

**HAWAI`I HEALTH SURVEY
HHS INTRODUCTION 2002**

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INTRODUCTION

Hawai`i Health Survey:

The Office of Health Status Monitoring (OHSM), Hawai`i Department of Health (DOH), is responsible for compilation and analysis of data from vital statistics records and a statewide survey; the Hawai`i Health Survey (HHS). The HHS is the primary source of population-based data on ethnicity for Hawai`i between the decennial census.

METHODS

1. OVERVIEW

The HHS, first conducted in 1968, was modeled after the National Health Interview Survey with the exception that since 1996 it has been a telephone survey. OHSM has contracted with SMS Research to conduct the telephone sample survey starting in 1996 to the present. The HHS is the primary source of statewide estimates of population data on demographic and specific health characteristics: such as gender, age, income, ethnicity, education, household size, insurance status, health status, and selected chronic conditions.

An adult member (respondent - aged 18 years or older) of the household is asked questions pertaining to the household and each household member. Thus, data can be reported for the household, population, and/or adult population. Please consult the Procedure Manual for 2002¹ for more detailed information on methods of the HHS.

2. HAWAI`I HEALTH SURVEY (HHS)

Standard variables in the HHS include:

- Household
 - County and Sub-Area
 - Household Type
 - Income and Poverty Status

- Respondent – Adult Population
 - Self Reported Ethnicity
 - BMI, Obesity Status

- All Persons – State Population
 - Gender
 - Age
 - Ethnicity by Parents
 - Education
 - Marital Status
 - Insurance Status
 - Health Conditions
 - Health Related Quality of Life:
 - Mental and Physical Health Scores, SF-12^{®2}
 - Employment and Jobs
 - Estimates of Military Personnel
 - Migration

In addition, questions on smoking, use of WIC, Native Hawaiian healing practices, physical activity, intimate partner violence, orphans, housing, hunger, incarceration, and various other topics have been or are included in the survey.

Coverage:

In 2002, 5,244 adult respondents (from the same number of households) were surveyed. Surveyed households included a total sample of 15,516 individuals (1.5% of the mid-year State resident population). Annual State and county estimates of population, with distributions by age and gender, from the Department of Business, Economic Development, and Tourism (personal communication), home of the State Data Center³ are used to weight the survey data. There were similar samples sizes in 1996 and 1997. Outer islands have been oversampled in an alternate year pattern beginning in 1996. In 1999 the island of Hawai`i was oversampled. In 1998 the islands of Kauai and Maui were oversampled. However, in 2000, 2001, and 2002 all outer islands were oversampled.

3. DATA DEFINITIONS

Age:

Respondents (adults) are age 18 or over. For all household members, respondents are asked the person's age at last birthday. If, when the data are compiled, a person's age is missing, it is imputed using a "hot deck" method: a response from another person with similar demographic and economic characteristics is substituted. Children are defined as persons less than 18 years of age.

BMI Status:

Height and weight is asked only of the Respondent, thus data are for only the population aged ≥ 18 years. The obesity measure is based on Body Mass Index (BMI). BMI is defined as weight in kilograms divided by height in meters squared (kg/m^2). The National Heart, Lung, and Blood Institute (NHLBI) (June 17, 1998) released the Federal guidelines for the "clinical definition" of overweight and obese⁴:

BMI Categories

| | |
|---------------|------------|
| ➤ Underweight | <18.5 |
| ➤ Normal | 18.5-<25.0 |
| ➤ Overweight | 25.0-<30.0 |
| ➤ Obese I | 30.0-<35.0 |
| ➤ Obese II | 35.0-<40.0 |
| ➤ Obese III | >40.0 |

Chronic Conditions: Respondents are asked of each household member: Has anyone in the household been told by a physician or medical professional that they have arthritis? Asthma, diabetes, high blood cholesterol, and hypertension questions are also asked. The response is recorded for each household member.

Education:

The respondent also gives information on the education status of each household member 18 years and older.

Ethnicity:

The Respondent can list up to four ethnicities for both their (and for each household member) mother and their father. The choices were White/Caucasian, Hawaiian, Chinese, Filipino, Japanese, Korean, Samoan/Tongan, Black/African American, Native American/Aleut/Eskimo/Inuit, Vietnamese, Asian Indian, Portuguese, and Guamanian/Chamorro. In addition, they can specify another ethnicity if it is not listed, or they can reply they do not know, or refuse to answer.

OHSM codes these eight possible choices for each individual to one ethnicity in order to comply with prior Census rules coding race/ethnicity⁵. Specifically, if Hawaiian is listed for the Mother or Father the person is

coded to Hawaiian. Otherwise, the person is coded to the first ethnicity listed (other than Caucasian or unknown) for the Father. If the Father's responses are Caucasian and/or unknown, the person's ethnicity is coded to the first ethnicity listed (other than Caucasian or unknown) for the Mother. If there are no other responses other than Caucasian or unknown, the person is coded to Caucasian. Otherwise, the person is coded to do not know, refused, or missing.

Gender: The Respondent can either be male or female and they identify the sex, in order of age, for each member of the household.

Household: The Bureau of the Census for statistical purposes defines a household as all persons who occupy a housing unit (house or apartment), whether they or not they are related.

Income:

The respondent was asked the total household income. Because of a bimodal distribution and varying percentages of unknown income, the median (rather than mean) was used to estimate an average income. The major reason why household incomes are reported as unknown is uncertainty by the respondent as to the actual amount. In Hawaii's large and complex households, respondents often have difficulty estimating income for the entire household. When the household income is coded as unknown or refused, they are imputed with the use of the "hot deck" method based on income of households with similar demographic characteristics.

Insurance Status:

There are 17 questions on insurance coverage in the HHS. Answers from many of these questions are used to code for insurance status. Other questions on insurance are very specific such as the type of coverage, if uninsured, the reason and the duration, and whether the employer provides the insurance. The questions are asked of the respondent for each household member.

Poverty Status:

Poverty status takes into account not only income but also household size or the number of household members supported by the income. It therefore is a better indicator of actual personal income. The poverty guideline⁶ cut-off points for each household size are provided by the Department of Health and Human Services.

Poverty guidelines are updated annually in the Federal Register by the U.S. Department of Health and Human Services. They are a simplified version of the Federal Government's poverty thresholds updated annually by the Bureau of the Census. The poverty guidelines are used for administrative purposes giving programs guidelines such as Head Start, Food Stamp Program, and Children's Health Insurance Program.

The poverty guidelines are designated for the year in which they are issued. However, they only reflect price changes for the prior year. Thus, the 2002 Federal Poverty Guidelines were used to compute percent poverty levels for the HHS 2002. Households below 100 percent of the guideline are said to be below the poverty guideline. Individuals in those households are said to be "living below poverty".

4. SURVEY METHODOLOGY

The data collecting, editing, and processing procedures are described in brief in the present report. For a more detailed description please consult the 2002 Procedure Manual of the Hawai`i Health Survey published by OHSM and SMS Research Inc.¹

Data Collection, Editing, and Weighting:

Telephone numbers are randomly generated for each month from a pool of eligible prefix numbers in the state. The numbers are checked with numbers in prior months to prevent duplication. A DOH OHSM pre-survey announcement is mailed to each household in the sampling pool on a monthly basis (in 2002 that had an address listed through Verizon Telephone Company). The announcement conveys information on the survey, the importance of the information collected through the survey, and a means to inform DOH if the residents do not want to participate in the survey.

An interviewer trained in HHS techniques and procedures by SMS Research Inc. conducts the interview. All telephone interviews are conducted through the Computer Assisted Telephone Interviewing (CATI) System, which permits both visual and electronic monitoring of calls. Respondents (person in the household interviewed as a representative of the household) are screened to assure that they are residents of Hawai`i, 18 years of age or older, and a current member of the household.

Editing of the data set is to assure reliability and validity, accomplished by both OHSM and SMS, occurs at several steps with the use of specially developed computer programs.

Because the design of the HHS is not a proportional sample, it is necessary to weight the sample data to bring results into correspondence with the actual distribution of households in the State population. The final weight factor for each person is a product of four weighting factors adjusted for the following:

1. Probability of household selection,
2. Household non-response,
3. Factor for crude completion adjustment, and
4. Post-stratification by age-sex-strata,

When a response was missing for a particular data item, or an inconsistency in reported items was detected, an "imputed" response was calculated for the field. When appropriate, values were imputed using information gathered from other fields of the individual, as well as from other members of the same household. Otherwise, imputation was performed using a "hot deck" method. Hot decking chooses a response from another sample person, with similar demographic and economic characteristics, to replace the missing data item. The imputation procedure is performed one item at a time and only for items that require a response in order to calculate weights or to supply key demographic data for certain analyses. These items include: 1) age, 2) sex, and 3) household income.

Statisticians within OHSM analyze, compile, and report information from the HHS. Software programs used include SAS, SUDAAN, MS Word, MS Excel, and PowerPoint.

THE TARGET POPULATION

Households (and the household members-population) of Hawai`i 2002:

The target population for HHS is all non-institutionalized residents (all occupied housing units) in the State of Hawai`i, including those in military housing (on and off base), rooming houses, and boarding houses throughout the state. Not included are: (1) all households and individuals residing on the island of Ni`ihau; (3) individuals residing in group quarters; (4) households without telephones; and (5) the homeless.

In 2002, 5,244 households (5,244 adult respondents that are aged ≥ 18 years) were surveyed (Table 1). The total number of all household members included was 15,516.

TABLE 1. HAWAI`I HEALTH SURVEY 2002, UNWEIGHTED NUMBERS (HAWAI`I OVERSAMPLED)

| Island | Sample | | | | | |
|----------------|---|-------|-------------------------------|-------|--------------------------|-------|
| | Households/ Respondents ¹ | | Adults ² in Sample | | All Household Members | |
| | n | % | n | % | n | % |
| 2002 | | | | | | |
| TOTAL | 5,244 | 100.0 | 11,542 | 100.0 | 15,516 | 100.0 |
| O`ahu | 1,349 | 25.7 | 3,219 | 27.9 | 4,365 | 28.1 |
| Hawai`i | 1,155 | 22.0 | 2,431 | 21.1 | 3,231 | 20.8 |
| Kaua`i | 1,227 | 23.4 | 2,695 | 23.3 | 3,591 | 23.1 |
| Maui | 1,270 | 24.2 | 2,696 | 23.4 | 3,598 | 23.2 |
| Moloka`i | 109 | 2.1 | 224 | 1.9 | 332 | 2.1 |
| Lāna`i | 134 | 2.6 | 277 | 2.4 | 399 | 2.6 |
| Maui SUB TOTAL | 1,513 | 28.9 | 3,197 | 27.7 | 4,329 | 27.9 |

The data were used to generate estimates of what could be expected for the population and the households in Hawai`i for the year 2002 (Table 2). The sample design for the HHS is disproportionate across islands. Therefore, accurate population estimation requires statistical adjustment (weighting) to adjust for disproportionate sampling as well as expansion to total population of Hawai`i. Data were weighted and adjusted to represent the resident, non-institutionalized population of persons in households in 2002 and exclude households without telephones, homeless, group quarters, and the island of Ni`ihau.

TABLE 2. HAWAI`I HEALTH SURVEY 2002, WEIGHTED AND ADJUSTED NUMBERS

| Island | Weighted and Adjusted ³ | | | | | |
|----------------|------------------------------------|-------|---|-------|------------|-------|
| | Households | | Adult ² Population of Hawai`i (Age > 17 Years) | | Population | |
| | N | % | N | % | N | % |
| 2002 | | | | | | |
| TOTAL | 414,965 | 100.0 | 911,081 | 100.0 | 1,200,693 | 100.0 |
| O`ahu | 291,981 | 70.4 | 653,849 | 71.8 | 855,773 | 71.3 |
| Hawai`i | 55,782 | 13.4 | 113,480 | 12.5 | 152,226 | 12.7 |
| Kaua`i | 21,061 | 5.1 | 43,843 | 4.8 | 59,241 | 4.9 |
| Maui | 42,544 | 10.3 | 92,367 | 10.1 | 122,396 | 10.2 |
| Moloka`i | 2,360 | 0.6 | 4,881 | 0.5 | 7,242 | 0.6 |
| Lāna`i | 1,237 | 0.3 | 2,661 | 0.3 | 3,815 | 0.3 |
| Maui SUB TOTAL | 46,141 | 11.1 | 99,909 | 11.0 | 133,453 | 11.1 |

REFERENCES

- ¹ *Hawai`i Health Survey 2002, Procedure Manual. 2003.* In Preparation by SMS Research & Marketing Services, Ind., and Hawai`i Department of Health, Office of Health Status Monitoring.
- ² Ware, J.E., Kosinski, M., Keller, S.D. SF-12®: How to Score the SF-12® Physical and Mental Health Summary Scales. Lincoln, RI: Quality Metric Incorporated, Third Edition, 1998.
- ³ Department of Business, Economic Development and Tourism. *State of Hawai`i Data Book 2001.* <http://www.hawaii.gov/dbedt/latest.html>.
- ⁴ National Heart, Lung, and Blood Institute in cooperation with National Institute of Diabetes and Digestive and Kidney Diseases. *On the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults.* NIH Publications No. 98-4083. 1998. U.S. Department of Health and Human Services. The Evidence Report.
- ⁵ Interagency Committee for the Review of Standards for Data on Race and Ethnicity. Tabulation Working group. *Draft Provisional Guidance on the Implementation of the 1997 Standards for Federal Data on Race and Ethnicity.* 1999;2-17.
- ⁶ *Poverty Guidelines - Research and Measurement.* U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. 4-28-2003. <http://aspe.hhs.gov/poverty/>