



California Asthma Facts

Volume 4, Issue 1

California Department of Public Health

September 2009

Asthma Emergency Department Visits: Results from 2005-2007

Asthma Emergency Department Visits

Emergency department (ED) visits for asthma can be avoided when people with asthma receive appropriate health care and they and their caregivers manage the disease properly. Nonetheless, many people with asthma end up at the ED for treatment of asthma symptoms. Many individual, system, and societal-level factors may influence people's use of the ED for treatment of asthma symptoms. These include, but are not limited to: disease severity, symptom management, race/ethnicity, income, quality of care, access to care, and insurance coverage. Asthma ED visits result in both direct costs for individuals and the health care system, and indirect costs from school absences, missed work, and other downstream economic impacts.

How many asthma ED visits occur in California?

In 2007, there were 163,008 asthma ED visits in California, corresponding to a yearly rate of 42.3 visits per 10,000 residents. In 2005, when ED data first became available, there were 168,154 asthma ED visits, or an annual rate of 45.7 visits per 10,000 residents. While the rate of asthma ED visits decreased between 2005 and 2007, additional years of data are necessary to determine if this represents a long-term, declining trend.

Summary of Results

- ◆ In 2007, there were an estimated 42.3 asthma ED visits per 10,000 residents in California. The rate decreased from 2005 to 2007, but with only three years of data, long-term trends cannot be determined.
- ◆ Blacks have the highest rate of asthma ED visits (144.5 per 10,000 residents), more than four times higher than Whites (35.7 per 10,000) and more than eight times higher than Asians/Pacific Islanders (17.3 per 10,000).
- ◆ Rates of asthma ED visits decrease with age; the highest rate is among children under age five (101.3 per 10,000 residents).
- ◆ Among children under age 15, females have lower asthma ED rates than males; among people age 15 and over, females have higher rates than males.
- ◆ The number of ED visits for asthma fluctuates by time of year, with peaks in the winter months and dips in the summer months.

This report is an update to the asthma ED visit information contained in the June 2007 surveillance report, "The Burden of Asthma in California." Data from 2005 have been updated in this report to include ED visits resulting in admission to the hospital, which were not previously incorporated when calculating ED rates. Asthma ED visit rates were also analyzed for 2006 and 2007, with a focus on the most recent data. ED visit information is just one of many components of asthma surveillance. Please refer to "The Burden of Asthma in California" report for information on asthma prevalence, hospitalizations, mortality, risk factors, and other indicators of the burden of asthma in California. A link to the report can be found in the resources section on page four.



Arnold Schwarzenegger, Governor
State of California

Kimberly Belshé, Secretary
California Health and Human Services Agency

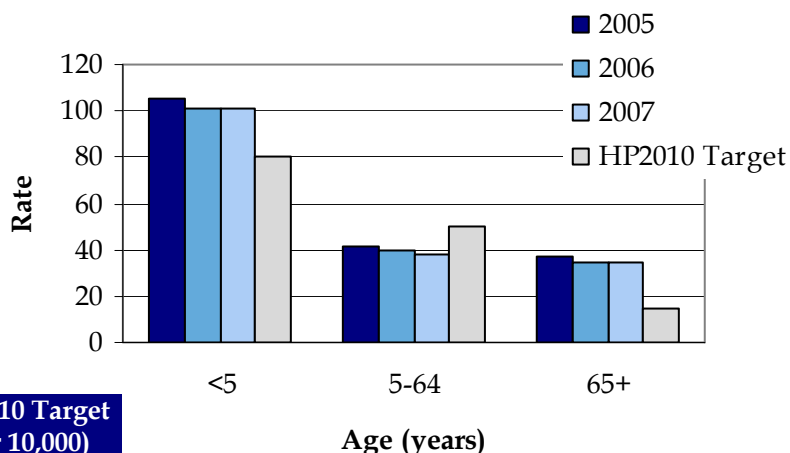
Dr. Mark Horton, Director
California Department of Public Health



RESULTS

Figure 1: Asthma ED Visits per 10,000 California Residents by Age, Compared to HP2010 Targets, California 2005-2007

As of 2007, asthma ED visit rates for the <5 and 65+ age groups have not met their respective Healthy People 2010 (HP2010) targets, while the 5-64 age group has met the HP2010 target. (HP2010 is a set of national public health benchmarks; see www.healthypeople.gov.)



2007 Data:

Age Group	n	Rate (per 10,000)*	HP2010 Target (per 10,000)
<5	27,469	101.3	80
5 - 64	118,250	38.4	50
65+	14,289	34.9	15

*Note: Rates are age-adjusted for the 5-64 and 65+ age groups.

Methods and Limitations

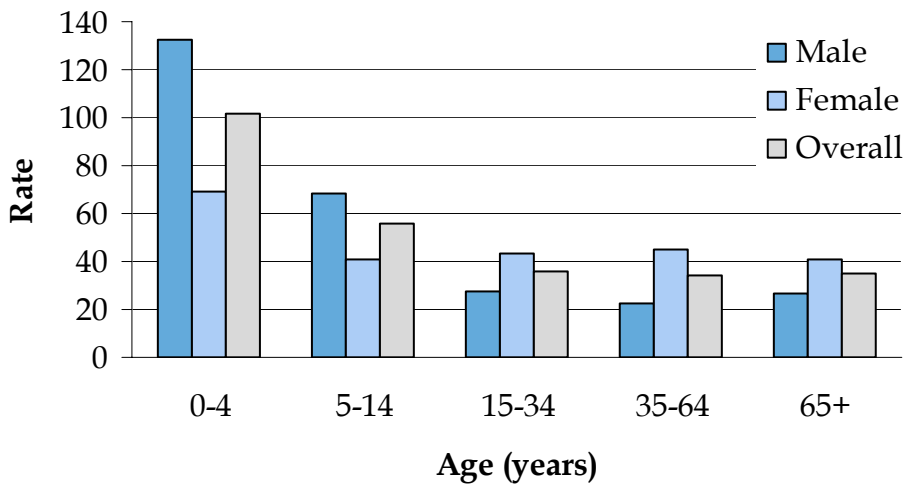
Data on asthma ED visits were obtained from the 2005-2007 Emergency Department and Patient Hospital Discharge Databases maintained by the California Office of Statewide Health Planning and Development (OSHPD). Every non-federal, licensed ED and acute care hospital in California is required to report to this database. For this analysis, we selected all visits where asthma was the primary diagnosis (code 493) based on the ninth revision of the International Classification of Diseases, Clinical Modification (ICD-9-CM). We included all ED visits regardless of whether they resulted in a hospital stay for asthma.

Rates were calculated using yearly population estimates obtained from the California Department of Finance. Five race/ethnicity groups were used: non-Hispanic White; non-Hispanic Black; Hispanic (of any race); non-Hispanic Asian/Pacific Islander, and non-Hispanic American Indian/Alaska Native. Individuals with an unspecified or unknown race/ethnicity were excluded from race-specific calculations but were included in the statewide estimates. Age-adjusted rates were adjusted to the estimated 2000 U.S. population obtained from the U.S. Census Bureau.

ED data are abstracted from provider notes for billing purposes. Therefore, there is the potential for incorrect diagnoses and inconsistent coding. Asthma ED rates by race/ethnicity may be inaccurate due to racial/ethnic misclassification. In the 2007 ED data set, there were 10,926 asthma ED visits (6.8%) where patient race/ethnicity was unspecified or undefined. This may result in underestimation of true asthma ED rates for certain racial/ethnic groups.

Asthma Emergency Department Visits: Results from 2005-2007

Figure 2: Asthma ED Visits per 10,000 California Residents by Age and Sex, 2007

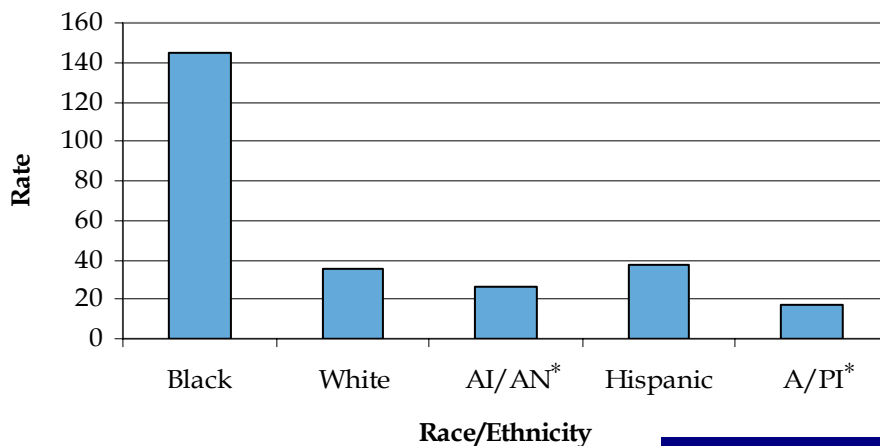


Asthma ED visit rates decrease with age and are highest among children under five. Adults age 35-64 have the lowest asthma ED visit rate.

Disparities in asthma ED visits by sex are age-dependent. Females have lower rates than males in the younger age groups (0-14) and higher rates than males in the older age groups (15 and over).

Age Group	Male		Female		Overall	
	n	Rate (per 10,000)	n	Rate (per 10,000)	n	Rate (per 10,000)
0-4	18,278	132.2	9,191	69.2	27,469	101.3
5-14	19,260	68.7	10,926	40.7	30,191	55.6
15-34	15,252	27.8	22,460	43.6	37,718	35.4
35-64	16,841	22.7	33,494	44.9	50,341	33.9
65+	4,721	26.7	9,568	41.1	14,289	34.9

Figure 3: Age-adjusted Asthma ED Visits per 10,000 California Residents by Race/Ethnicity, 2007



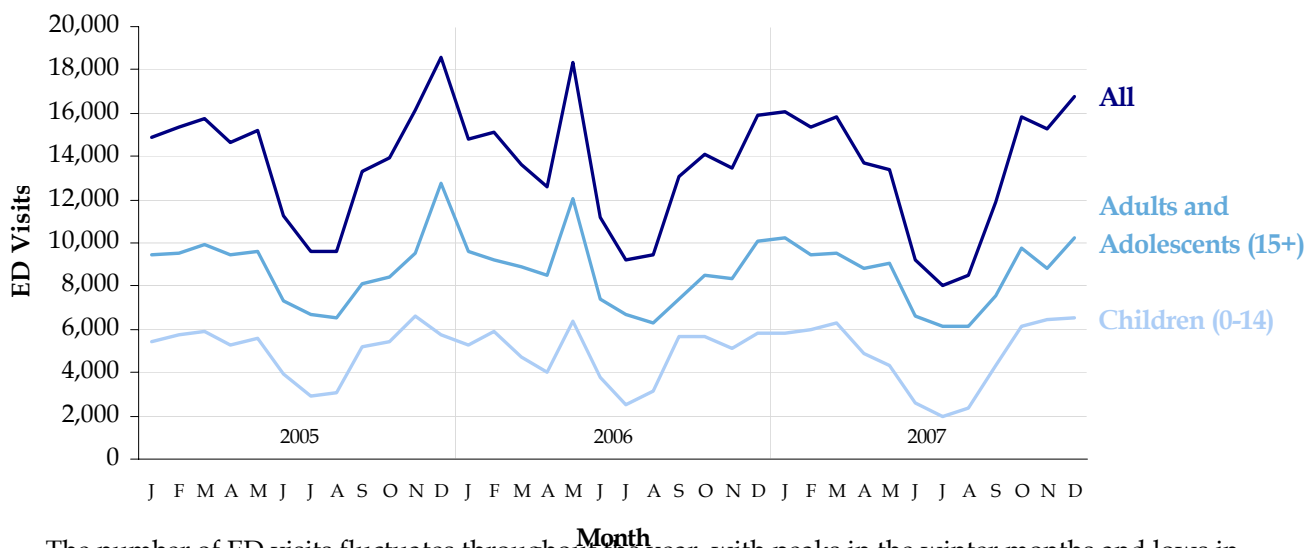
Blacks consistently have the highest rate of asthma ED visits--more than four times higher than Whites and more than eight times higher than Asians/Pacific Islanders, who consistently have the lowest asthma ED rates.

* AI/AN: American Indian/Alaska Native

A/PI: Asian/Pacific Islander

Race/ Ethnicity	n	Age-Adjusted Rate (per 10,000)
Black	32,450	144.5
White	55,211	35.7
AI/AN*	522	26.8
Hispanic	53,446	37.6
A/PI*	7,453	17.3

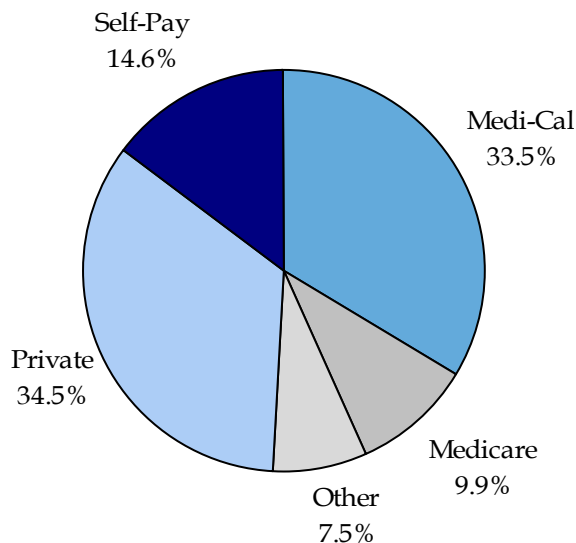
Figure 4: Asthma ED Visits by Month of Admission, California 2005-2007



The number of ED visits fluctuates throughout the year, with peaks in the winter months and lows in the summer months.

Figure 5: Expected Source of Payment for Asthma ED visits, California 2007

Public payers, Medicare and Medi-Cal, cover 43.4% of all asthma ED visits. Private payers also account for a large proportion of visits at 34.5%.



Resources

For more information about asthma in California or to view The Strategic Plan for Asthma in California, visit the California Breathing website at www.californiabreathing.org.

The June 2007 surveillance report, "The Burden of Asthma in California" can be found here: <http://www.californiabreathing.org/images/stories/publications/asthmaburdenreport.pdf>

The full National Asthma Education Prevention Program Expert Panel Report 3 can be found here: <http://www.nhlbi.nih.gov/guidelines/asthma/asthgdl.pdf>

Asthma Emergency Department Visits: Results from 2005-2007

Conclusions

This report summarizes information on asthma ED visits that occurred in California between 2005 and 2007. While rates of asthma ED visits overall have been decreasing, there are still over 160,000 per year and many demographic groups continue to suffer a disproportionate burden. Consistent with previous findings, the 2007 asthma ED visit rates differ by race/ethnicity, age, and sex. The greatest disparity in asthma ED visits is by race/ethnicity, with Blacks having a rate more than four times higher than Whites (144.5 versus 35.7 per 10,000 residents) and more than eight times higher than Asians/Pacific Islanders (17.3 per 10,000 residents). Rates of asthma ED visits decrease with age, with children under five having a rate almost three times higher than adults aged 35 to 64 (101.3 vs. 33.9 per 10,000). Among children under age 15, males have higher rates of asthma ED visits than females. In people over age 15, females have higher rates than males. Disparities in asthma ED rates are related to a variety of factors, which may include underlying asthma prevalence and severity, quality of and access to health care, insurance coverage, and quality of indoor and outdoor environments, among others. Fluctuations in asthma ED visits by time of year may be due to seasonal variations in exposure to asthma triggers such as viral infections, allergens, and air pollution. For children, the fluctuations may also accompany the return to the school environment in the fall.

Use of the ED for treatment of asthma symptoms may be prevented with regular access to health care and proper asthma management. However, many individuals who are unable to receive regular and adequate care for their asthma may use the ED as their usual source of care. These individuals may be at higher risk of recurrent ED visits due to a lack of a proper asthma management plan and/or inappropriate medication use. ED visits, especially those that result in hospitalizations and repeat visits, place a large burden on people with asthma, their families, and the health care system. This burden includes both direct costs for health care – of which a large percentage are covered by public payers – and indirect costs, including time missed from school and work.

The burdens associated with asthma ED visits highlight the importance of proper asthma management in preventing initial ED visits and avoiding both repeat visits and hospitalizations. People with asthma, in collaboration with health care providers, should play an active role in properly managing asthma to prevent ED visits.

People with asthma should :

- ◆ Work with their health care provider to develop and follow an appropriate asthma management plan.
- ◆ Learn ways to avoid or reduce exposure to asthma triggers in their indoor and outdoor environments.
- ◆ Visit their primary care provider or asthma specialist following an asthma ED visit.

Health care providers should :

- ◆ Work with patients to develop a suitable asthma management plan, which includes proper guidelines for medication use.
- ◆ Provide education and referrals for patients and their families to ensure ongoing, proper asthma management.
- ◆ Refer to the National Asthma Education and Prevention Program (NAEPP) Expert Panel Report 3 for complete information on asthma assessment and monitoring, patient education, control of factors contributing to asthma severity, and pharmacologic treatment.



California Department of Public Health
Environmental Health Investigations Branch
850 Marina Bay Parkway
Richmond, CA 94804

Phone: 510-620-3620
Fax: 510-620-3720

For more information about California
Asthma Facts, email us at:
California.Breathing@cdph.ca.gov