Title

Counts and rates of asthma emergency department visits by zip code, California

Abstract

This dataset contains counts and rates of asthma emergency department visits among California residents by zip code and by age group (all ages, 0-17 years, 18+ years).

Data Sources

Emergency Department Data

Since 2005, the Office of Statewide Health Planning and Development (OSHPD) has routinely collected data on emergency department (ED) visits from every licensed acute care hospital in California, excluding federal hospitals. Each year, OSHPD compiles data from all hospitals to create the Emergency Department and Ambulatory Surgery Database. The California Environmental Health Tracking Program (CEHTP) and California Breathing obtain the annual ED dataset from OSHPD to create datasets for public health surveillance, while maintaining confidentiality. Each asthma ED event is identified by looking at the principal discharge diagnosis based on the International Classification of Disease (ICD). Prior to October 1, 2015, ICD-9-CM codes beginning with 493 were used to identify asthma events. Starting October 1, 2015, asthma events were identified by ICD-10-CM codes beginning with J45.

To find out more about what data are available from OSHPD, go to their website: www.oshpd.ca.gov.To request public use data from OSHPD, go here: http://www.oshpd.ca.gov/HID/Products/PatDischargeData/PublicDataSet/index.html.

Zip code-level population data

For asthma data at the zip code-level, we use population estimates from a private vendor. This vendor takes into consideration U.S. Postal Service routes, U.S. census population, and other data sources to estimate the population for each zip code.

Measures

Counts

- The number of ED visits during a calendar year with asthma (ICD-9-CM 493 or ICD-10-CM J45) as the primary diagnosis for a given zip code and age group. This includes ED visits that resulted in hospitalization.

Rates

- Age-adjusted rates take into account the age-distribution of a population and allow for direct comparisons between two or more populations at one point in time or between a single population at two or more points in time. Age-adjusted rates are useful as a relative index of risk.

- Using the direct method of age-adjustment, crude rates are weighted to be comparable to a standard population. For the age-adjusted emergency department rates presented, we used the U.S. Census 2000 population as the standard population (http://www.census.gov/prod/2002pubs/c2kprof00-us.pdf).

Limitations in geographic resolution

At this time, hospitals are not mandated to report patient addresses. Thus, the level of geographic resolution of the data is limited to state, county, and zip code. There are many limitations to consider when using and interpreting zip code-level data:

1. **Zip codes are not geographic areas.** While people may think of zip codes as defining communities or neighborhoods, zip codes were created to provide an efficient postal distribution and delivery network. While most zip codes are assigned to streets, sometimes a single building with large mail volume could have its own zip code. Thus, any effort to assign a geographic area (i.e. polygon) to a zip code is an approximation at best.

2. **Zip code populations are estimates.** Populations assigned to a particular zip code are estimates as well. Because zip codes were created to facilitate mail delivery, there is no specific population associated with zip codes. Zip code populations are estimated from the U.S. Census data using statistical methods, usually by commercial data vendors. On the CEHTP web portal, the shape files used to create the map of the zip code-level data along with the population estimates used to calculate the rates are both from a private vendor.

3. **Zip codes can cross city or county boundaries.** Zip code assignments are based on factors such as mail volume, geographic location, and topography, but not necessarily city or other community boundaries.

4. **Zip codes may change from year to year and even within a year.** Zip code assignments can change depending on mail delivery growth patterns or changing demographics. Thus, aggregating zip code population estimates over time is not recommended. Additionally, looking at trends in zip code-level data from year to year should be done with caution. Depending on the source and time of zip code data, zip code population and area estimates may be different among data providers.

More information can be found on the CEHTP website about how the data are calculated and the accompanying limitations: http://www.cehtp.org/faq/asthma/asthma_methods_and_limitations.