

Asthma Prevalence

Lifetime asthma prevalence is the proportion of people in a population who were ever diagnosed with asthma by a health care provider. Active asthma prevalence is the proportion of people in the population who have ever been diagnosed with asthma by a health provider and report that they still have asthma and/or had an episode or attack within the past 12 months. Data are obtained from the California Health Interview Survey (CHIS). The CHIS, conducted by the UCLA Center for Health Policy Research, is a state-wide telephone survey administered to over 50,000 households. Adults and teens (12-17) were asked, "Has a doctor ever told you that you have asthma?" and "During the past 12 months, have you had an episode of asthma or an asthma attack?" Asthma prevalence for children (0-11) was asked through their parent/guardian using the questions, "Has a doctor ever told you that your child has asthma?" and "During the past 12 months, has {he/she} had an episode of asthma or an asthma attack?" (<http://www.chis.ucla.edu>). Dashes in the table indicate data are statistically unstable.

Work-Related Asthma

Work-related asthma (WRA) is asthma that is caused or made worse by conditions or substance in the workplace. There are over 350 substances known to cause new onset WRA. However, WRA is very often unrecognized and therefore not always diagnosed. Research shows that health care providers rarely ask about workplace factors when diagnosing or treating adult asthma.

Research shows that 15-30% of current adult asthma was initiated by work exposures. We applied this range of proportions to the number of adults with current asthma in each county, derived from CHIS data, to estimate the number of adults who may have work-related asthma in that county. In the CHIS, an individual is considered to have current asthma if they were ever diagnosed with asthma by a health care provider (i.e., have lifetime asthma) and either responded yes to the question, "Do you still have asthma", or reported having had an asthma attack in the past year.

Asthma Management Plans

National guidelines recommend that healthcare providers give patients with asthma a written self-management plan that should include instructions for:

1) daily management, and 2) how to recognize and handle worsening asthma. Information about asthma management plans was derived from the CHIS survey. Respondents with lifetime asthma were asked: "Has a doctor or other health professional ever given you an asthma management plan [for child]?"

Asthma Risk Factors

Smoking

Many studies have shown smoking and secondhand smoke exposure to worsen asthma. Information about smoking was obtained from the CHIS survey. Adults who reported that they currently smoke every day or some days were considered to be current smokers. Adult respondents (and children in the same household) who said that smoking was currently present inside their home every day or some days were considered to be exposed to secondhand smoke in their homes.

Obesity

Adults who are obese are more likely to have asthma. Obesity is determined by an individual's body mass index (BMI), a measurement used to determine the weight status of a person accounting for his/her height. An adult is considered obese if his/her body mass index (BMI) is 30 or higher. The equation for calculating BMI is:

$$BMI = \left(\frac{\text{Weight in Pounds}}{(\text{Height in Inches}) \times (\text{Height in inches})} \right) \times 703$$

Poverty

Conditions of poverty are associated with more adverse asthma outcomes. Information about poverty in each county was obtained from the U.S. Census Bureau's American Community Survey (ACS) for 2006-2008 (3-year estimates). The Census classifies individuals as living below the Federal Poverty Level if their household income is less than the poverty threshold specified for family size, age of householder, and number of children in the household. The Census does not determine poverty status for institutionalized people (e.g., people in military group quarters, dormitories, prisons) and individuals age 15 and under. These groups are excluded from the numerator and denominator when calculating the percent of persons

below poverty. The 2009 annual average unemployment rate for each county was obtained from the State of California Employment Development Department Labor Market Information Division (<http://www.labormarketinfo.edd.ca.gov>). The unemployment rate is not seasonally adjusted.

Asthma Deaths

Asthma deaths are presented as counts and rates (number of deaths per million residents). Because it is a relatively rare event, we combined asthma deaths for the years 2006 through 2008. Asthma death data are from the California Death Statistical Master Files that contain information collected from death certificates. These data were provided by the California Department of Public Health, Center for Health Statistics. For analysis, we selected all deaths where asthma was coded as the underlying cause of death based on the ICD-10 codes J45-J46. Rates were calculated using yearly population estimates in the denominator, provided by the California Department of Finance. Rates were age-adjusted to the 2000 U.S. population obtained from the U.S. Census Bureau. Counts of 1-5 are not reported due to privacy concerns (indicated as <5) and rates are not calculated from counts of less than 20 due to statistical instability (indicated with dashes).

Asthma Emergency Department Visits and Hospitalizations

Hospitalization and emergency department (ED) visit data include counts, rates (number per 10,000 residents), average charges, and the expected source of payment. ED visits include those that resulted in a hospital admission. Data were obtained from 2008 Emergency Department and Patient Hospital Discharge Databases provided by the California Office of Statewide Health Planning and Development (OSHPD). These databases contain information on each patient admitted to an ED or discharged from a licensed acute care hospital. Asthma hospitalizations and ED visits are identified by principal diagnosis code using ICD-9 code 493. Rates were calculated using yearly population estimates in the denominator, provided by the California Department of Finance. Rates were age-adjusted to the 2000 U.S. population obtained from the U.S. Census Bureau. Counts of 1-5 are not reported due to privacy concerns (indicated as <5) and rates are not calculated from counts of less than 20 due to statistical instability (indicated with dashes).



Average Charges per Hospitalization

This measure is the average of charge reported by the hospital for each hospitalization (this data is not available for ED visits). This is presented for adults and children. It is important to note that not all hospitals report charges to OSHPD. Kaiser Foundation and Shriners' Hospital are exempt from reporting charges. Charges for hospitalizations are one of the only type of data available to assess direct costs of asthma in California counties. However, they do not include the many other costs associated with asthma, nor do they represent the final payment received by the hospital.

Expected Source of Payment

Insurance status or expected source of payment measures the source from which the hospital expected to receive payment for charges incurred from the hospitalization or ED visit. This measure is presented for all ages. For the purpose of this analysis, sources of payment were grouped into the following four categories:

- Medicare = Medicare (including HMO/PPO)
- Medi-Cal = Medi-Cal (including HMO/PPO)
- Private Insurance = private insurance company (e.g., HMO, PPO, Blue Cross/Blue Shield)
- Other = workers' compensation, county indigent program, charity care, self-pay, other governmental sources, etc.

Healthy People 2010

Healthy People 2010 (HP2010) is a set of disease prevention and health promotion objectives developed by the U.S. Department of Health and Human Services for the nation to achieve by the year 2010. Decreasing asthma deaths, hospitalizations, emergency department visits, activity limitations, and school/work missed, and increasing asthma education and proper asthma care are some of the HP2010 objectives for asthma. However, only the objectives for asthma hospitalizations, and ED visits can be accurately measured in California counties using currently available surveillance data. More information about HP2010 can be found at: <http://www.healthy-people.gov>. Rates are age-adjusted to the 2000 U.S. population.

Missing Data

When data are based on very small cell sizes, they are considered statistically unstable and not included. These are signified by dashes or marked as <#. In the disparities and HP2010 graphs, missing bars indicate that numbers were too small to calculate stable rates. Data obtained from the CHIS survey are determined to be statistically unstable based on the size of the standard error of each estimate. For asthma ED, hospitalization, and death data, rates are considered statistically unstable if based on less than 20 events. Counts of 1-5 or counts that allow calculation of those cells are not shown due to issues of confidentiality. For counties where most of the data are missing due to small numbers, the charts are excluded from the profile.

For some small counties, data from CHIS are only available as aggregated data for county groups. These groups are as follows:

- Alpine, Amador, Calaveras, Inyo, Mariposa, Mono, and Tuolumne (Eastern Counties)
- Del Norte, Lassen, Modoc, Plumas, Sierra, Siskiyou, and Trinity (Northern Counties).
- Colusa, Glenn, and Tehama

Race/Ethnicity Categories

The groups for data calculated by race/ethnicity are: Non-Hispanic White, Non-Hispanic Black, Hispanic, and Non-Hispanic Asian/Pacific Islander. Other is also included in the county population table. Data is only presented by race/ethnicity for hospitalizations and ED visits due to small cell sizes in the other measures. Data on American Indians/Alaska Natives is not included due to both small cell sizes and unreliability of this categorization in OSHPD data.