

One-in-Seven of Native Hawaiian Adults and One-in-Five of Native Hawaiian Children Have Asthma

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Objectives

To examine Hawaii's asthma burden and health disparities of asthma with focus on Native Hawaiian community by answering these 4 questions:

- (1) How much asthma is there?
- (2) How severe is the asthma?
- (3) What is the cost of asthma?
- (4) How successfully we are managing this disease?

Methodology

Data sources

- BRFSS
- HHS
- In-patient hospital claims
- Emergency department visits

The Behavioral Risk Factor Surveillance System (BRFSS)

- BRFSS is the world's largest, on-going yearly, telephonic health survey system, tracking health conditions and risk behaviors in the United States since 1984.
- Conducted by 50 state health departments as well as those in the District of Columbia, Puerto Rico, Guam, and the U.S. Virgin Islands with support from the CDC.
- BRFSS provides state-specific information about issues such as asthma, diabetes, health care access, alcohol use, hypertension, obesity, cancer screening, nutrition, physical activity, tobacco use etc.

Hawaii Health Survey (HHS)

- HHS is a continuous statewide household survey of health and socio-demographic conditions since 1968.
- In 1996 it became a telephone survey.
- The survey is conducted as a means of providing Hawaii Department of Health (DOH) programs, other agencies, and the public with statistics for planning and evaluation of health services, programs and problems.
- The survey provides demographic information for observing population changes during the intercensal decade. It provides state and sub-area estimates of gender, age, income, race, education, household size, insurance status, health status, morbidity and food security.
- This survey collects data for entire household, rather than a randomized adult. In 2004, 6,769 households (6,769 adult respondents that were aged 18 years or more) with 19,699 household members were surveyed.
- The total numbers are adjusted as households without telephones, Ni`ihau, group quarters and the homeless are not represented (HHS Procedure Manual 2004).

Hawaii Health Information Corporation

- HHIC is the Hawaii's only health care information organization that collects and stores claims data for both emergency rooms of hospitals for the entire state of Hawaii with an exception of the Tripler Medical Center (a veterans hospital).

Asthma Surveillance

- Surveillance gives us a better understanding of the burden of asthma among Native Hawaiian Community by answering these 4 questions
 - (1) how much asthma is there (prevalence)?
 - (2) how severe is asthma (severity)?
 - (3) how successful are we managing asthma (management)?
 - (4) what is the cost of asthma (cost)?

(1) Asthma Prevalence

- How much asthma is there in Hawaii?

| | | |
|----------|--------|---------|
| Children | 37,010 | (12.2%) |
|----------|--------|---------|

| | | |
|--------|---------------|----------|
| Adults | <u>78,369</u> | (7.3 %) |
|--------|---------------|----------|

| | | |
|--|---------|--|
| | 115,379 | |
|--|---------|--|

- Native Hawaiian Adults 17,500 (14.7%)

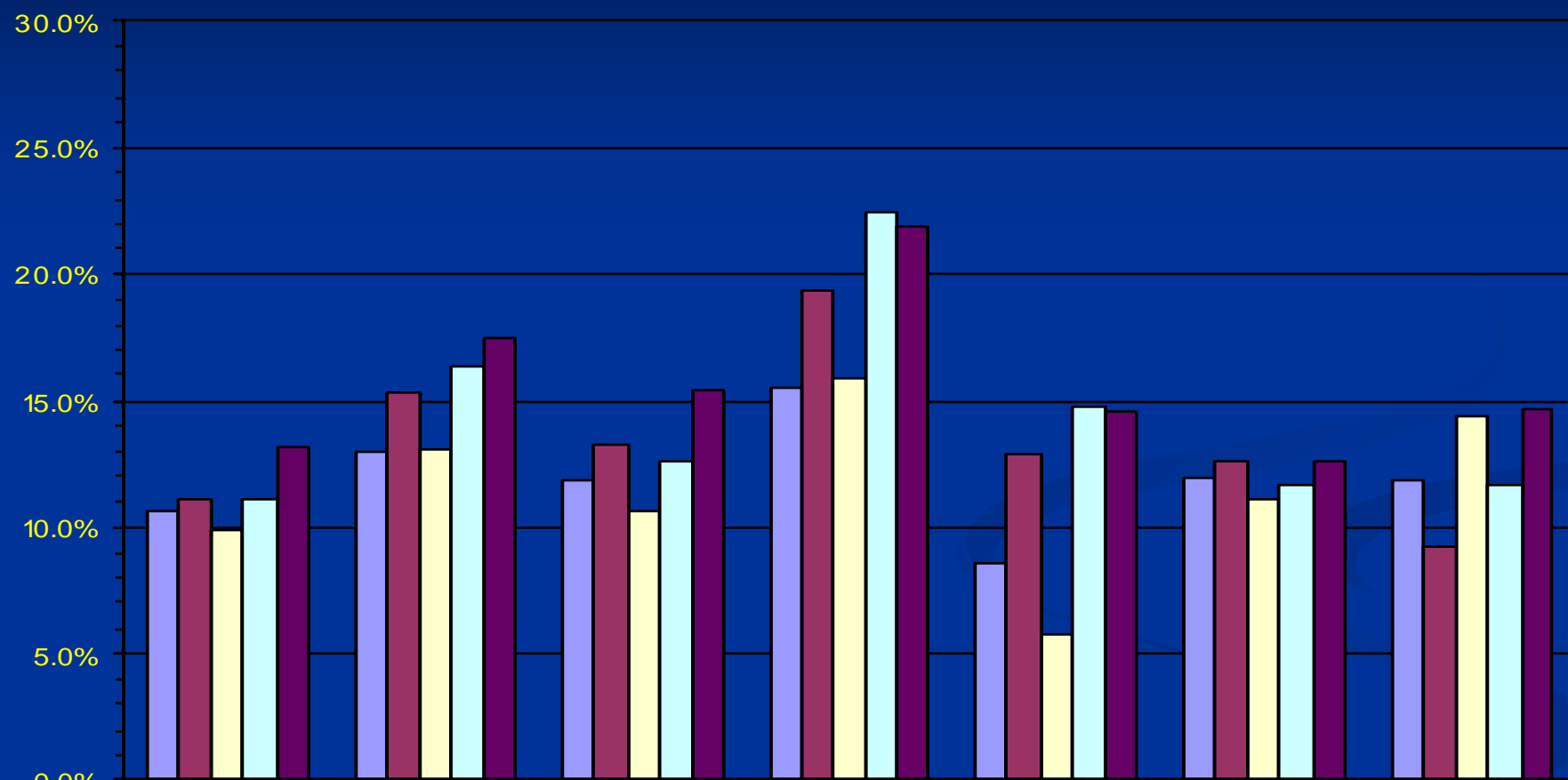
Data Source: 2006 HIBRFSS

(1) Asthma Prevalence

- How much asthma is there?
 - Native Hawaiians are more likely to have current asthma (almost twice) than any other ethnic groups. That is true for both children and adults; and appears to be increasing (p-value > 0.05).
 - Molokai Island has the highest prevalence of asthma for children compared to the other islands.
 - Hawaii County has the highest prevalence of asthma for both adults and children compared to the other counties.

Percent of Hawaii **adults** having life-time asthma by ethnicity (For Adults statewide)

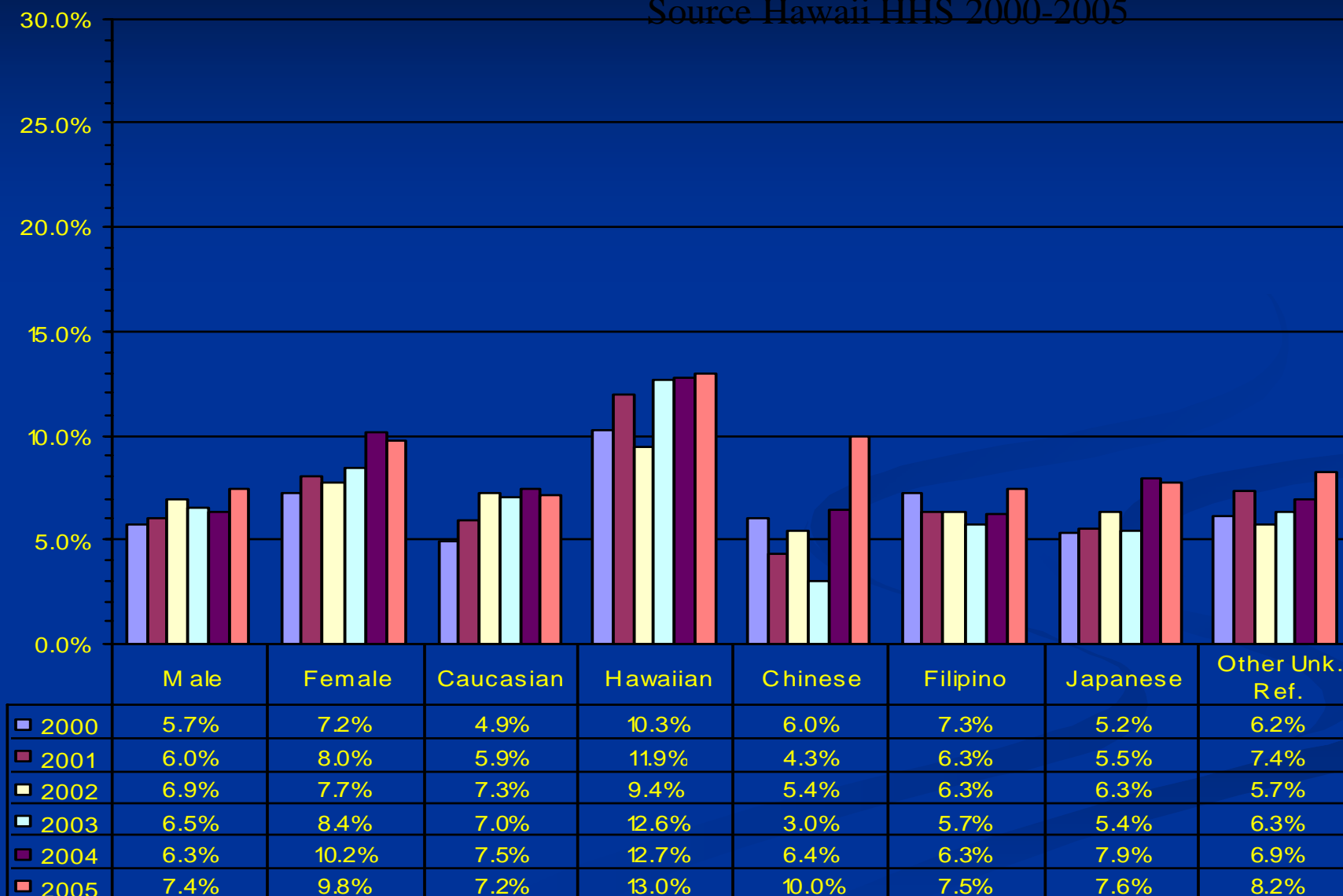
Source Hawaii BRFSS 2001, 2002, 2003 & 2005



| | Male | Female | Caucasian | Hawaiian | Filipino | Japanese | Others |
|------|-------|--------|-----------|----------|----------|----------|--------|
| 2001 | 10.7% | 13.0% | 11.8% | 15.5% | 8.6% | 11.9% | 11.8% |
| 2002 | 11.1% | 15.3% | 13.3% | 19.3% | 12.9% | 12.6% | 9.2% |
| 2003 | 9.9% | 13.1% | 10.7% | 15.9% | 5.8% | 11.1% | 14.4% |
| 2005 | 11.1% | 16.3% | 12.6% | 22.5% | 14.8% | 11.6% | 11.6% |
| 2006 | 13.2% | 17.5% | 15.4% | 21.9% | 14.6% | 12.6% | 14.7% |

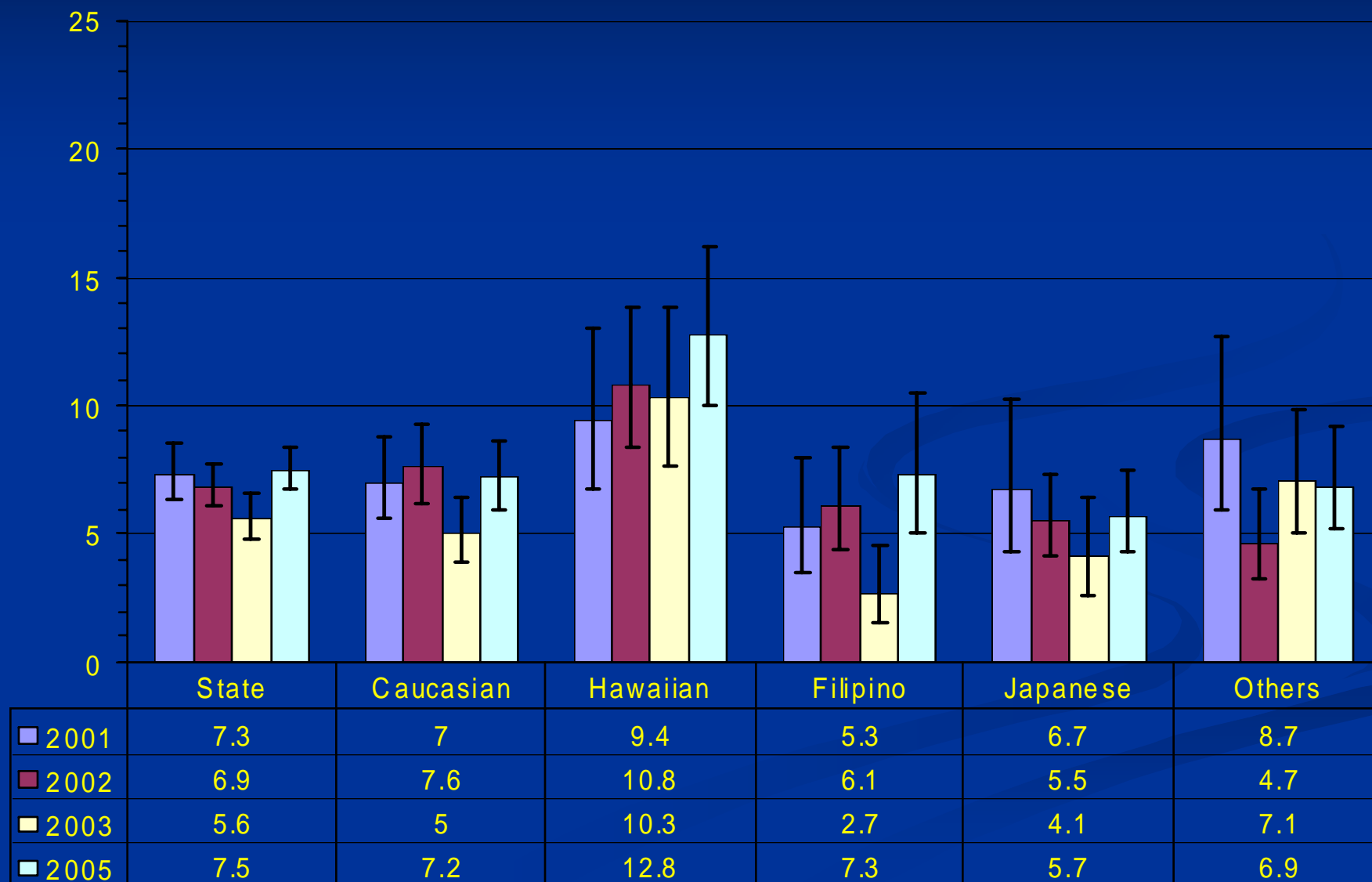
Percent of Hawaii **adults** having life-time asthma by ethnicity (For Adults statewide)

Source Hawaii HHS 2000-2005

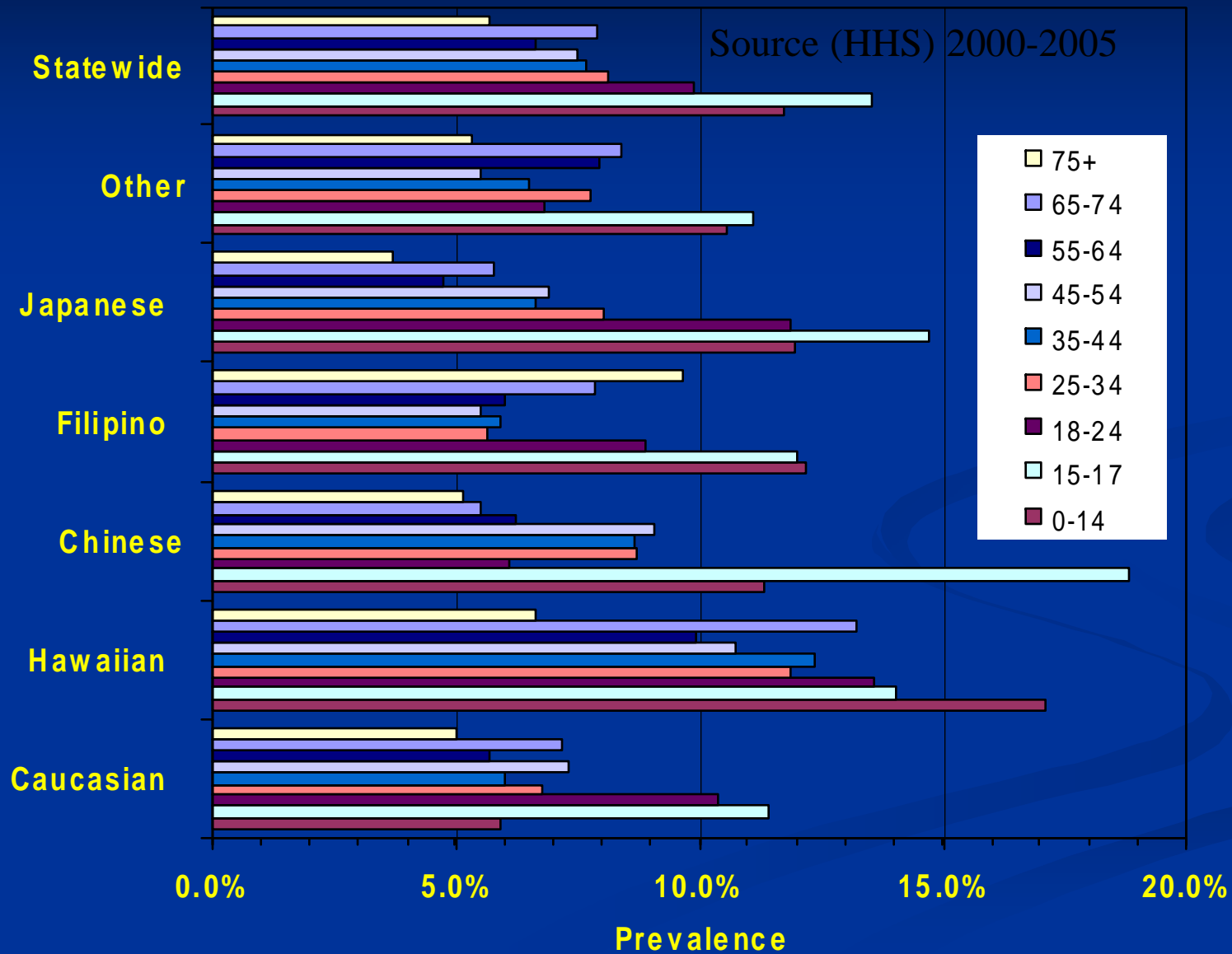


Percent of Hawaii **adults** currently have asthma by ethnicity (For Adults statewide)

Source Hawaii BRFSS 2001-2005 (excluding 2004)



Lifetime Prevalence of Asthma By Age and Ethnicity Population of Hawaii



(2) Asthma Severity

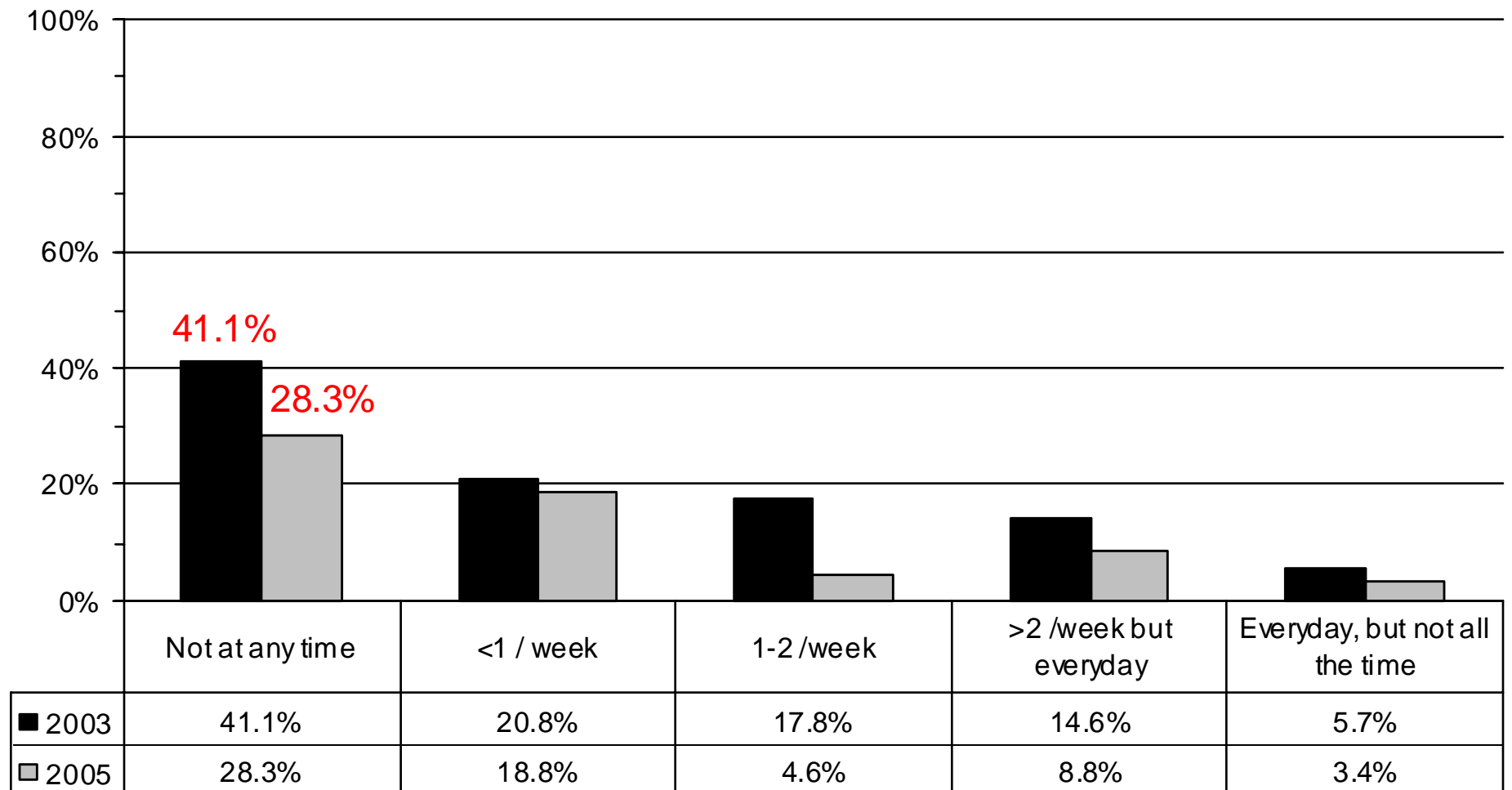
- How severe is the asthma?
 - More Hawaiian adults having asthma had problem with sleeping during the past 30 days
 - Each year approximately 7,200 people in Hawaii are rushed to the ED because of their asthma. 2,000 from them are Native Hawaiian descent

105,600 → 7,200 ED → 1,600 Hospital → 30 Die

Data Source: 2005 HHIC & BRFSS 2005 Data

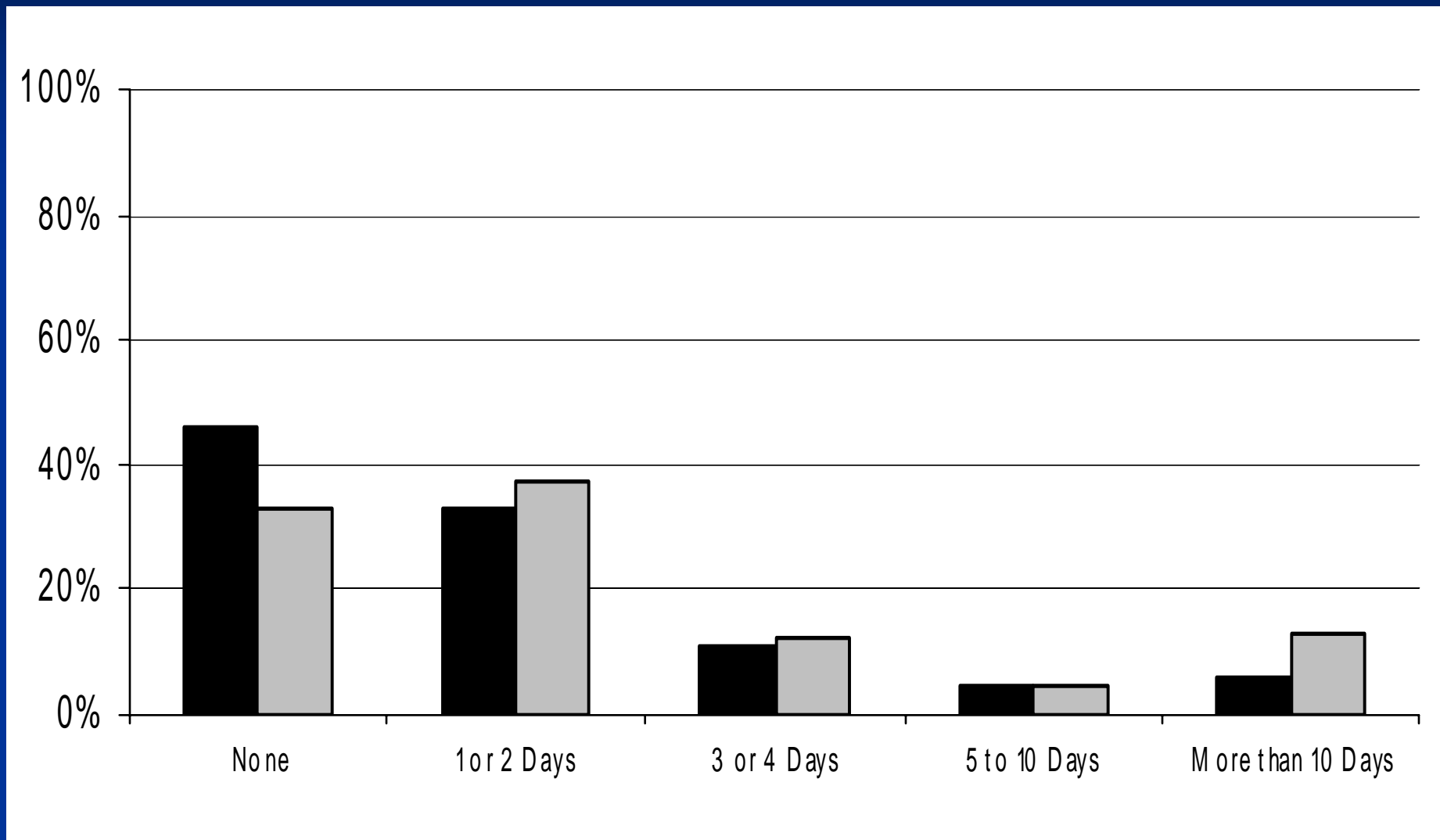
During the past 30 days, how often did you have **any symptom** of asthma? (For Adults statewide)

Source: Hawaii BRFSS 2001, 2002, 2003 & 2005



“During the past 30 days, how many days did symptoms of asthma make it difficult for you to stay asleep?”
(For Adults statewide)

Source: Hawaii BRFSS 2003 & 2005



Burden: majority of adults with asthma had problem sleeping during the past 30 days

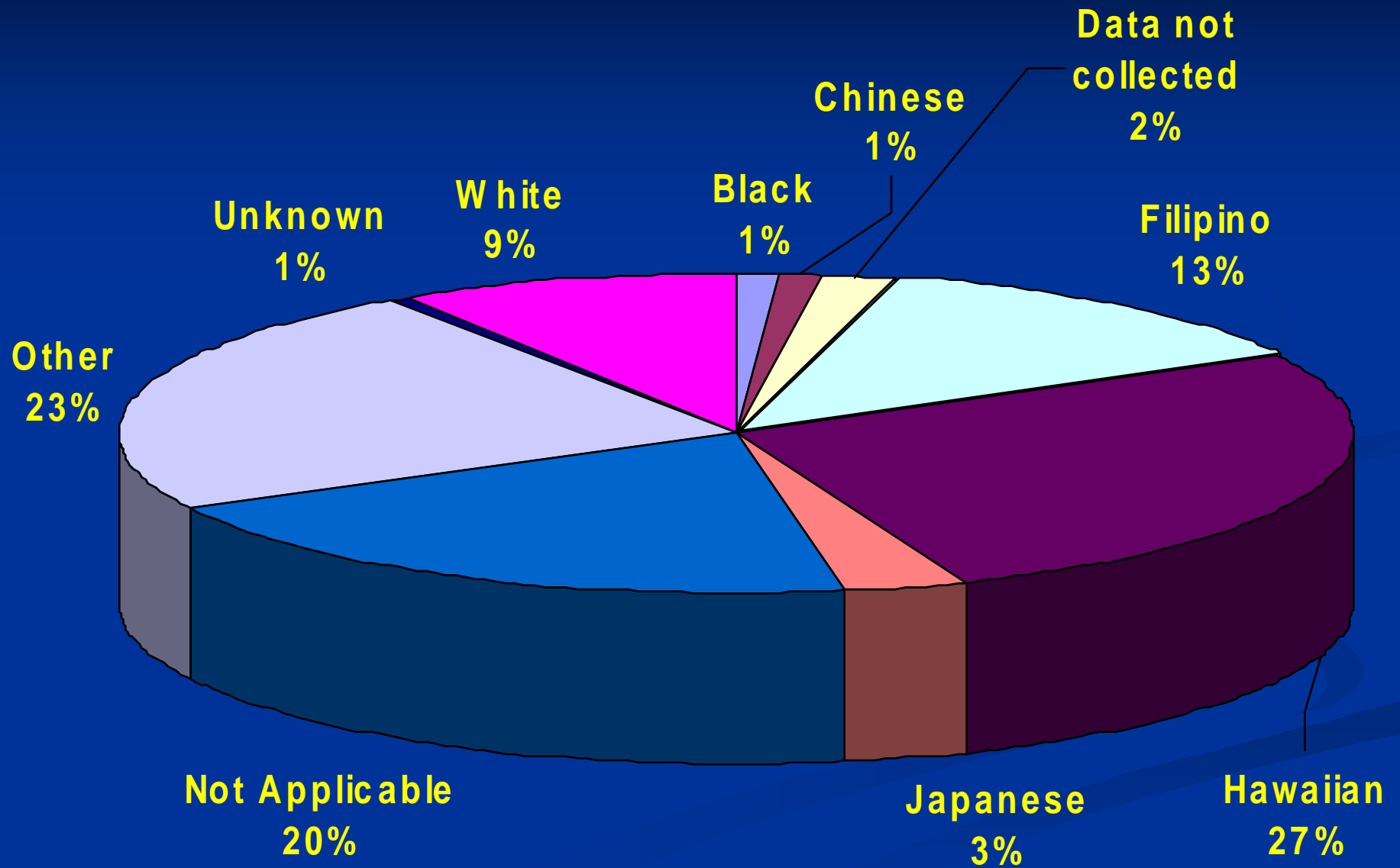
(3) Asthma Management

- How successfully we are managing asthma?
 - Nationwide asthma is one of the leading causes of absentia at work and school each year.
 - In Hawaii, around 10% of individuals with asthma visit the ED in the past 12 months. 2/3 of them are repeated utilizes.
 - Possibly due to limited access to health care, asthma rates and severity are higher for those who reside in rural areas.
 - 1/3 of adults with current asthma did not take medication in the past 30 days

Data Source: 2003 & 2005 BRFSS

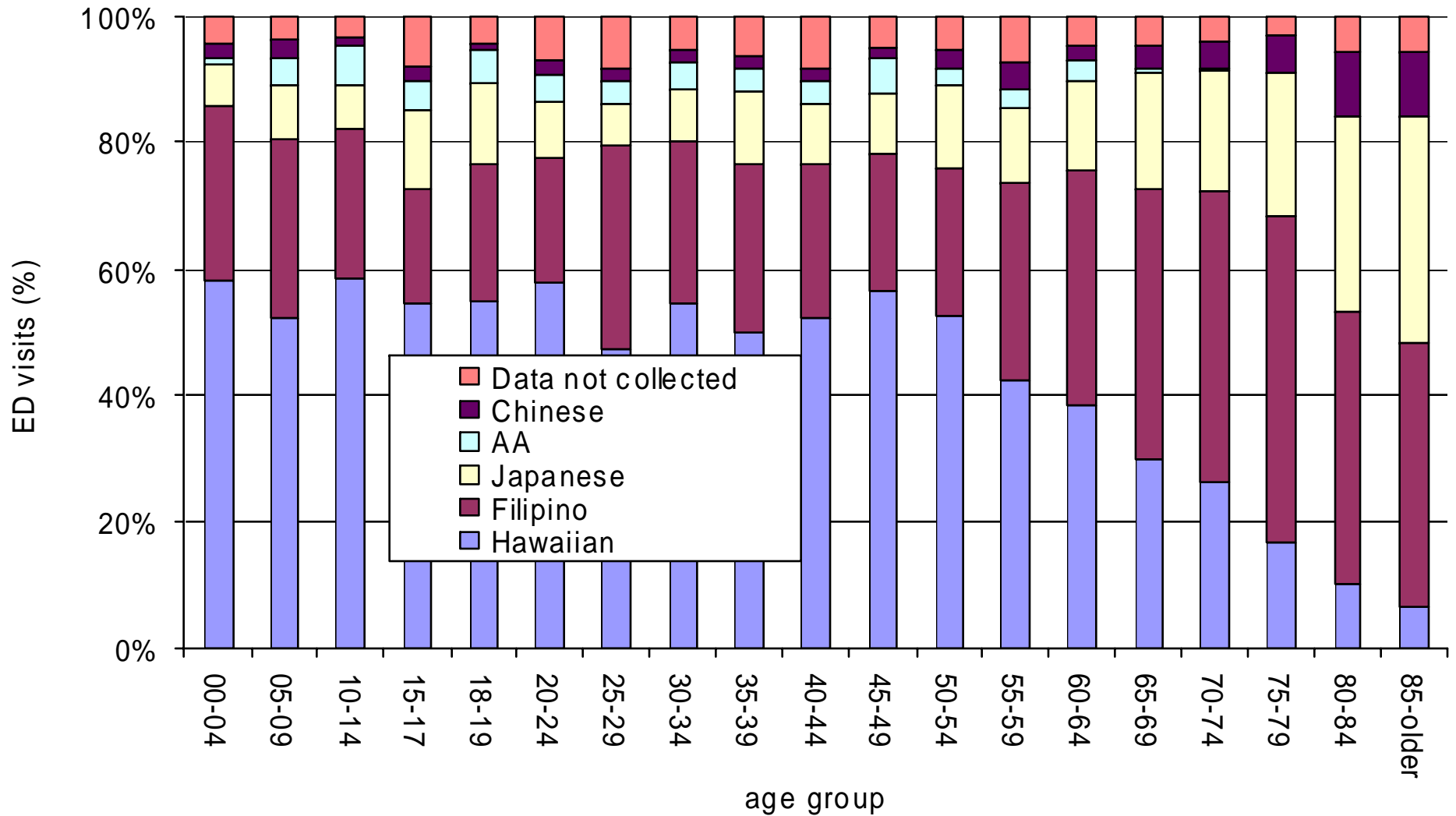
Asthma related ED by ethnicity

Source: Hawaii, HHIC, 2000-2005



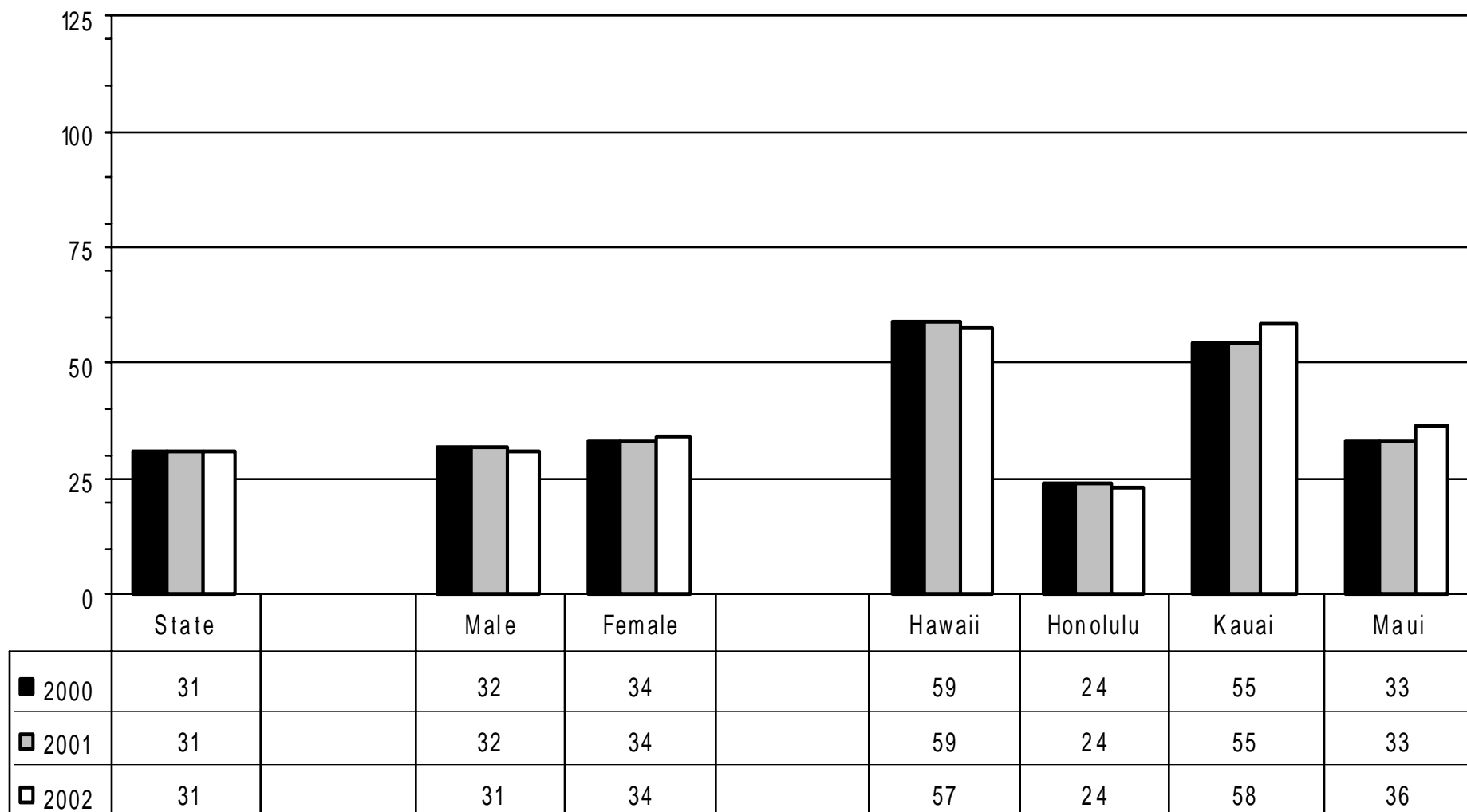
Percent of Asthma related ED discharges attributable to ethnic group in Hawaii

Source: Hawaii, HHIC, 2000-2005



Asthma related ED discharges per 10,000 in Hawaii population by sex and county, HHIC, 2000-2002

Source: Hawaii, HHIC, 2000-2005



Asthma Prevalence by Smoking Status (Adults)

Source: HHS 2003 and 2002

| ASTHMA | ADULTS WHO SMOKE CIGARETTES | | | | TOTAL | |
|--------------|-----------------------------|--------|------------|--------|---------|--------|
| | Smoker | | Non Smoker | | N | COL. % |
| | N | COL. % | N | COL. % | | |
| Yes | 17,042 | 11.7 | 71,821 | 9.3 | 88,863 | 9.6 |
| No | 129,064 | 88.3 | 703,198 | 90.7 | 832,262 | 90.4 |
| TOTAL | 146,106 | 100 | 775,019 | 100 | 921,126 | 100 |

(4) Asthma Cost

What is the cost of asthma?

Asthma costs the State of Hawaii
an estimated \$40 million/Yr

Emergency Department Cost in Hawaii

- The total asthma ED cost is \$4 million/Yr
- An average ED visit costs \$1,090 (average increase 7.4%* per year)
- 2/3 of asthma ED visits were paid by Medicaid/QUEST & Medicare
- Repeated users** account for 2/3 of asthma ED visits.

•* Repeated users are defined as patients admitted to the Hawaii hospital more than once in the past 12 years with the primary diagnosis 493.XX

•** Repeated users are defined as patients visit to ED more than once in the past 12 months with the primary diagnosis 493.XX

Hospitalization Discharge Cost in Hawaii

- The total asthma hospitalization cost is \$14 million/Yr
- An average hospital discharge costs \$13,755 (average increase 10%*** per year)
- 20% of asthma hospitalizations are repeated users**; however, they are responsible for 50 % of the cost \$7M/Y

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** Repeated users are defined as patients admitted to the Hawaii hospital more than once in the past 12 years with the primary diagnosis 493.XX

*** USA currency inflation: 2.5% (2004 Estimate)

Asthma related ED and hospital Hawaii, HHIC, 2005

| Payer Type (ND) | ED Charges | Hospitalization Charges | Total | % |
|-------------------|------------------------|-------------------------|-------------------------|-------------|
| Private Insurance | \$ 1,575,362.67 | \$ 4,665,937.08 | \$ 6,241,299.75 | 34.2% |
| Medicaid/Quest | \$ 1,616,953.83 | \$ 4,086,721.08 | \$ 5,703,674.92 | 31.2% |
| Medicare | \$ 597,189.33 | \$ 4,575,172.67 | \$ 5,172,362.00 | 28.3% |
| Self Pay | \$ 342,235.83 | \$ 462,756.50 | \$ 804,992.33 | 4.4% |
| Dept of Defense | \$ 67,950.67 | \$ 186,955.33 | \$ 254,906.00 | 1.4% |
| Unknown | \$ 12,024.00 | \$ 30,256.17 | \$ 42,280.17 | 0.2% |
| Miscellaneous | \$ 9,683.83 | \$ 26,095.00 | \$ 35,778.83 | 0.2% |
| TOTAL | \$ 4,221,400.17 | \$ 14,033,893.83 | \$ 18,255,294.00 | 100% |

Data Source: 2005 HHIC

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