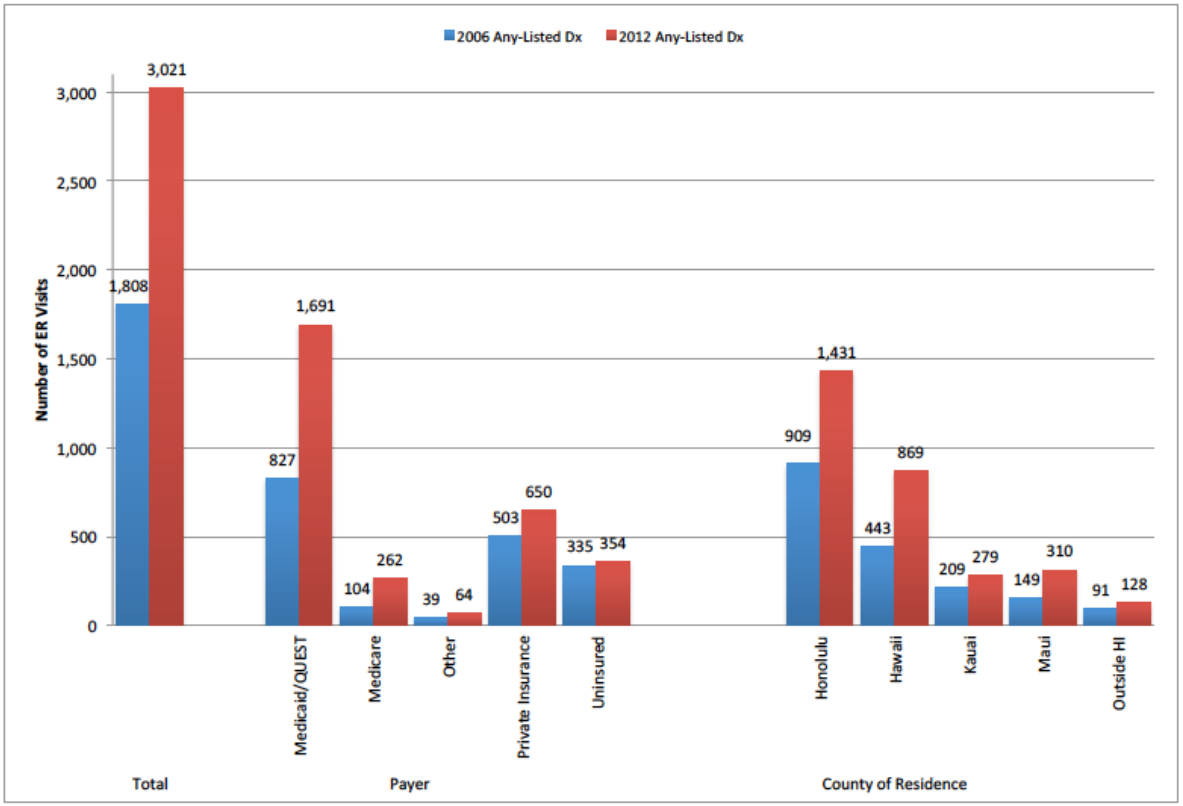
Preventable Oral Health ER Visits (Any-Listed Diagnosis) by Sex and Age Group, Hawaii, 2006, 2012



Note: 95% Confidence Intervals not available
Data does not include Tripler Medical Center.

Among the various population subgroups, there were more males than females which had similar increases over the time period. A large proportion of these visits occur in those 18-44 years of age, followed by those 45-64 years of age with similar relative increases over the time period. The largest relative increase was among those 65-84 years of age (74.4%).

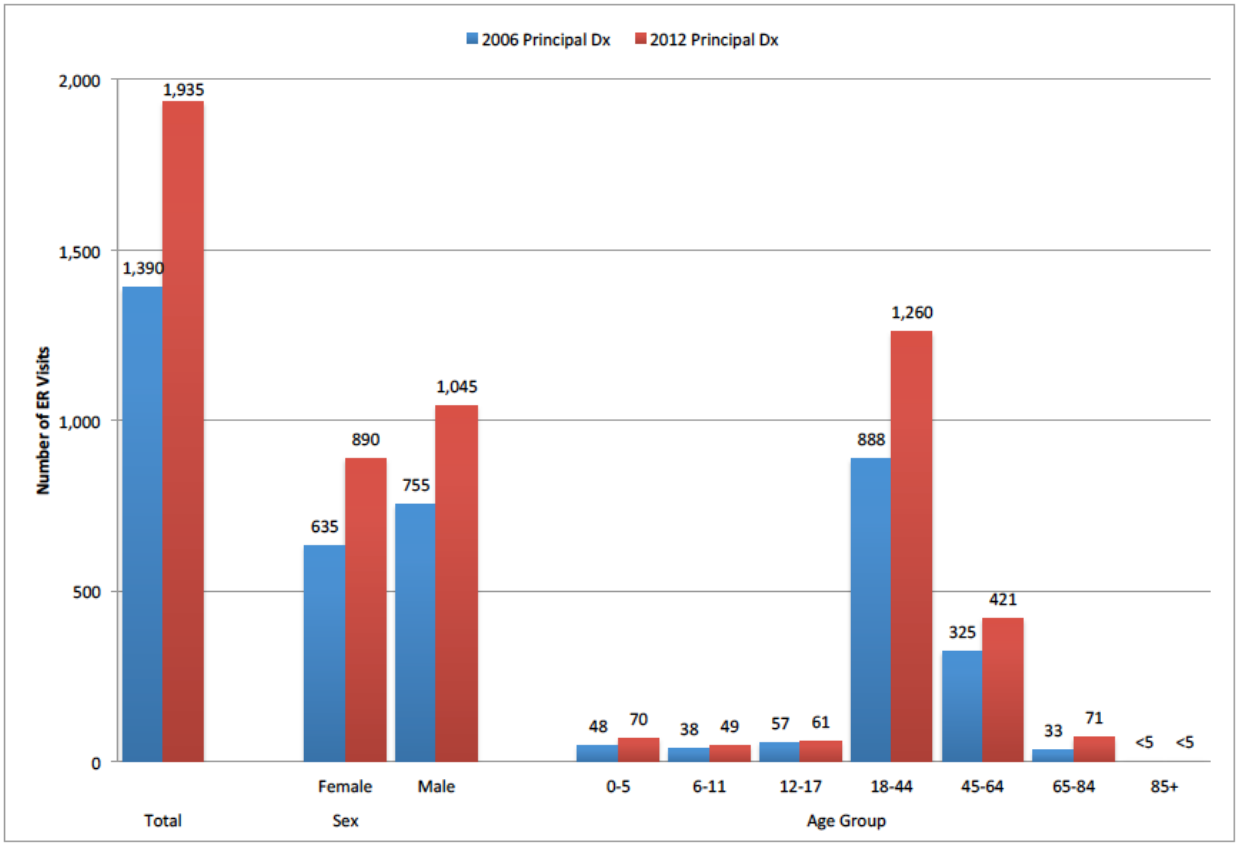
Preventable Oral Health ER Visits (Any-Listed Diagnosis) by Payer and County of Residence, Hawaii, 2006, 2012



Note: 95% Confidence Intervals not available
Data does not include Tripler Medical Center.

Those on Quest/Medicaid accounted for more than half of the visits and saw a larger relative increase (67.2%) while those on Medicare also saw a substantial increase (71.6%) compared to those with private insurance (56.4%) and those that were uninsured (51.4%). The relative increase was highest among residents of Maui (67.5%) and Hawaii (66.2%) compared to Honolulu (61.2%) and Kauai (57.2%) counties.

Preventable Oral Health ER Visits (Principal Diagnosis) by Sex and Age Group, Hawaii, 2006, 2012



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Potentially Preventable Hospital Charges

- These 3,000 visits were associated with **$8.6 million dollars** in hospital charges in 2012 ($4.1 million in 2006)
- Mean charge of **$2,854 per ER visit**
- Above doesn't include the patients that came through the ER and admitted to the hospital (176 patients in 2012→**$6.1 million** more; about double what it was in 2006)
- Or the 43 patients in 2012 that did not come through the ER **$2.4 million**
- <u>Just over $17 million in 2012</u>

Summary

- Largely based on self-reported survey data
- Limited clinical based data
- Some claims data
- Significant Disparities are present
  - Socio-economic factors (Poverty, Medicaid/QUEST, Medicare)
  - Race and other factors

NEXT STEPS

- Finalize two reports for distribution
  - Need feedback that includes how the documents are used
- 3rd grade surveillance data will provide clinical assessment of oral health
- What can we do to gather additional data and support oral health in Hawaii?

Final Thoughts

- Oral health data and surveillance is evolving
- Effective Partnerships and Collaborations are Critical

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