

Asthma in California

*A Surveillance
Report*



May 2013



Accompanying Slides

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Asthma is one of the most common chronic diseases and has been recognized as a growing public health concern. California Breathing, an asthma program in the California Department of Public Health, developed a detailed data source book entitled, *Asthma in California: A Surveillance Report*, that presents a comprehensive picture of the burden of asthma in the state. It is a compilation of all available asthma data in a single source, and provides a framework for addressing asthma in the state.

This PowerPoint presentation is a companion resource to *Asthma in California*. Within it are slides that summarize key findings from the report and provide graphs and charts in an easily usable format. This presentation is intended to allow users to easily cut and use particular slides, graphs, or tables of interest. Notes beneath each slide summarize the findings presented on that slide. Each slide also lists the corresponding page number in the full report. When using these slides, please include the following citation: Milet M, Lutzker L, Flattery J. *Asthma in California: A Surveillance Report*. Richmond, CA: California Department of Public Health, Environmental Health Investigations Branch, May 2013.

To view the full report, including the Technical Notes, please visit the [California Breathing website](http://www.californiabreathing.org) (www.californiabreathing.org). For additional technical assistance, [contact Meredith Milet](mailto:meredith.milet@cdph.ca.gov) (meredith.milet@cdph.ca.gov) at 510-620-3634.

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Asthma Disparities Summary

- Compared to Whites, asthma hospitalization and ED visit rates are about four times higher for Blacks and asthma death rates are two times higher for Blacks.
- Both Pacific Islanders and Filipinos have especially high lifetime asthma prevalence, asthma mortality rates, and Medi-Cal asthma hospitalization rates.
- American Indian/Alaska Native (AI/AN) adults have the highest asthma prevalence of any racial/ethnic groups.
- The burden of asthma is greater among people who live in areas with lower median incomes.
- Among adults, the burden of asthma is greater for females; among children, the burden of asthma is greater for males.
- Lesbian and bisexual females have significantly higher asthma prevalence than straight females.
- Certain industries and occupations have particularly high rates of work-related asthma.



Asthma Disparities – Summary of Asthma Measures by Race/Ethnicity



Measures (All Ages Unless Otherwise Specified)	Black	AI/AN	White	Hispanic	A/PI
Lifetime Asthma Prevalence	20.8%	21.2%	14.9%	10.0%	12.1%*
Current Asthma Prevalence	13.0%	15.6%	9.0%	5.9%	6.5%*
Percent with Well-Controlled Asthma (adults with current asthma)	45.8%	52%†	54.7%	48.5%	58.1%*†
Asthma ED Visit Rate (per 10,000)	157.5	26.9	38.6	43.2	17.9
Medi-Cal Asthma ED Visit Rate (per 10,000)	317.0	227.7	164.9	115.1	60.8
Asthma Hospitalization Rate (per 10,000)	29.0	4.7	7.6	8.7	6.1
Percent with Repeat Hospitalizations	18.8%	4.3%	11.3%	8.9%	10.5%
Medi-Cal Asthma Hospitalization Rate (per 10,000)	63.0	31.1	25.3	19.5	17.4
Asthma Death Rate (per million)	32.7	6.8	11.5	9.0	15.2*

A/PI = Asian/Pacific Islander

* Asian only (does not include Pacific Islanders)

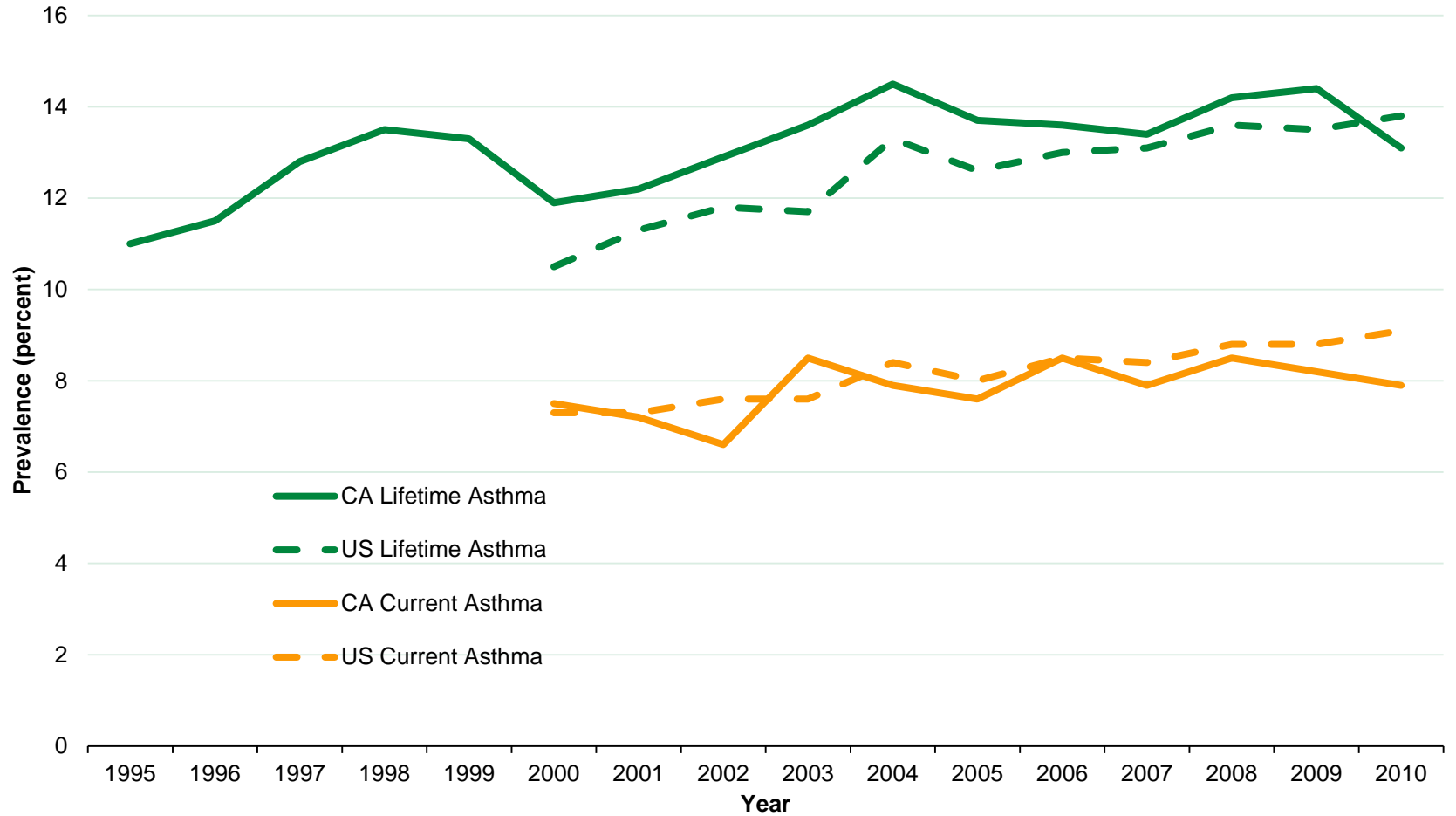
† Unstable estimate – please note the wide confidence interval



Asthma Prevalence

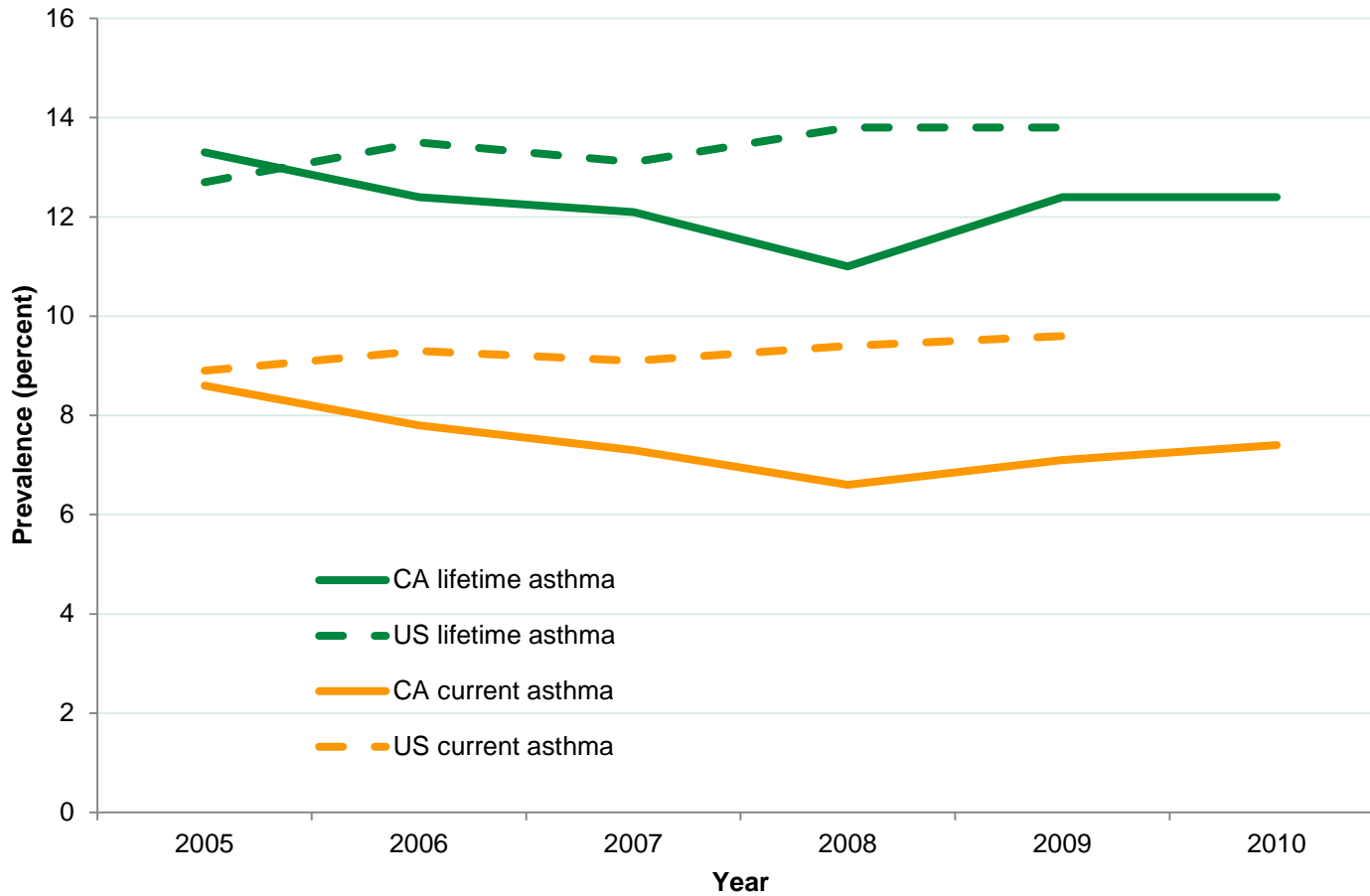


Lifetime and Current Asthma Prevalence Among Adults, California and the U.S. 1995-2010





Lifetime and Current Asthma Prevalence Among Children, California and the U.S. 2005-2010



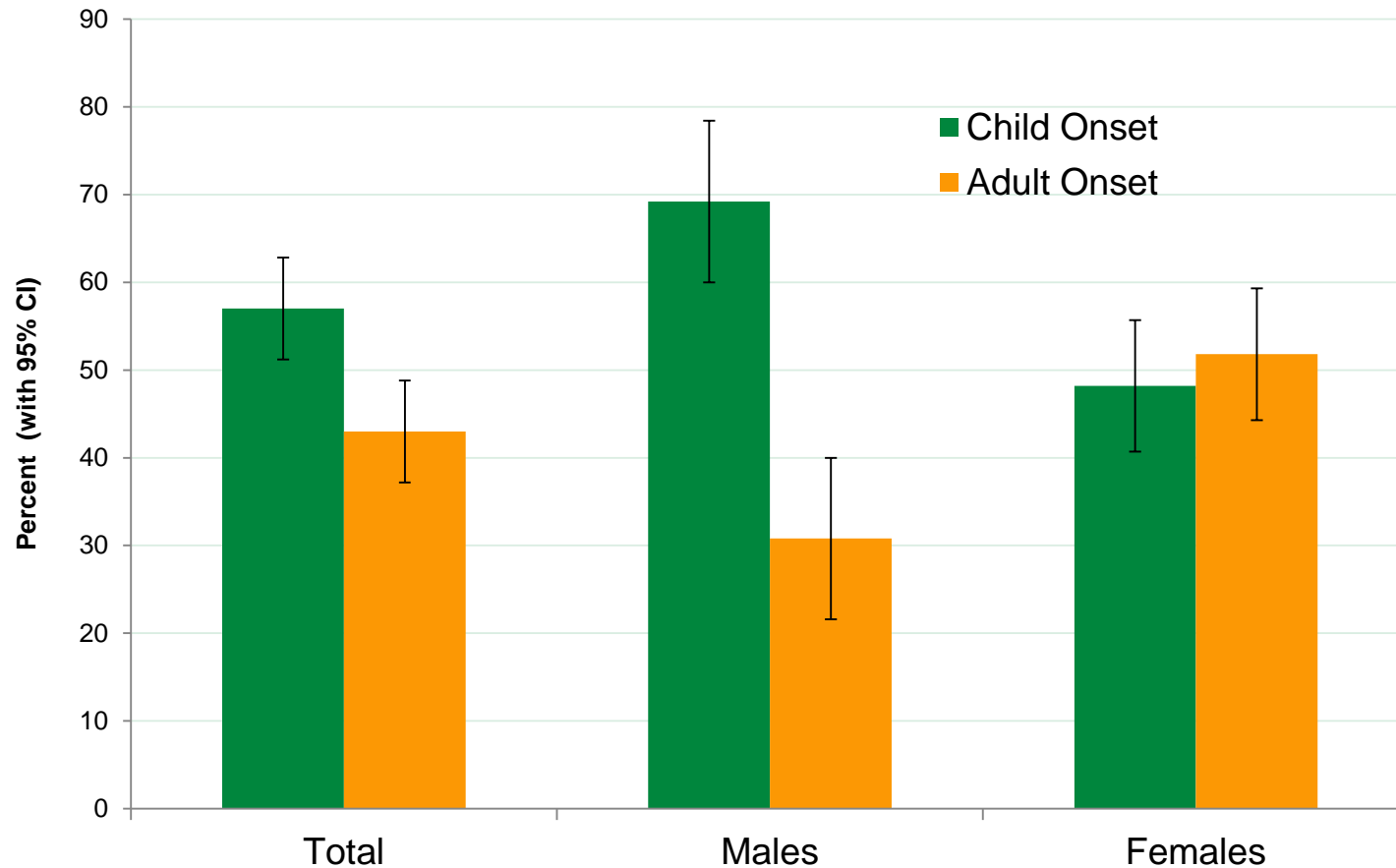


Estimated Annual Incidence Rate of Asthma (per 1,000 People), by Age, California 2006-2009

Age	Rate	(95% CI)	Estimated Number of New Cases Per Year
Adults (18+ years)	4.3	(2.8-5.9)	93,150
Children (0-17 years)	10.7	(5.4-16.0)	96,550

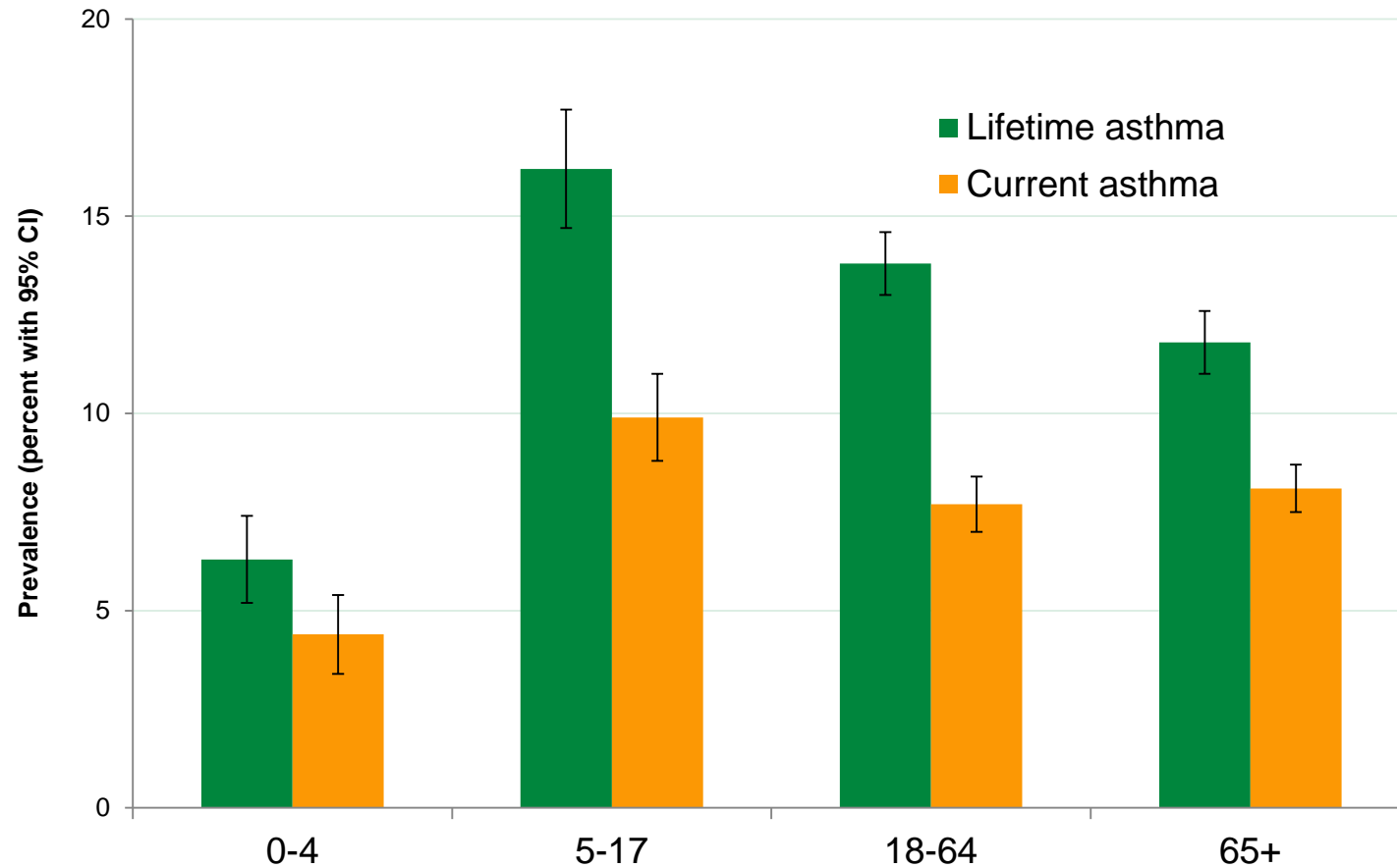


Percent of Adults with Lifetime Asthma Who Were First Diagnosed as an Adult vs. as a Child, by Sex, California 2009



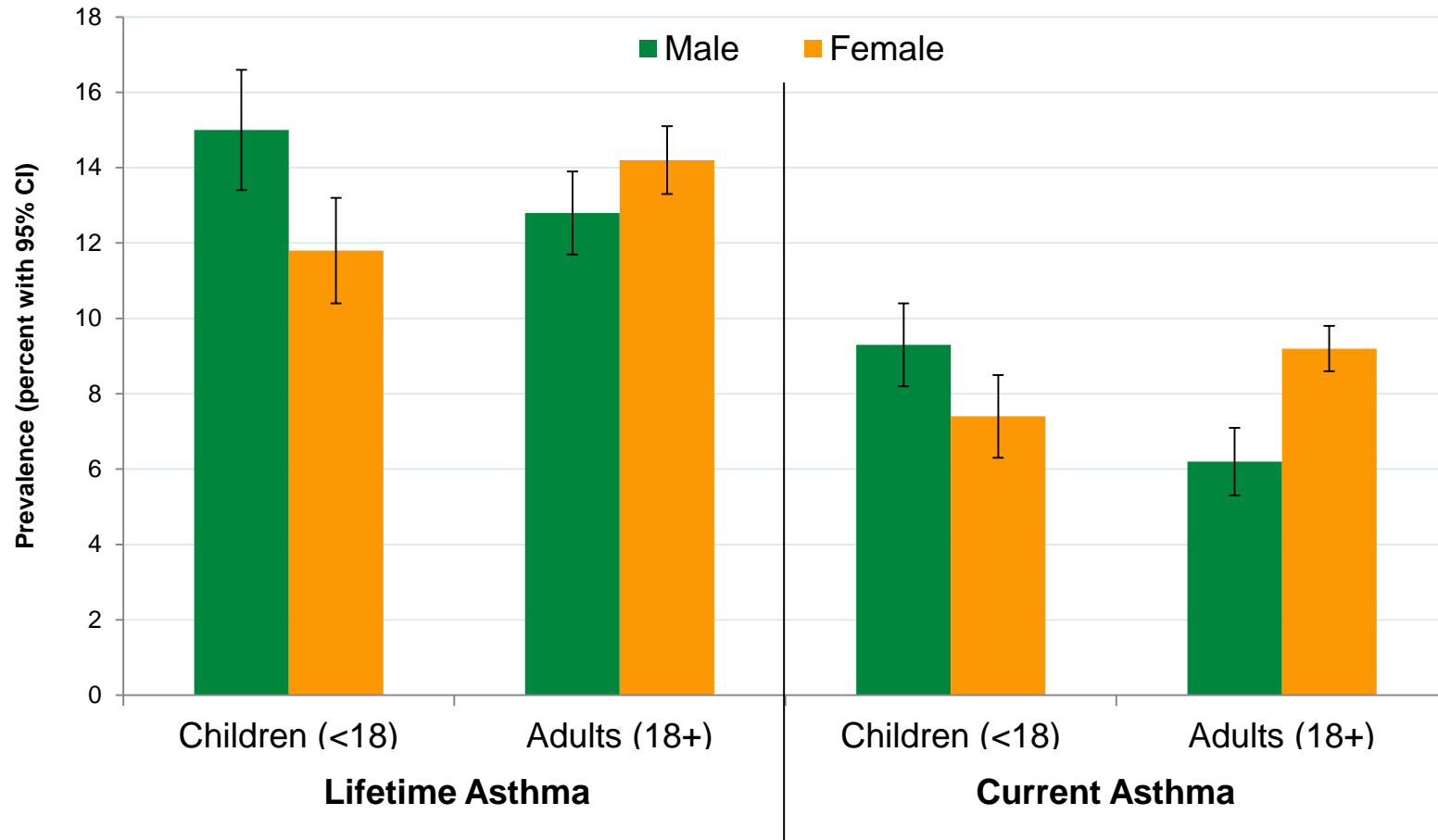


Lifetime and Current Asthma Prevalence by Age, California 2009



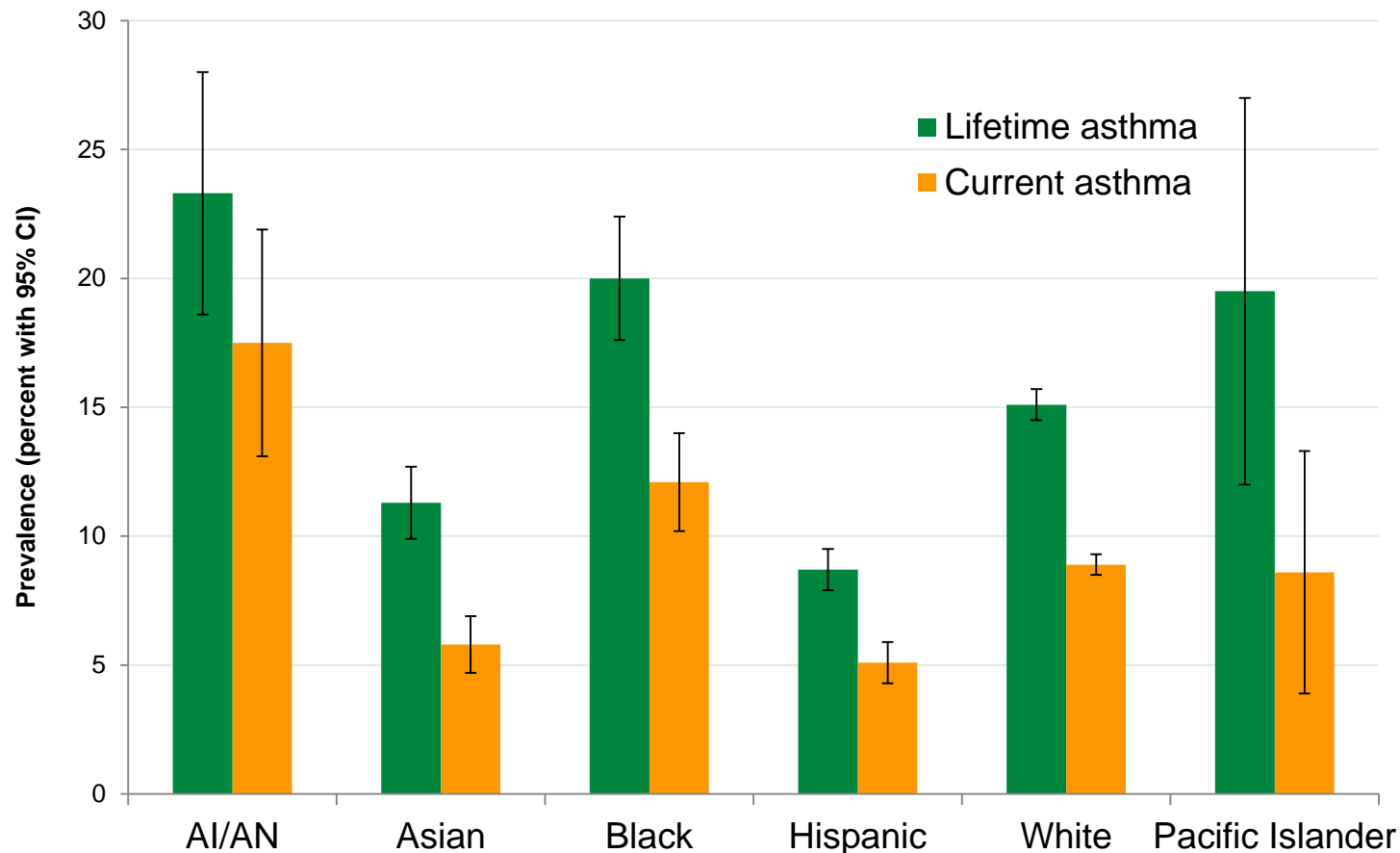


Lifetime and Current Asthma Prevalence by Sex and Age, California 2009



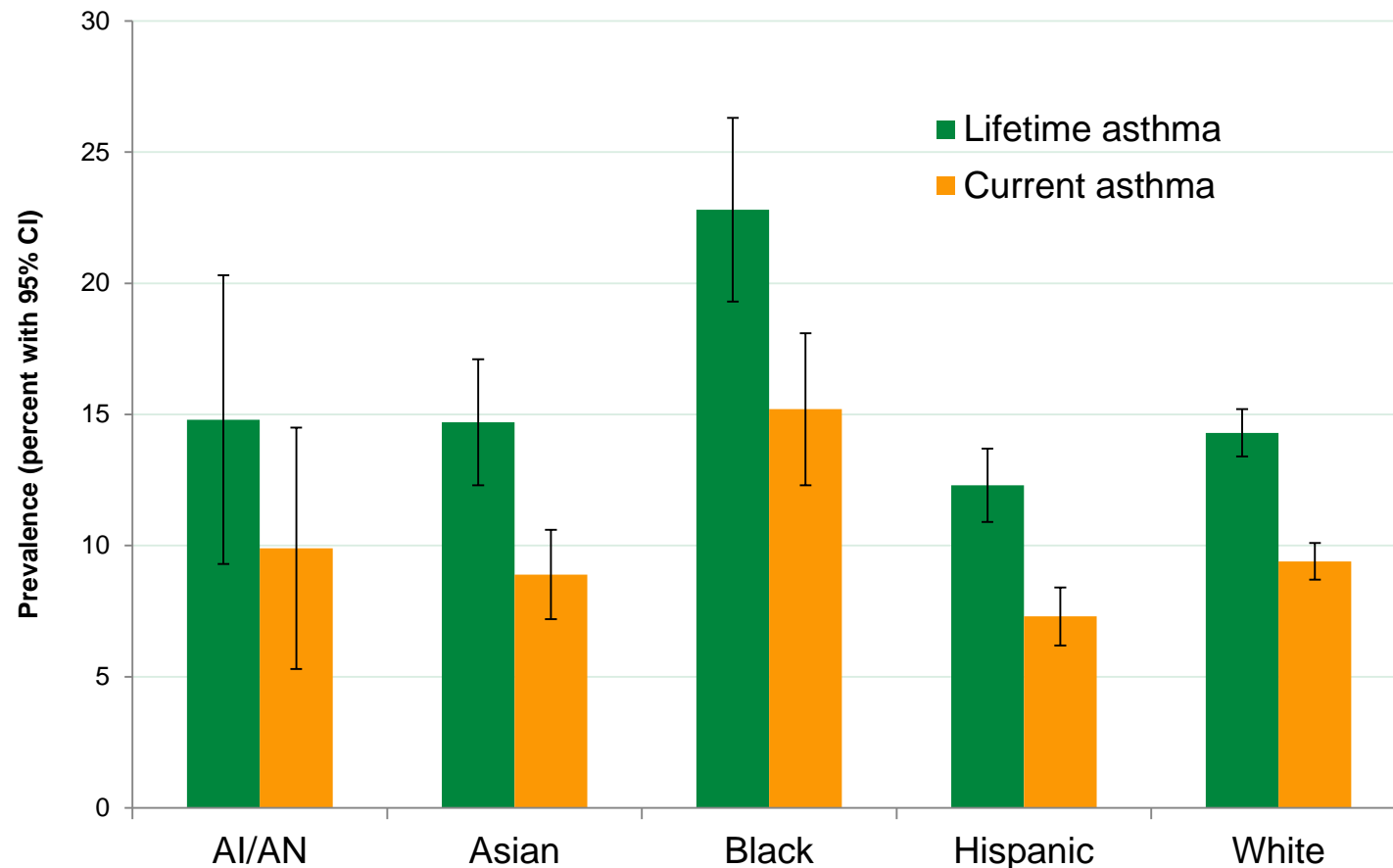


Lifetime and Current Asthma Prevalence Among Adults, by Race/Ethnicity, California 2007 and 2009 Combined



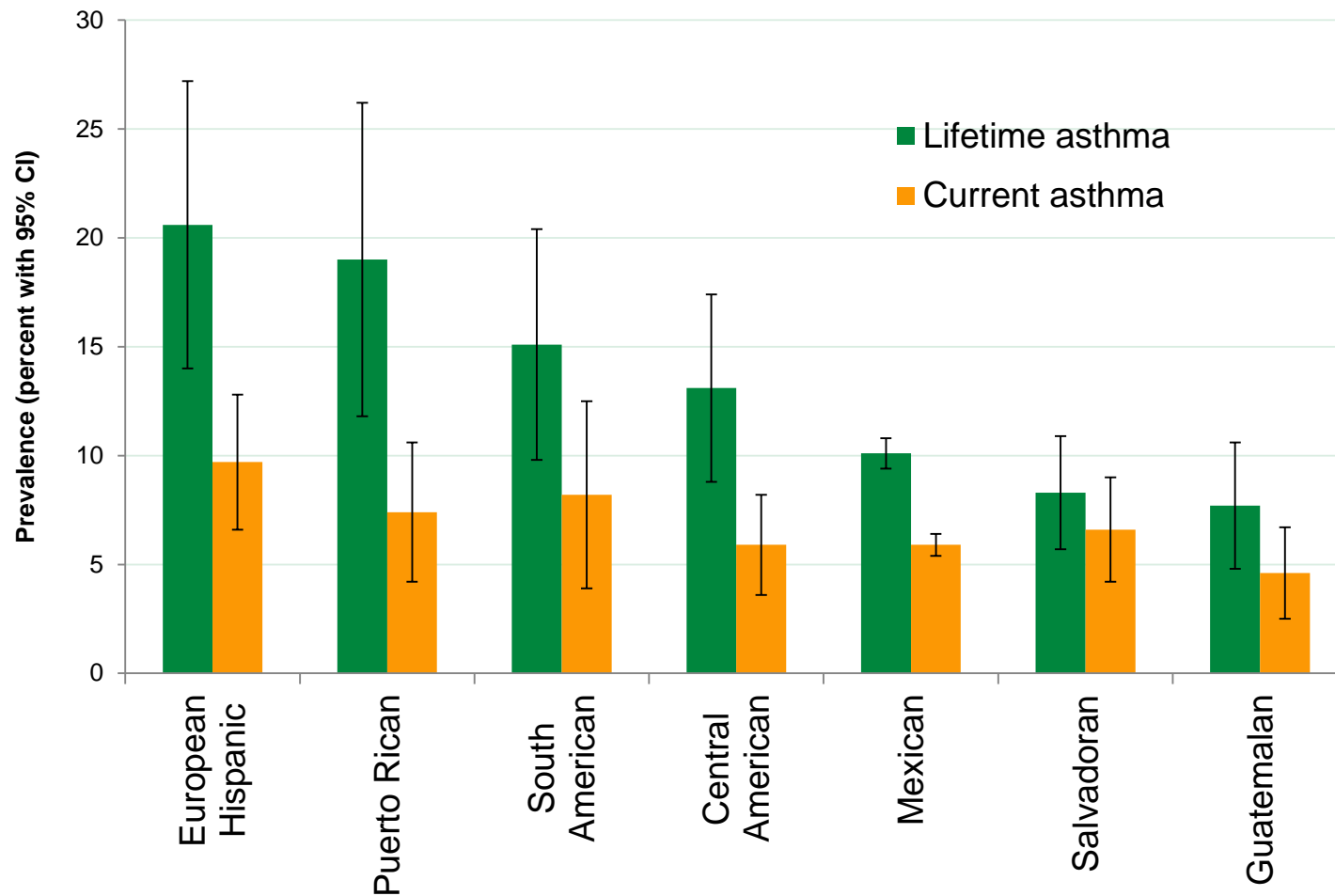


Lifetime and Current Asthma Prevalence Among Children, by Race/Ethnicity, California 2007 and 2009 Combined



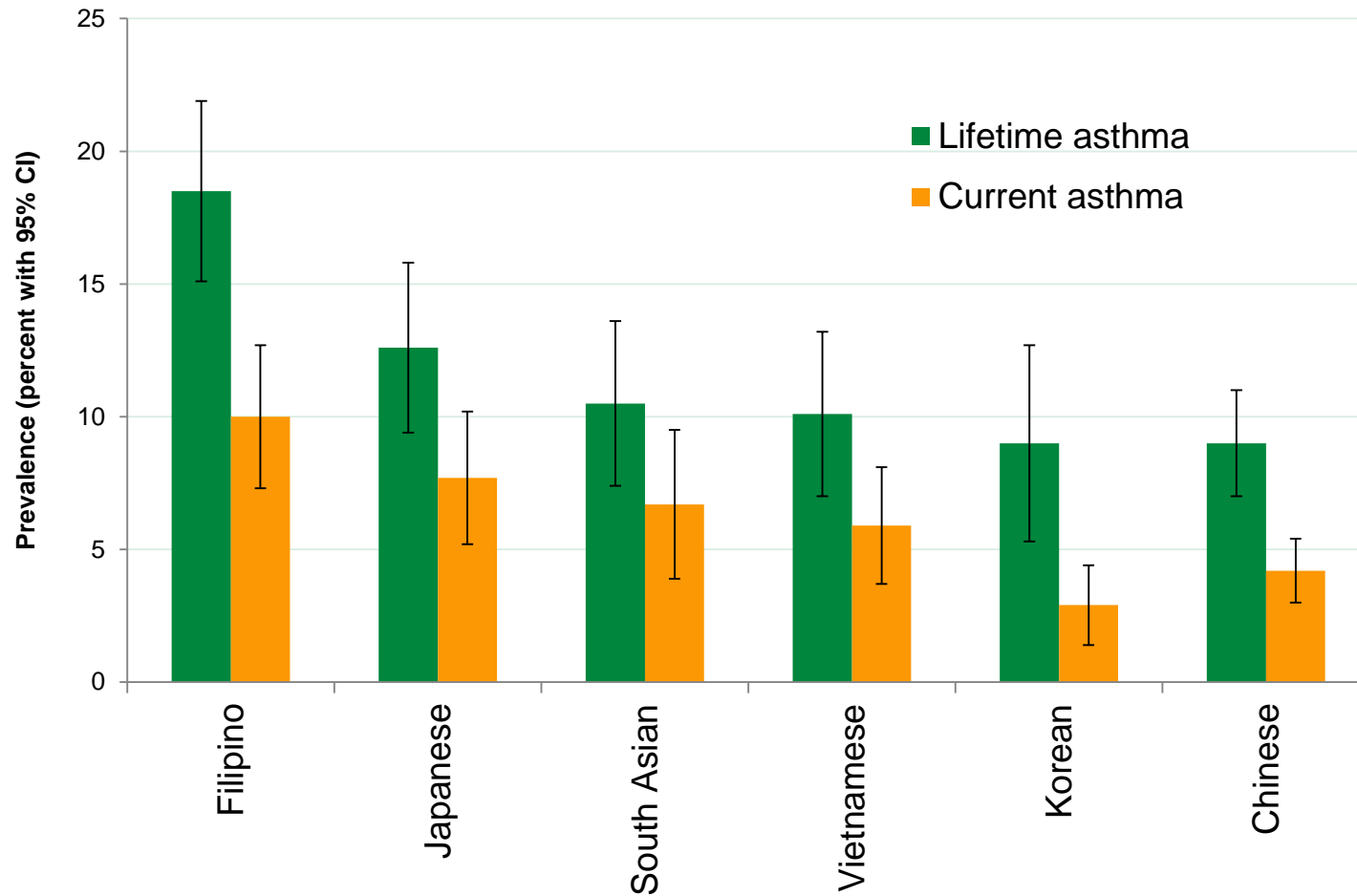


Lifetime and Current Asthma Prevalence Among Hispanics, by Hispanic Subgroup, California 2007 and 2009 Combined



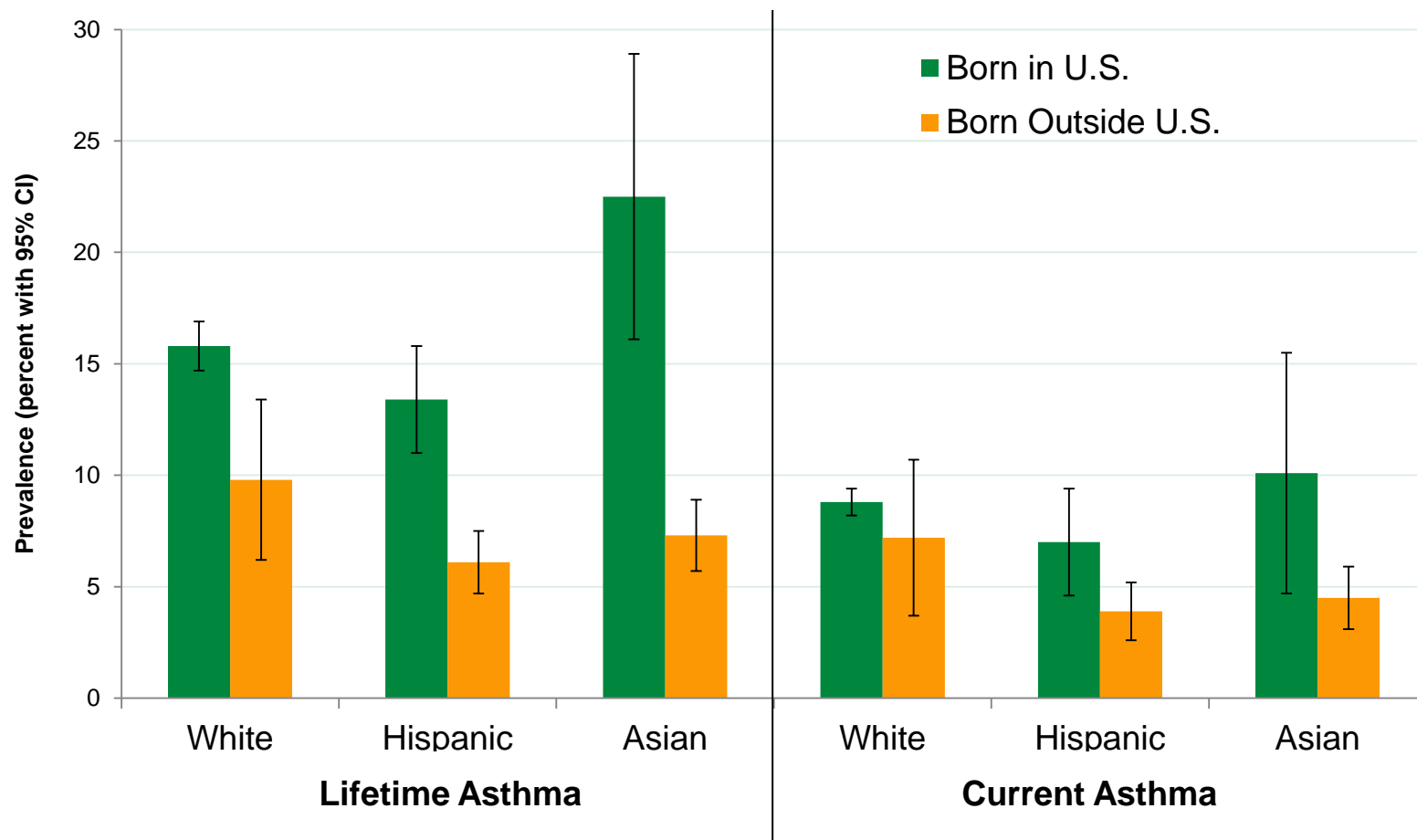


Lifetime and Current Asthma Prevalence Among Asians, by Asian Subgroup, California 2007 and 2009 Combined



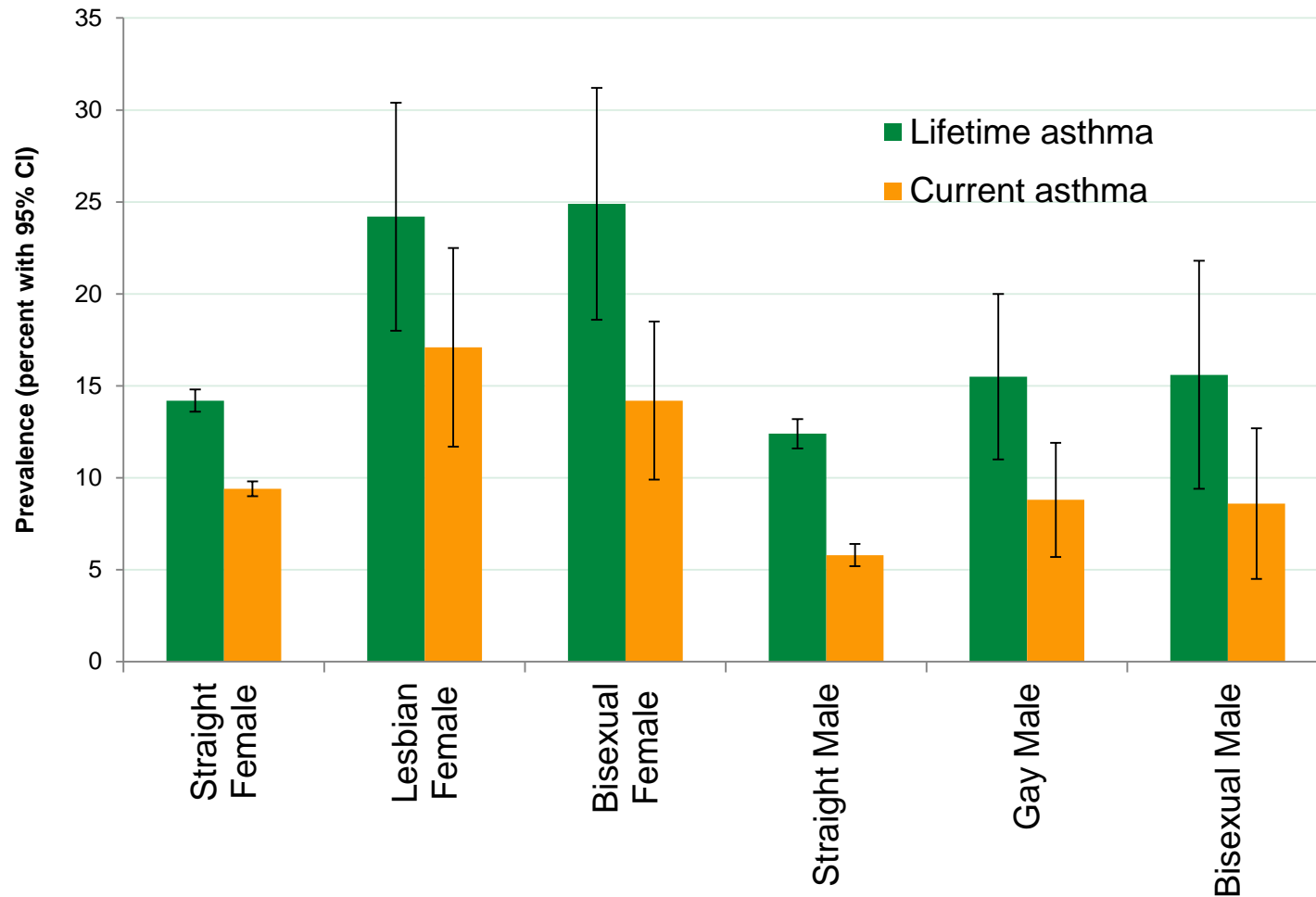


Lifetime and Current Asthma Prevalence among Adults, by Race/Ethnicity and Country of Birth, California 2009





Lifetime and Current Asthma Prevalence Among Adults, by Sexual Orientation and Sex, California 2007 and 2009 Combined





Asthma Morbidity and Management

- The majority of adults and children with current asthma experienced symptoms in the past 30 days (65.9% and 53.7% respectively). About 14% of adults experienced asthma symptoms every day.
- Asthma symptoms made sleeping difficult for 42.8% of adults and 32.3% of children with current asthma in the past 30 days.
- In the past year, 649,000 adults with current asthma (36.4%) missed work or usual activities because of their asthma. The average number of days missed was 6.6, for an estimated total of 11.8 million days of work/usual activities missed due to asthma.
- In the past year, 129,000 children with current asthma (52.3%) missed school or day care because of their asthma. The average number of days missed was 5, for an estimated total of 1.2 million days of school/day care missed due to asthma.
- Over 63% of adults and children with current asthma report some degree of activity limitation due to asthma in the past year.



Percent of Californians with Current Asthma Reporting Asthma Attacks or Episodes, by Age, 2006-2009

Asthma Attacks or Episodes	Adults (18+)		Children (0-17)	
	%	95% CI	%	95% CI
Had an asthma attack in past 12 months	52.9	(49.0-56.9)	58.1	(49.0-67.2)
No asthma attacks in the past 3 months	55.7	(49.2-62.3)	52.3	(43.3-62.0)
1 asthma attack in the past 3 months	13.0	(9.0-16.9)	17.4	(11.0-23.8)
2-3 asthma attacks in the past 3 months	14.7	(10.0-19.5)	14.1	(8.1-20.2)
4+ asthma attacks in the past 3 months	16.6	(11.8-21.3)	15.8	(7.6-24.0)

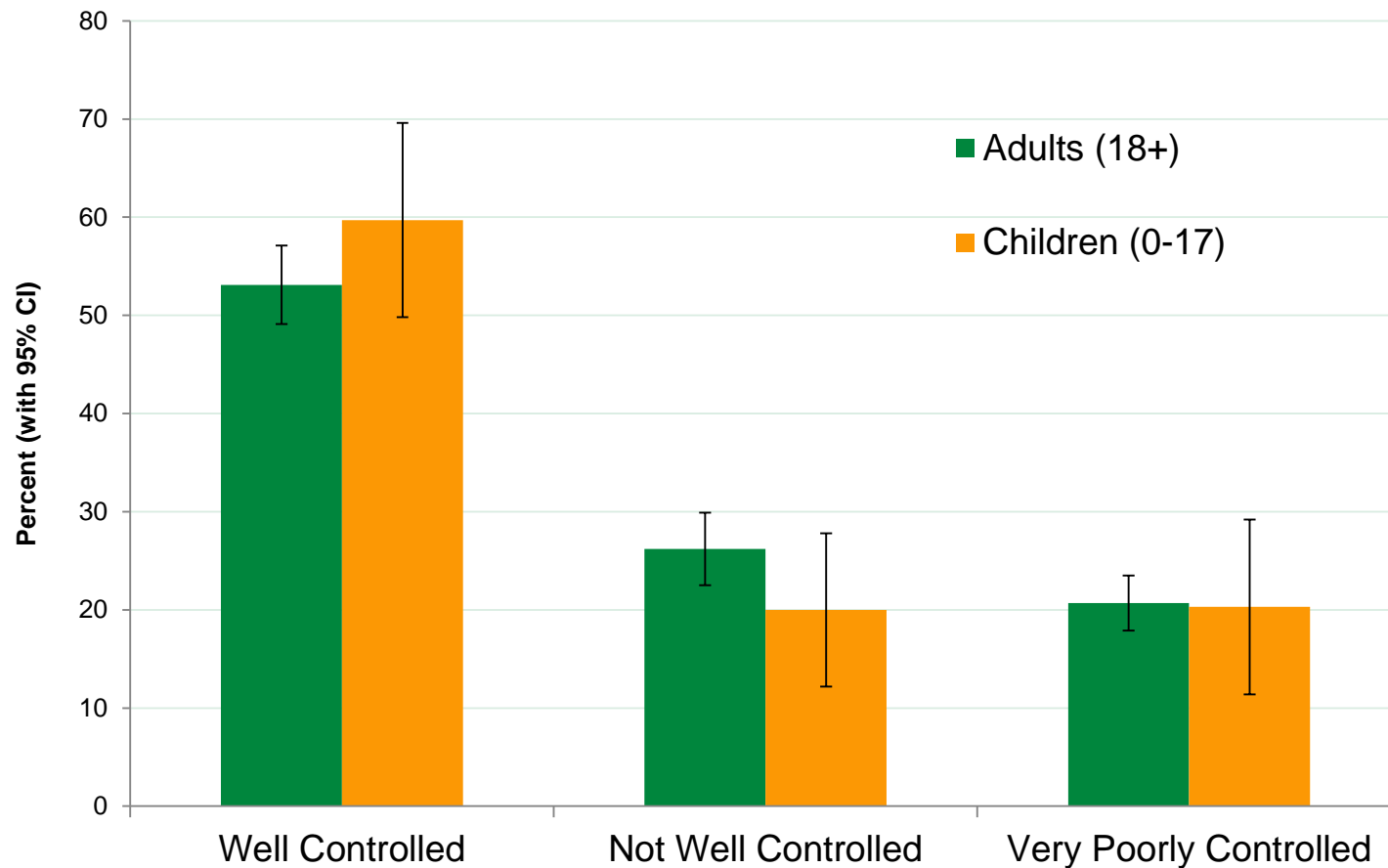


Percent of Californians with Current Asthma Reporting ED Visits or Hospitalizations for Asthma in the Past Year, by Age, 2006-2009

Hospitalizations or ED Visits	Adults (18+)		Children (0-17)	
	%	95% CI	%	95% CI
Any Hospitalizations	2.6	(1.5-3.7)	--	--
Any ED Visits	12.3	(9.8-14.7)	21.6	(14.3-28.9)
No ED Visits	87.8	(85.3-90.2)	78.4	(71.1-85.7)
1 ED Visit	7.0	(5.0-8.9)	10.1	(4.5-15.6)
2+ ED Visits	5.3	(3.7-6.8)	11.5	(6.0-17.0)

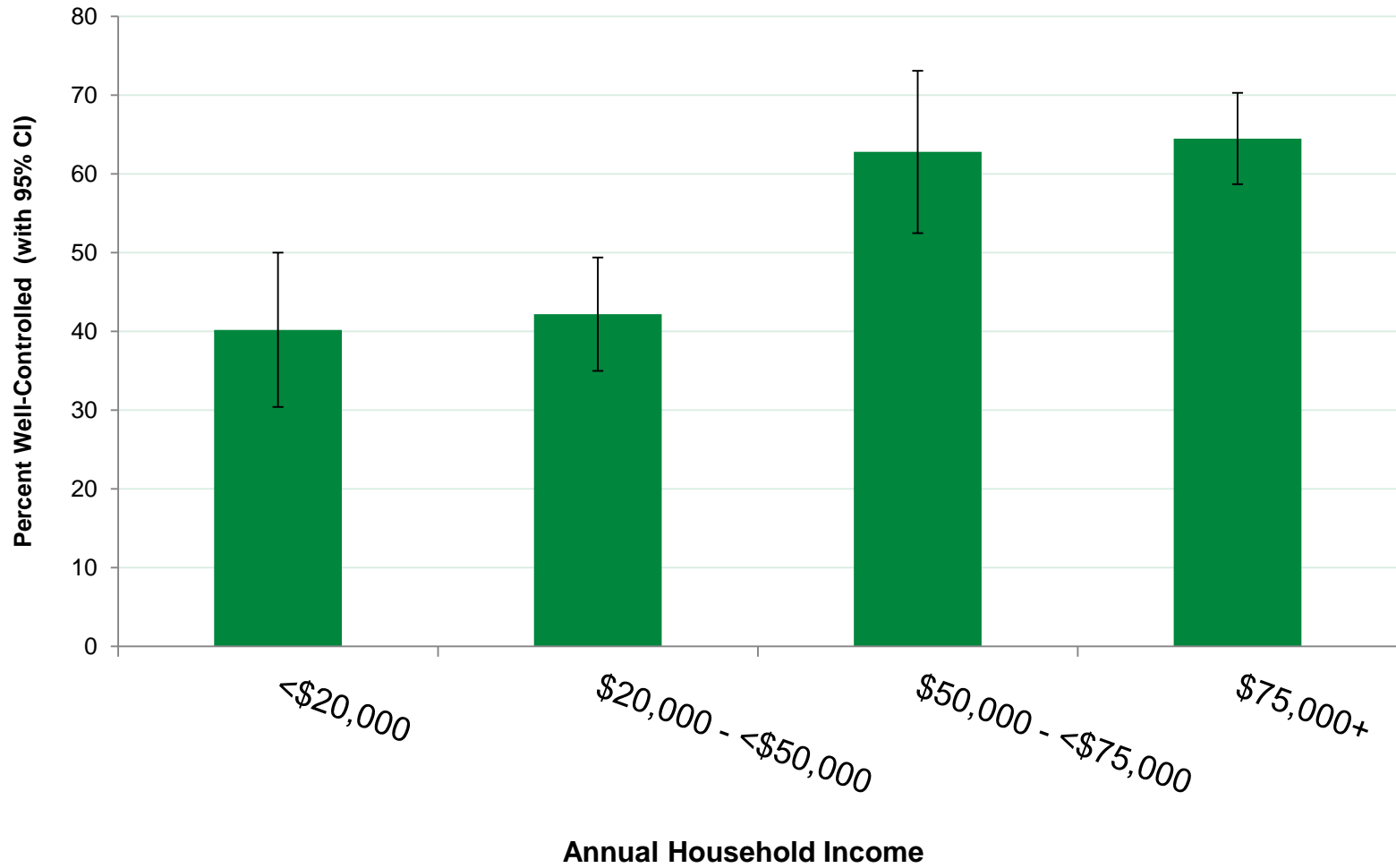


Level of Asthma Control Among Californians with Current Asthma, by Age, 2006-2009





Percent with Well-Controlled Asthma Among Adults with Current Asthma, by Annual Household Income, California 2006-2009



Compared to adults with well controlled asthma, those whose asthma is considered not well or very poorly controlled:

- are 2.5 times more likely to be unable to work or carry out usual activities due to asthma;
- are 2.5-4 times more likely to have an ED visit for asthma;
- and are 6 times more likely to have been hospitalized for asthma in the past year.

Compared to children with well controlled asthma, those whose asthma is considered not well or very poorly controlled:

- are 70% more likely to miss school or day care due to asthma;
- and are 2.7 times more likely to have an ED visit for asthma.



Number of Routine Asthma Checkups in the Past 12 Months Among Californians with Current Asthma, by Age, 2006-2009

Number of Asthma Checkups	Adults (18+)		Children (0-17)	
	%	95% CI	%	95% CI
0	54.0	(47.1-60.9)	24.0	(16.1-31.9)
1-2	29.8	(23.2-36.3)	46.8	(36.9-56.7)
3	16.2	(11.7-20.7)	29.2	(19.6-38.7)



Percent Reporting Proper Use of Inhaled Prescription Asthma Medications in the Past 3 Months Among Californians with Current Asthma who Use Inhaled Prescription Asthma Medications, by Age, 2006-2009

Proper Use of Medications	Adults (18+)		Children (0-17)	
	%	95% CI	%	95% CI
Proper use of controller medications*	39.8	(29.3-50.4)	36.0 [†]	(20.5-51.5)
Proper use of rescue medications**	67.6	(59.2-75.9)	69.6	(57.6-81.5)

* Inhaled control medications must be used on a schedule every day, not used for attacks, and for certain medications not used before exercise.

** Inhaled rescue medications must be used for attacks, not used on a schedule every day, and for certain medications not used before exercise.

† Unstable estimate – please note the wide confidence interval.



Asthma Self-Management Education Among Californians with Current Asthma, by Age, 2006-2009

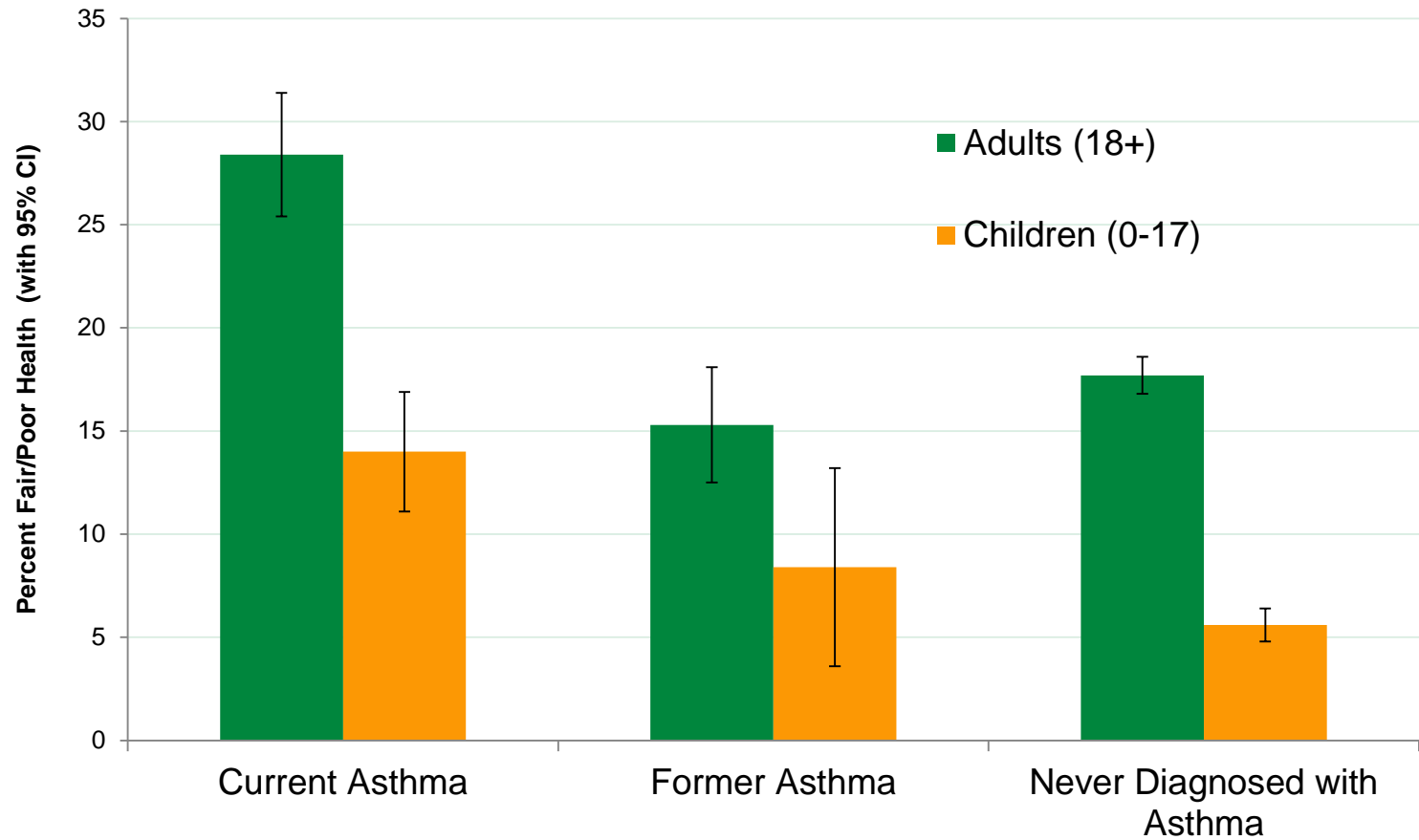
Self-Management Education	Adults (18+)		Children (0-17)	
	%	95% CI	%	95% CI
Ever been taught to recognize early signs of an asthma attack	69.3	(63.9-74.8)	86.1	(80.6-91.7)
Ever been taught what to do during an asthma attack	84.0	(80.1-87.9)	88.4	(83.3-93.6)
Ever been taught how to use a peak flow meter to adjust daily medications	52.8	(46.1-59.4)	42.1	(32.8-51.4)
Ever been given an asthma action plan	37.7	(31.0-44.4)	44.6	(35.8-53.4)
Ever taken a class on how to manage asthma	11.2	(7.9-14.5)	18.9	(10.9-26.9)
Ever been shown how to use their prescription inhaler	97.3	(96.0-98.7)	91.3	(84.8-97.8)
Ever been advised to change things in their home, work or school environment to improve their asthma	29.9	(24.1-35.6)	44.4	(34.6-54.3)



Health Status of People With Asthma

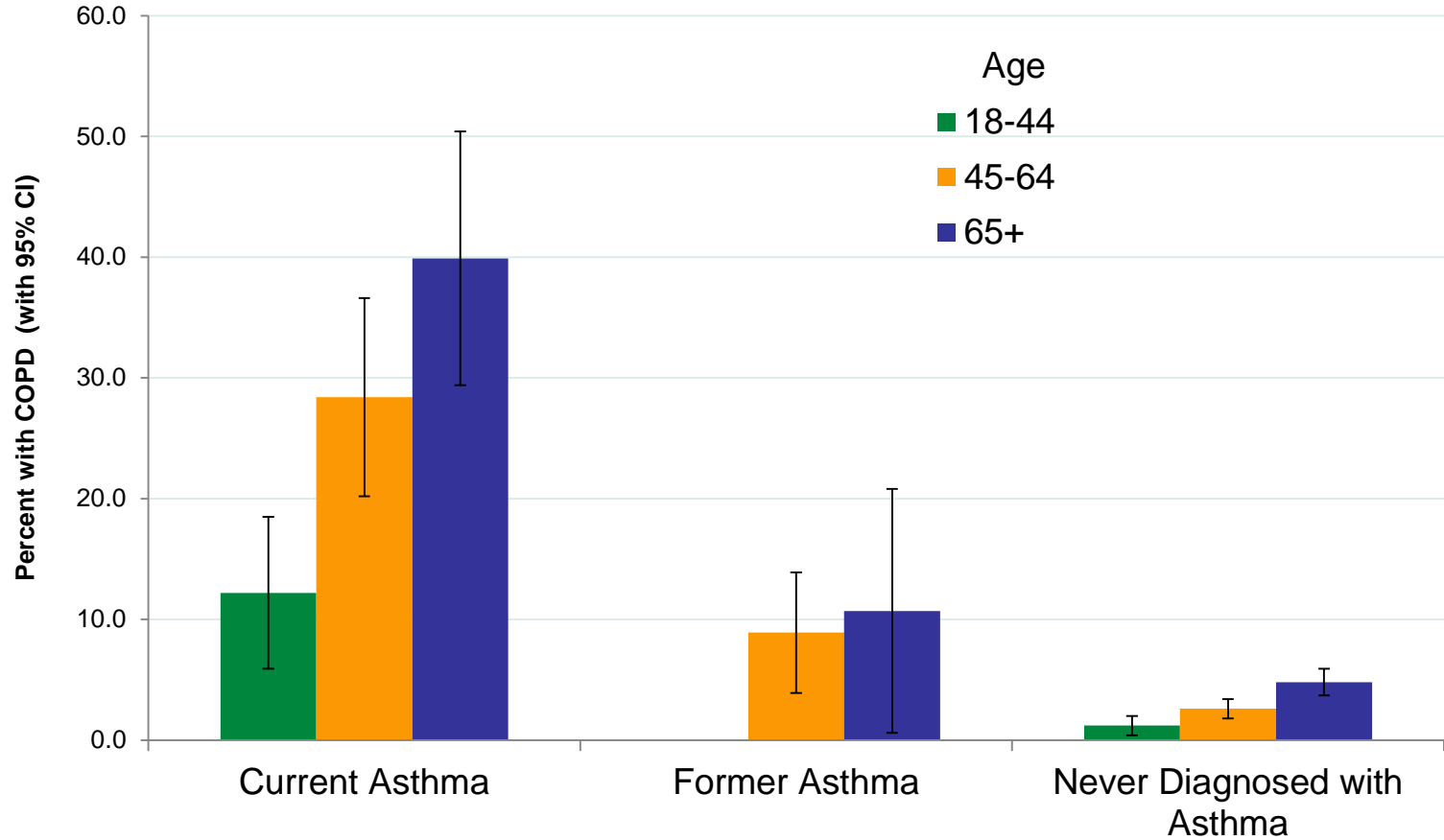


Percent of People Reporting Fair or Poor General Health, by Asthma Status and Age, California 2009



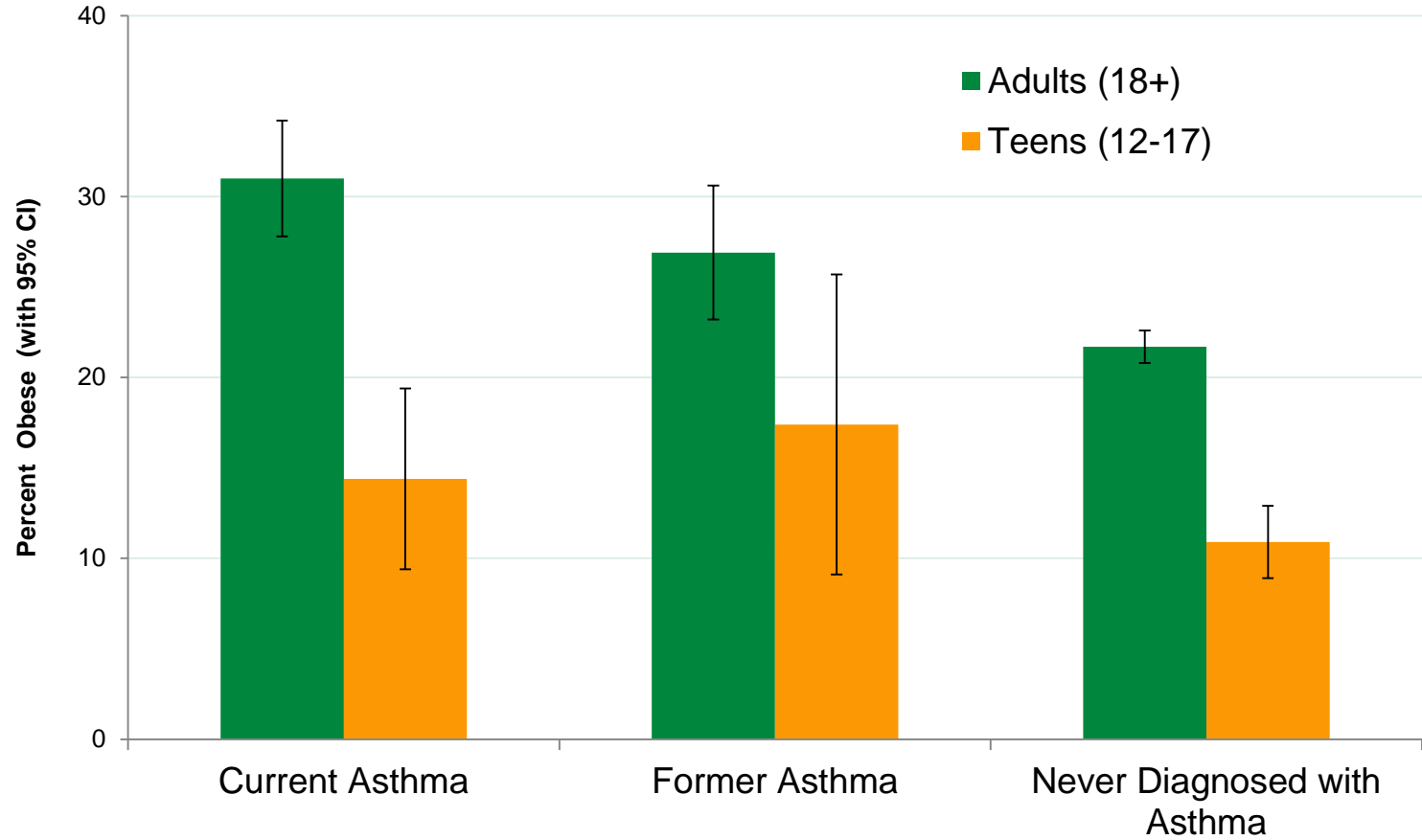


Percent of Adults Ever Diagnosed with COPD, by Asthma Status and Age, California 2009



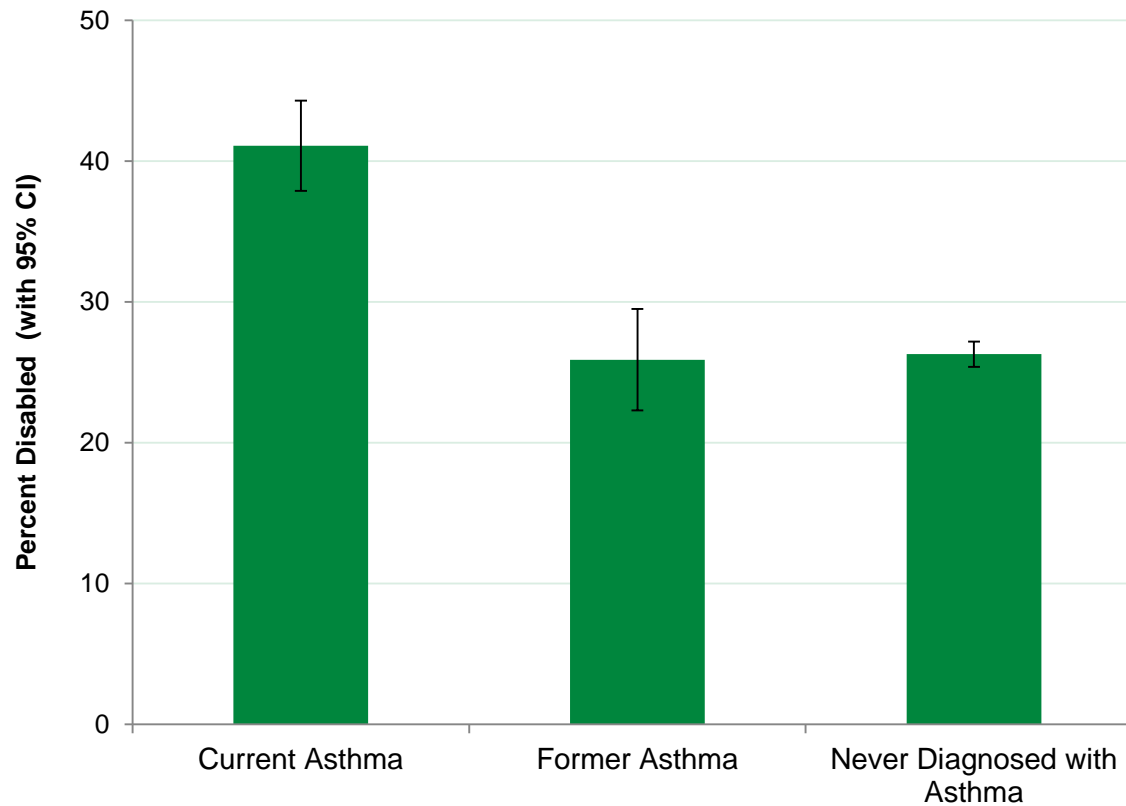


Percent of Adults and Teens Who Are Obese, by Asthma Status, California 2009



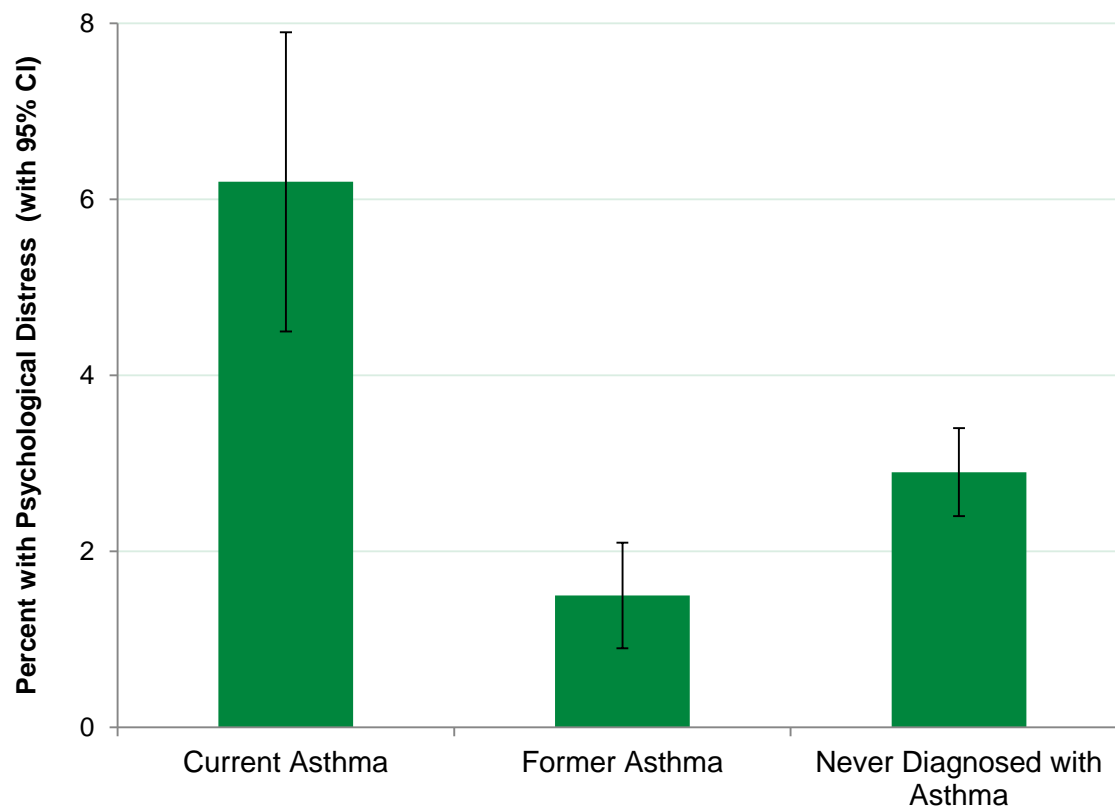


Percent of Adults with a Disability, by Asthma Status, California 2009





Percent of Adults and Teens With Psychological Distress in the Past Month, by Asthma Status, California 2009





Percent of Adults and Teens Who Are Current Smokers, by Asthma Status, California 2009

Percent Current Smokers (Adults and Teens)		
Asthma Status	%	95% CI
Current Asthma	11.9	(10.0-13.8)
Former Asthma	13.3	(10.0-16.5)
Never Diagnosed with Asthma	12.5	(11.8-13.3)



Percent of People Who Had a Flu Vaccine in the Last Year, by Asthma Status and Age, California 2009

Asthma Status	Percent with Flu Vaccine in Last Year			
	Adults (18+)		Children (0-17)	
	%	95% CI	%	95% CI
Current Asthma	45.6	(41.0-50.1)	61.8	(49.3-74.3)
Former Asthma	31.1	(26.5-35.7)	41.5	(26.7-56.3)
Never Diagnosed with Asthma	31.5	(30.3-32.7)	34.9	(31.1-38.8)



Percent of People Who Were Uninsured All or Part of the Last Year and Percent of People with No Usual Source of Health Care, by Asthma Status and Age, California 2009

Asthma Status	Percent Uninsured All or Part of the Last Year			
	Adults (18+)		Children (0-17)	
	%	95% CI	%	95% CI
Current Asthma	19.4	(15.7-23.0)	4.7	(2.4-7.1)
Former Asthma	18.7	(15.3-22.1)	6.4	(3.6-9.1)
Never Diagnosed with Asthma	23.6	(22.7-24.5)	8.9	(7.8-10.0)

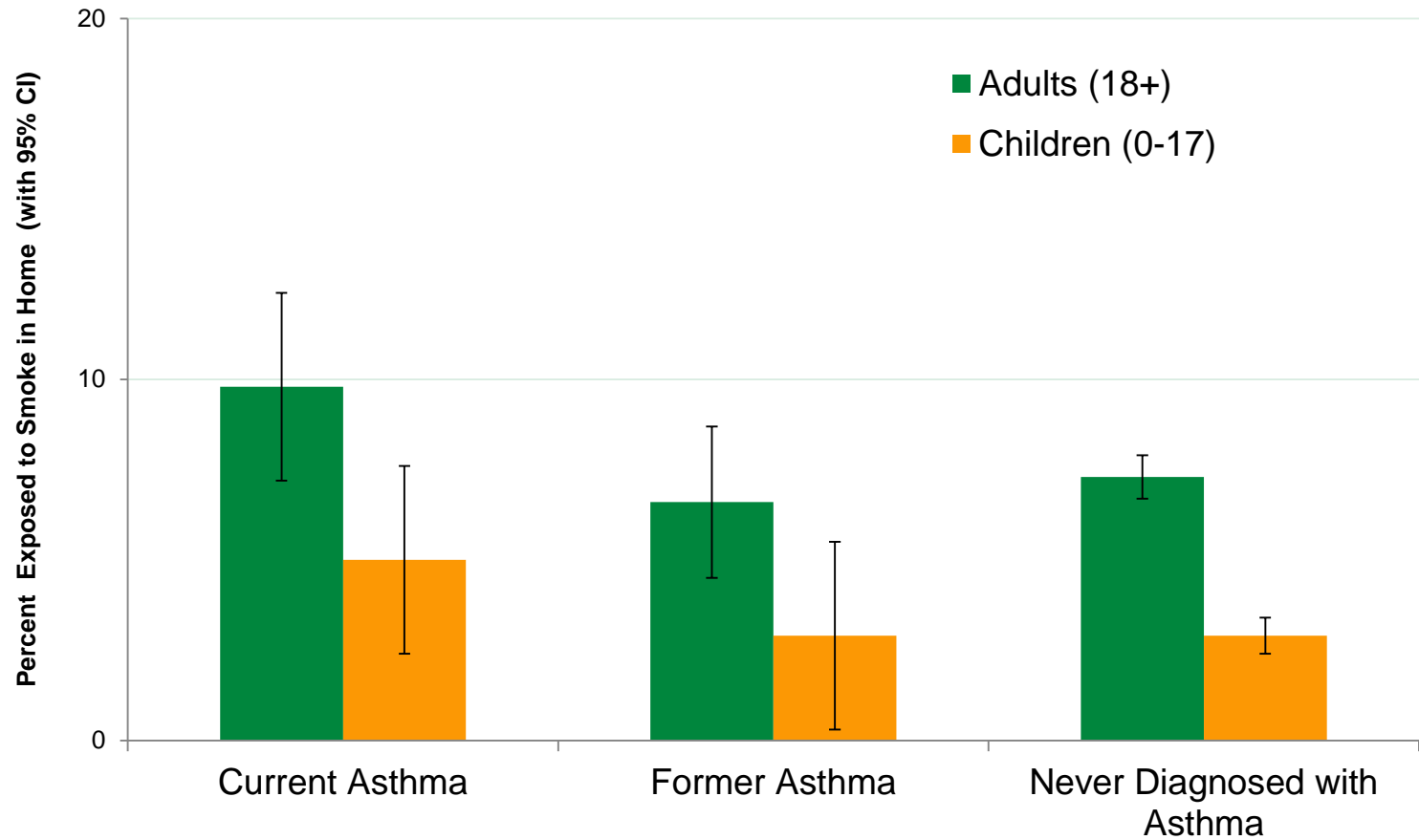
Asthma Status	Percent With No Usual Source of Health Care			
	Adults (18+)		Children (0-17)	
	%	95% CI	%	95% CI
Current Asthma	11.2	(7.9-14.6)	9.1	(5.1-13.1)
Former Asthma	15.7	(11.9-19.5)	10.5	(5.3-15.7)
Never Diagnosed with Asthma	17.1	(16.1-18.0)	7.5	(6.6-8.4)



Environmental Triggers for Asthma



Percent of People Exposed to Secondhand Smoke in the Home, by Asthma Status and Age, California 2009





Percent of People with Current Asthma Who Report Home Environmental Exposures, by Age, California 2006-2009

Environmental Exposures	Adults (18+)		Children (0-17)	
	%	95% CI	%	95% CI
Mold (past 30 days)	10.6	(6.4-14.8)	8.4*	(2.5-14.5)
Cockroaches, mice or rats (past 30 days)	10.9	(6.3-15.6)	6.0*	(1.2-10.8)
Pets inside home	60.1	(53.7-66.5)	59.7	(50.0-69.4)
Carpeting or rugs in bedroom	70.9	(64.8-77.0)	71.7	(63.0-80.4)
Wood burning fireplace/stove	22.3	(17.1-27.5)	29.3	(20.4-38.1)
Gas used for cooking	70.8	(65.3-76.4)	65.9	(56.2-75.6)
Unvented gas fireplace/unvented gas stove	9.8	(5.6-13.9)	--	
Smoking inside home (past week)	9.4	(5.4-13.4)	8.4*	(0.3-16.4)
Adult is current smoker	13.1	(8.9-17.2)	NA	
Child lives in a home with a current smoker	NA		12.8*	(4.5-21.1)

* Unstable estimate – please note the wide confidence interval



Percent of People with Current Asthma Who Report Actions Taken to Reduce Home Environmental Exposures, by Age, California 2006-2009

Actions taken to reduce environmental exposures	Adults (18+)		Children (0-17)	
	%	95% CI	%	95% CI
Mattress cover used	37.2	(30.4-44.1)	37.1	(27.5-46.7)
Pillow cover used	32.4	(25.8-39.1)	38.8	(29.5-48.2)
Sheets/pillowcases washed in hot water	45.5	(38.8-52.1)	47.4	(37.6-57.2)
Pets not allowed in bedroom (if have pets)	19.7	(13.3-26.2)	33.3	(21.6-45.0)
Kitchen exhaust fan regularly used	64.7	(58.4-71.0)	76.3	(68.9-83.8)
Bathroom exhaust fan regularly used	58.7	(52.2-65.1)	55.5	(45.8-65.1)
Air cleaner/purifier regularly used*	29.4	(22.9-35.8)	32.8	(23.3-42.2)
Dehumidifier regularly used	7.5	(3.7-11.4)	12.7	(6.4-19.0)

* Information on the type of air cleaner was not collected. Please note that some air cleaners emit ozone and may make asthma worse.



Estimated Number of Days per Year Above the U.S. 24-hour PM2.5 Standard, by Air Basin, California 2008-2010





Estimated Number of Days per Year Above the California 24-hour PM10 Standard, by Air Basin, California 2008-2010



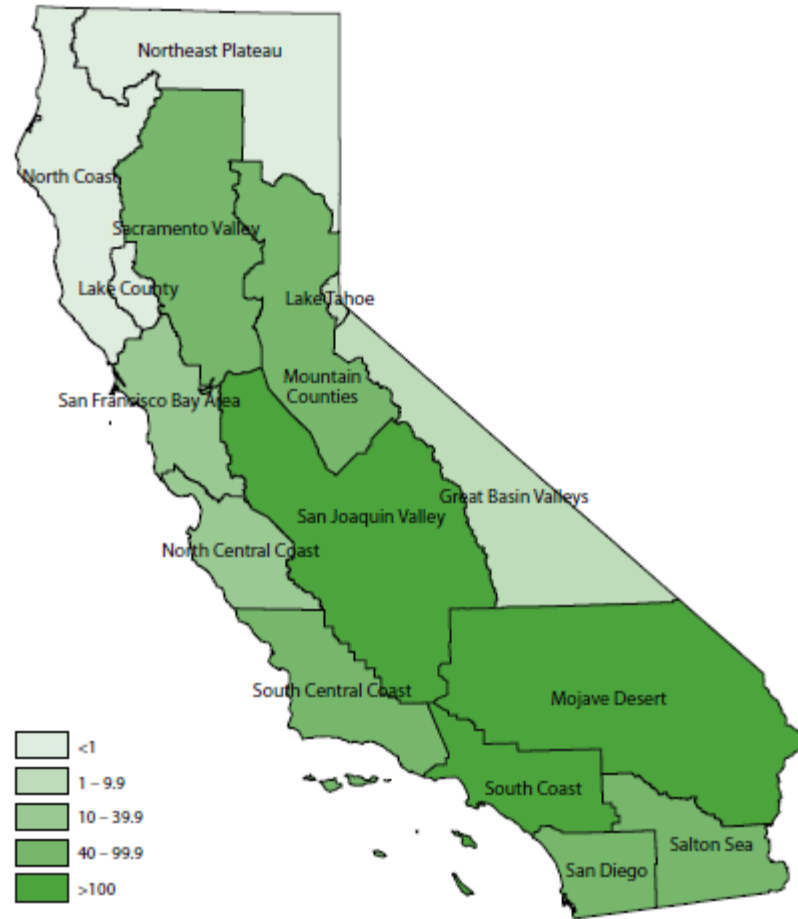


Estimated Number of Days per Year Above the U.S. 24-hour PM10 Standard, by Air Basin, California 2008-2010





Number of Days per Year Above the California 8-hour Ozone Standard, by Air Basin, California 2008-2010





Number of Days per Year Above the U.S. 8-hour Ozone Standard, by Air Basin, California 2008-2010





Work-Related Asthma (WRA)

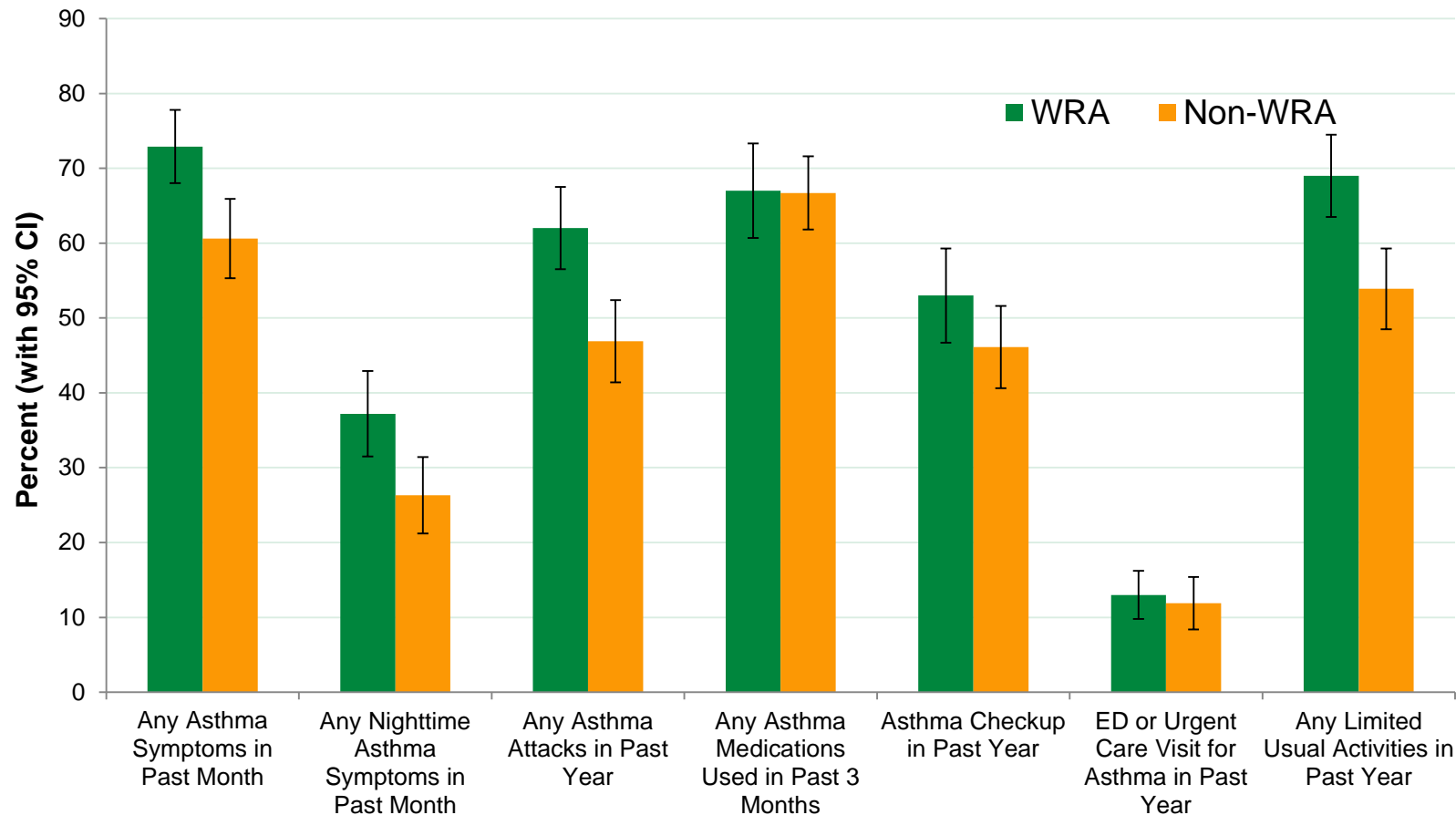


Prevalence of Work-Related Asthma (WRA) Among Adults with Current Asthma, California 2006-2009

	%	95% CI
WRA caused or aggravated by any job	40.3	(36.4-44.2)
WRA caused by any job	24.6	(21.0-28.2)
WRA aggravated by any job	35.0	(31.5-38.6)
Changed or quit a job due to asthma	7.6	(5.7-9.5)
Discussed WRA with doctor	12.2	(10.0-14.3)



Asthma Impact/Impairment Among Adults with Current Asthma, by WRA Status, California 2006-2009



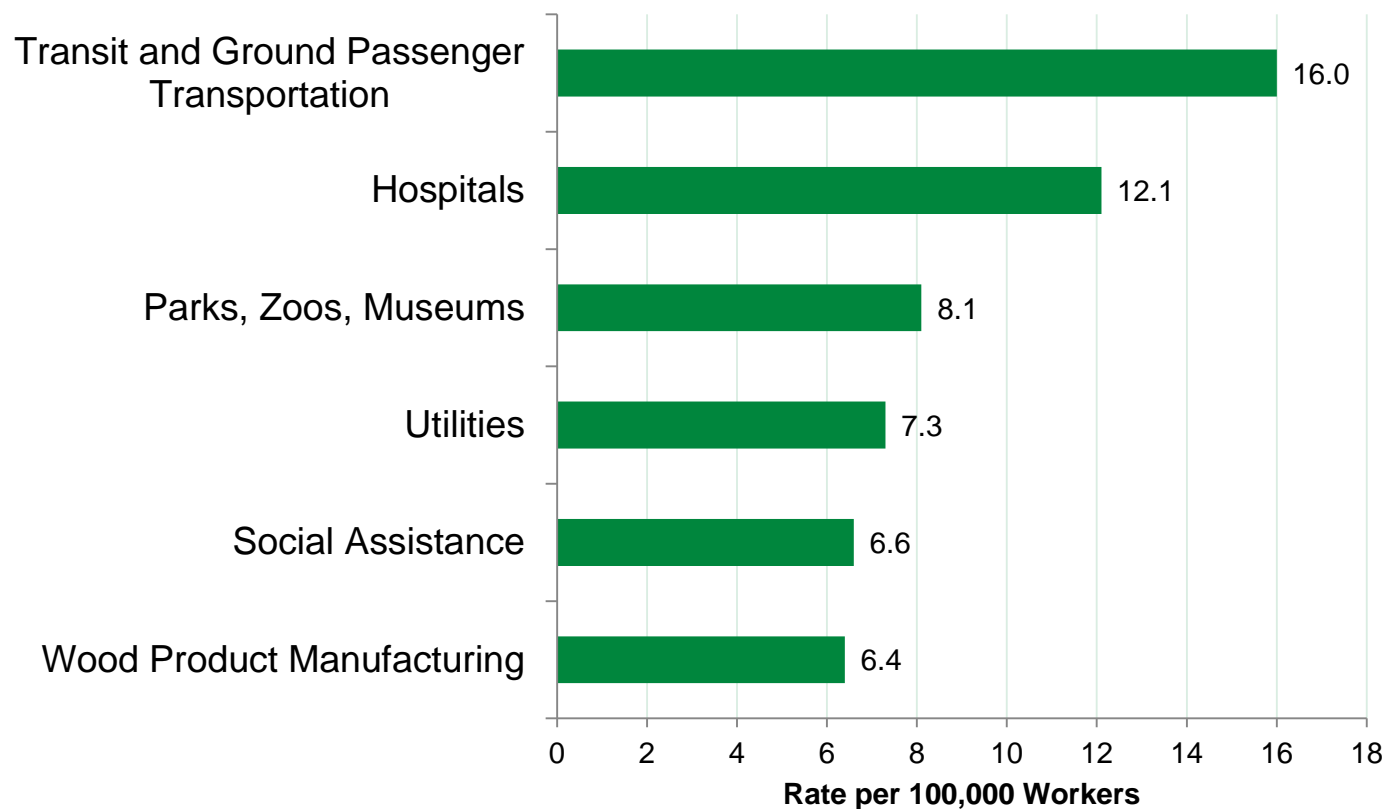


Asthma Impact/Impairment Among Interviewed WRA Cases, by WRA Classification, California 1993-2008

	New-Onset Asthma	Work-Aggravated Asthma	All WRA Cases
ED visit since WRA began	62%	60%	61%
Hospitalized since WRA began	16%	12%	14%
Breathing problems in past 2 weeks	56%	55%	56%
Know coworkers with breathing problems	70%	62%	66%
Still work at same employer	59%	67%	62%
Still exposed at work	31%	23%	26%
Unable to perform usual work	55%	52%	56%
Fired or left work due to exposure	37%	19%	29%
Applied for Worker's Compensation	60%	54%	57%
If applied, compensation granted	66%	70%	68%

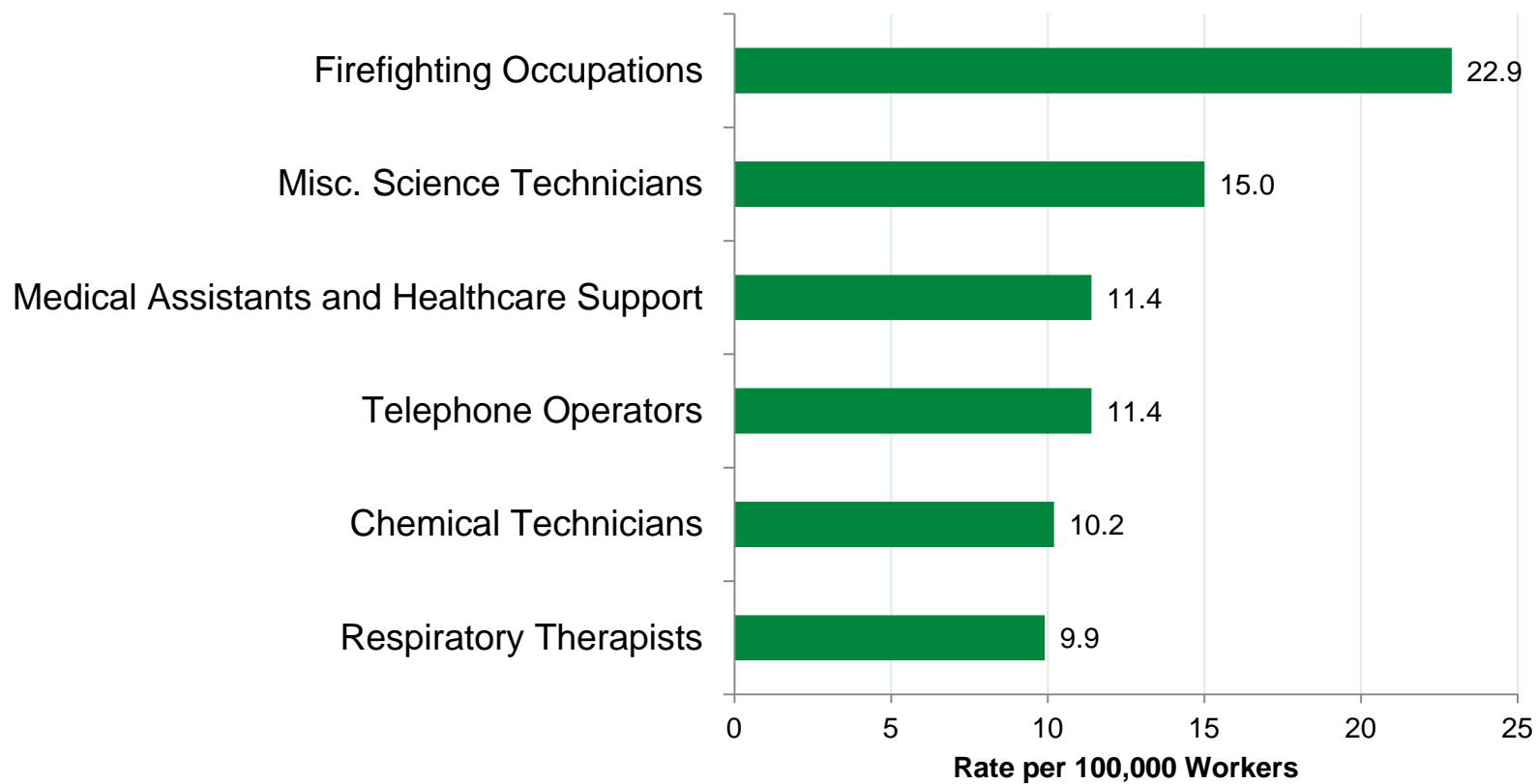


WRA Rates by Industry Subsector (6 Highest), California 1993-2008





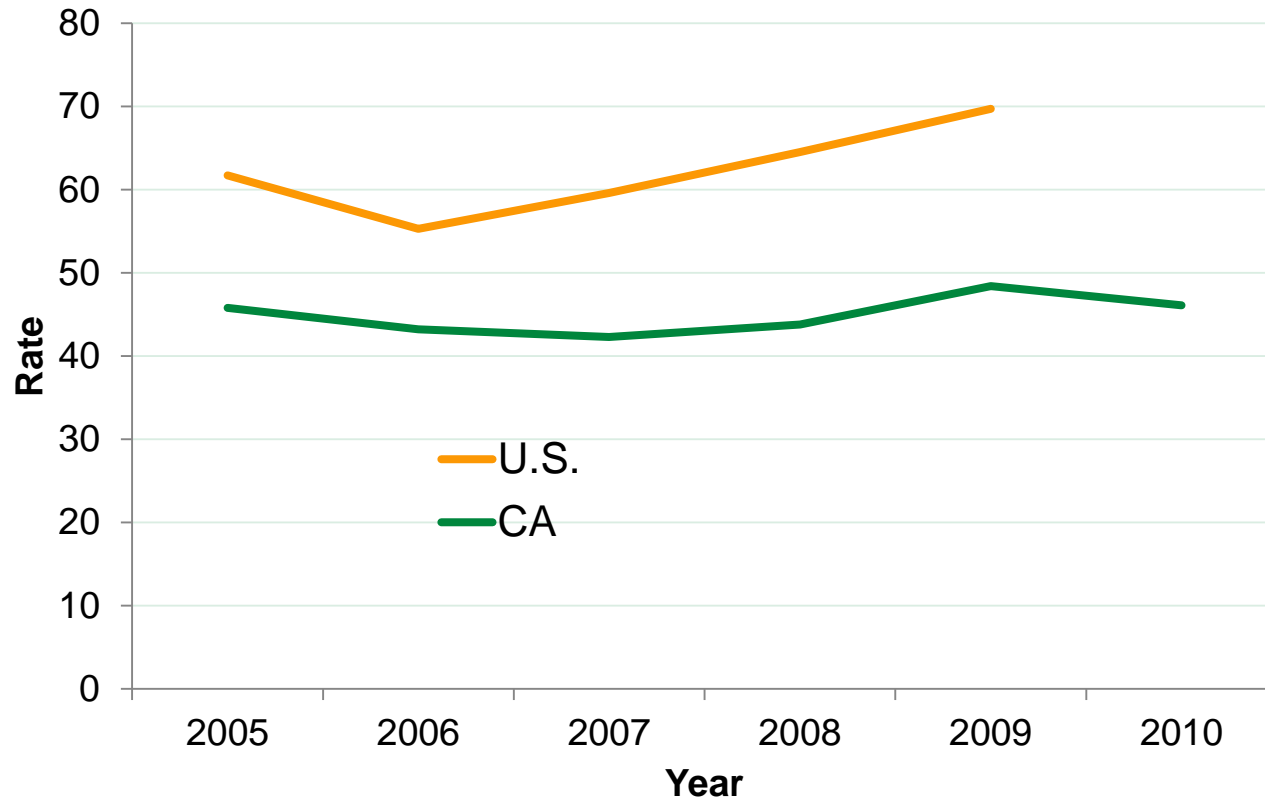
WRA Rates by Occupation (6 Highest), California 1993-2008



Asthma Emergency Department (ED) Visits

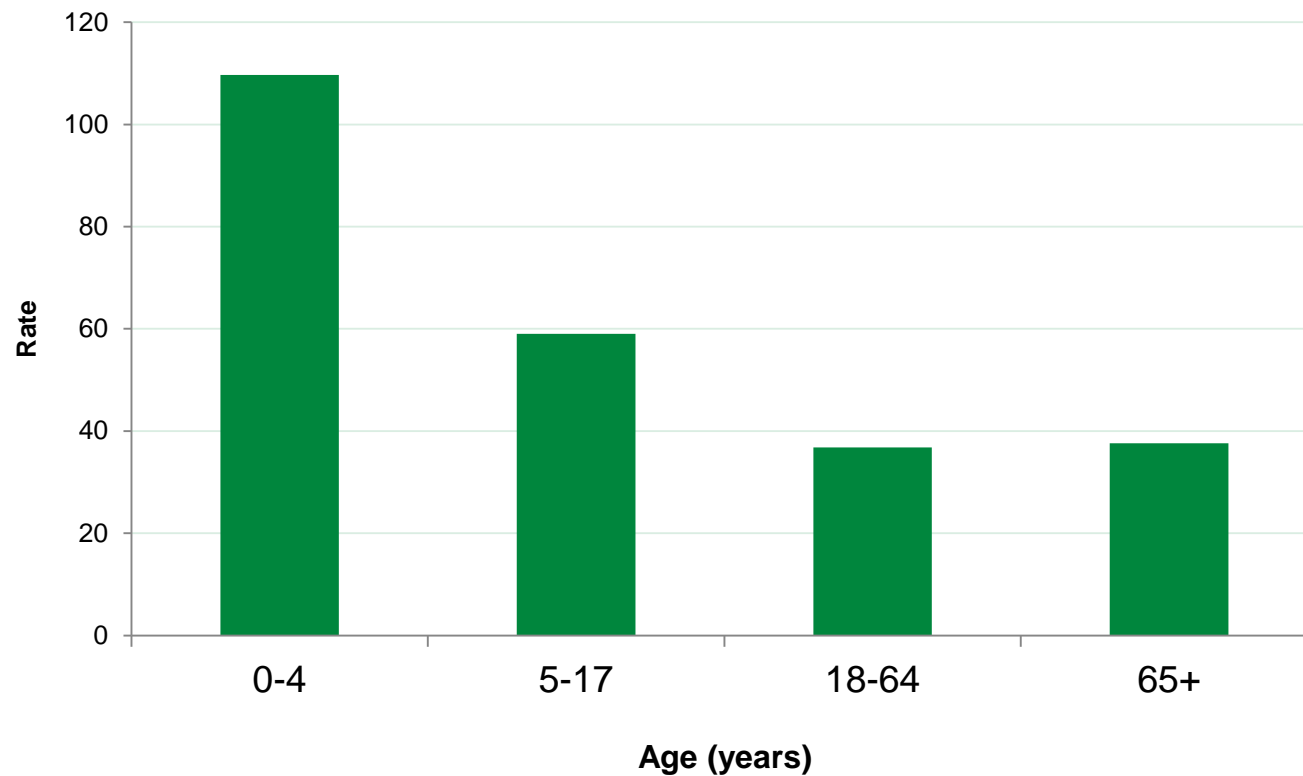


Age-Adjusted Asthma ED Visits per 10,000 Residents, California and the U.S., 2005-2010



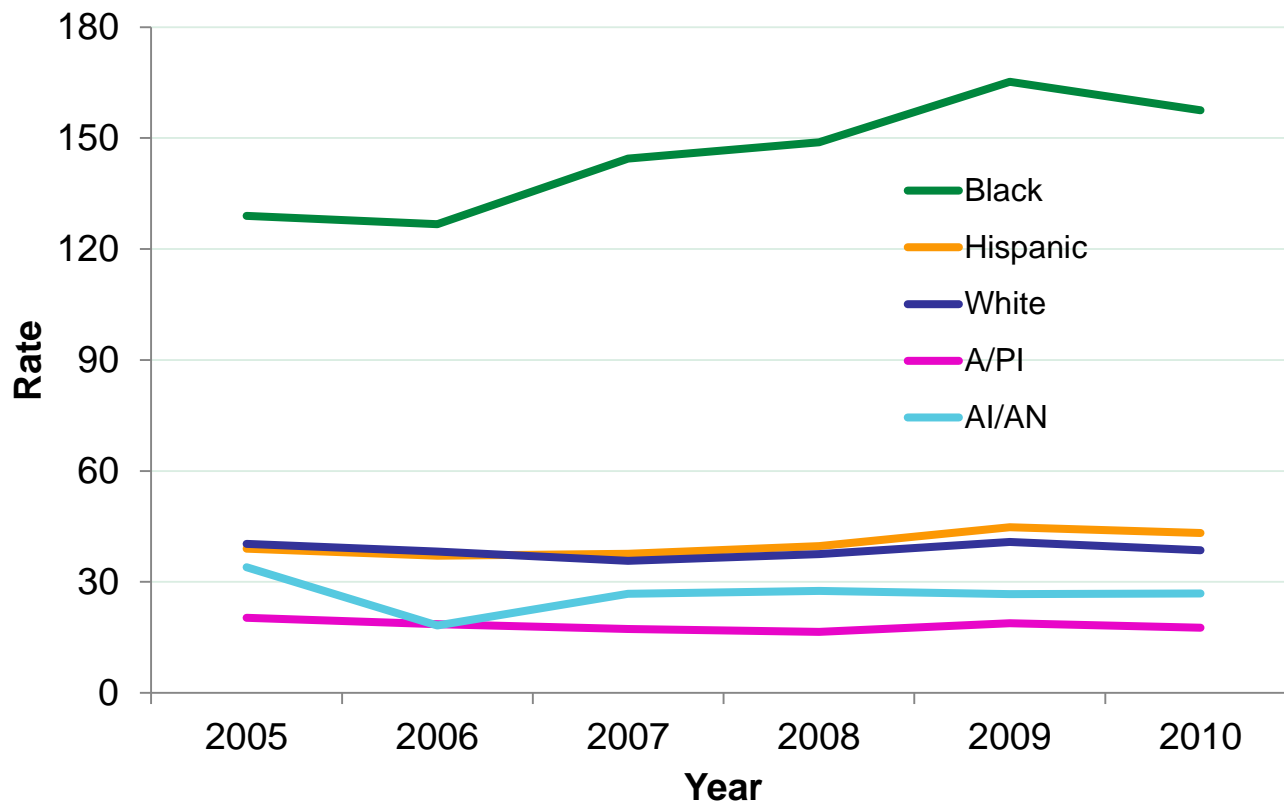


Age-Adjusted Asthma ED Visits per 10,000 California Residents by Age, 2010



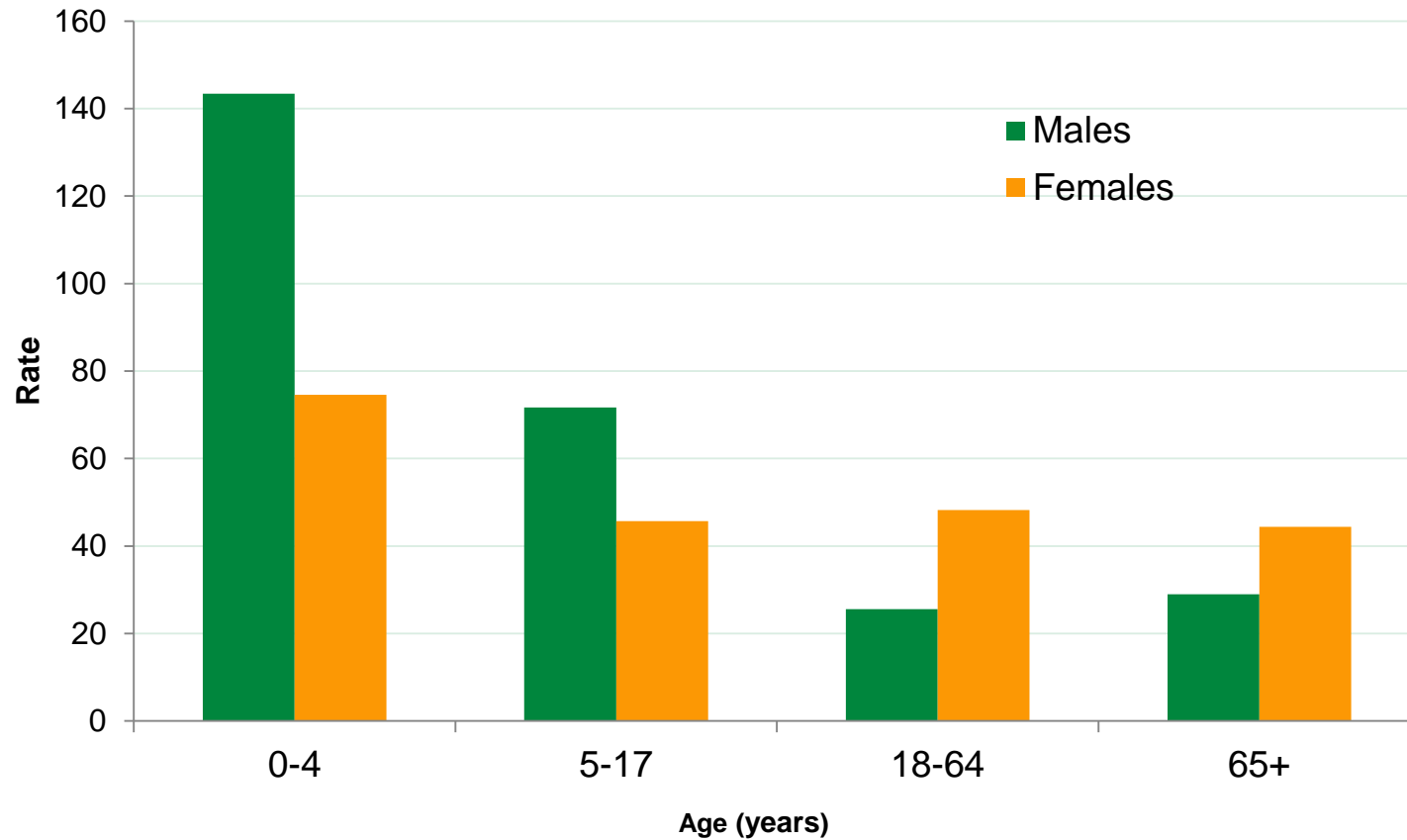


Age-Adjusted Asthma ED Visits per 10,000 California Residents by Race/Ethnicity, 2005-2010



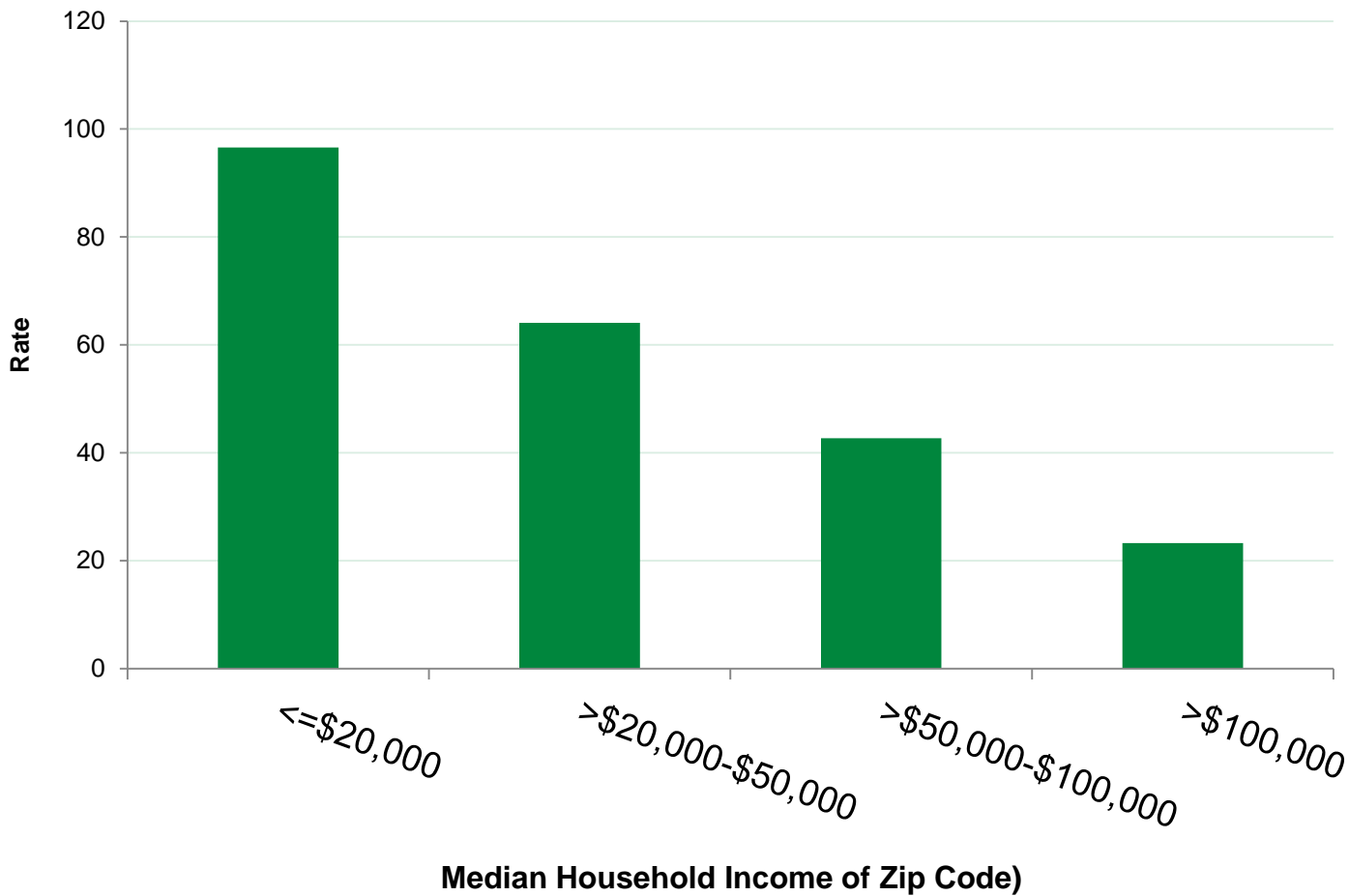


Age-Adjusted Asthma ED Visits per 10,000 California Residents by Sex and Age, 2010



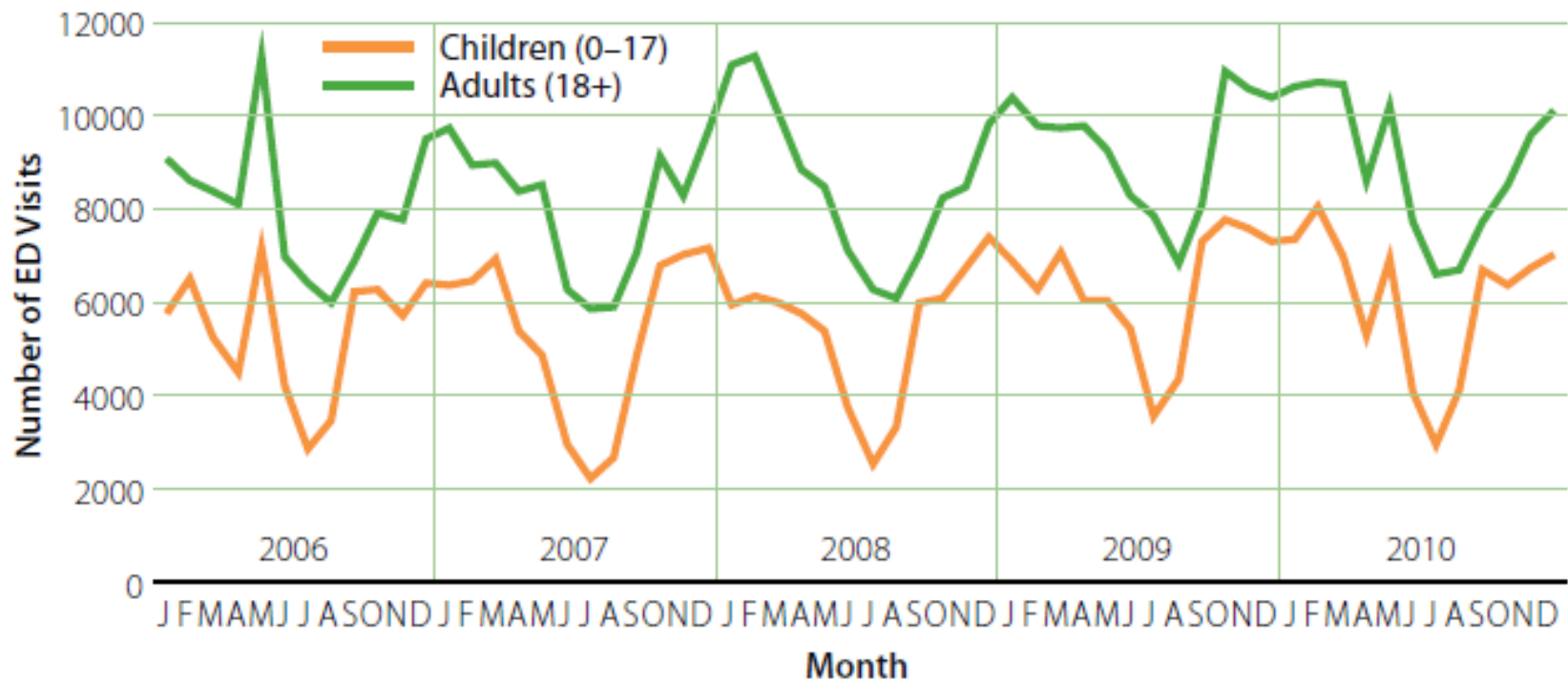


Age-Adjusted Asthma ED Visits per 10,000 California Residents by Median Household Income in Zip Code, 2009



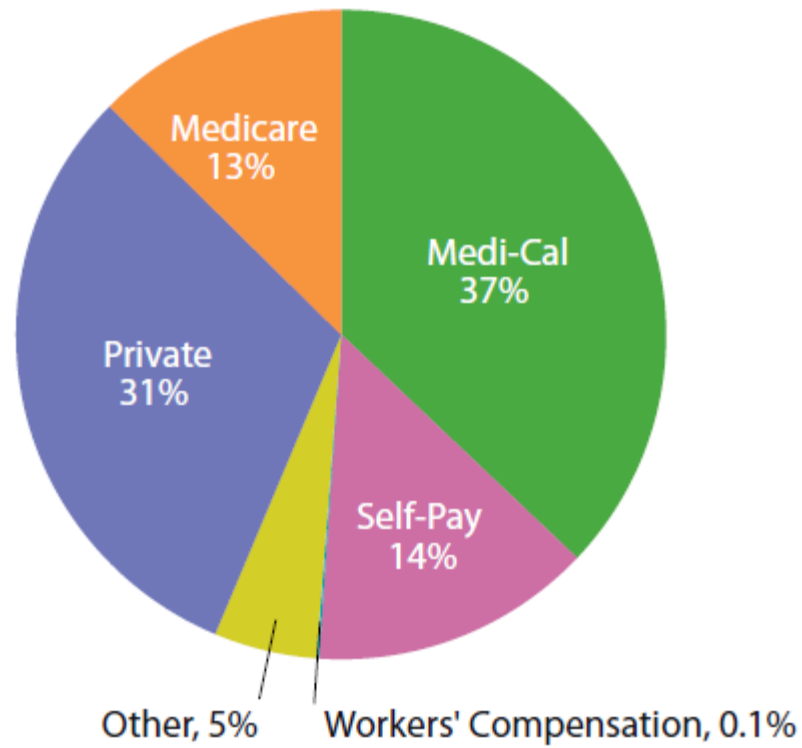


Asthma ED Visits by Month and Age, California 2006-2010





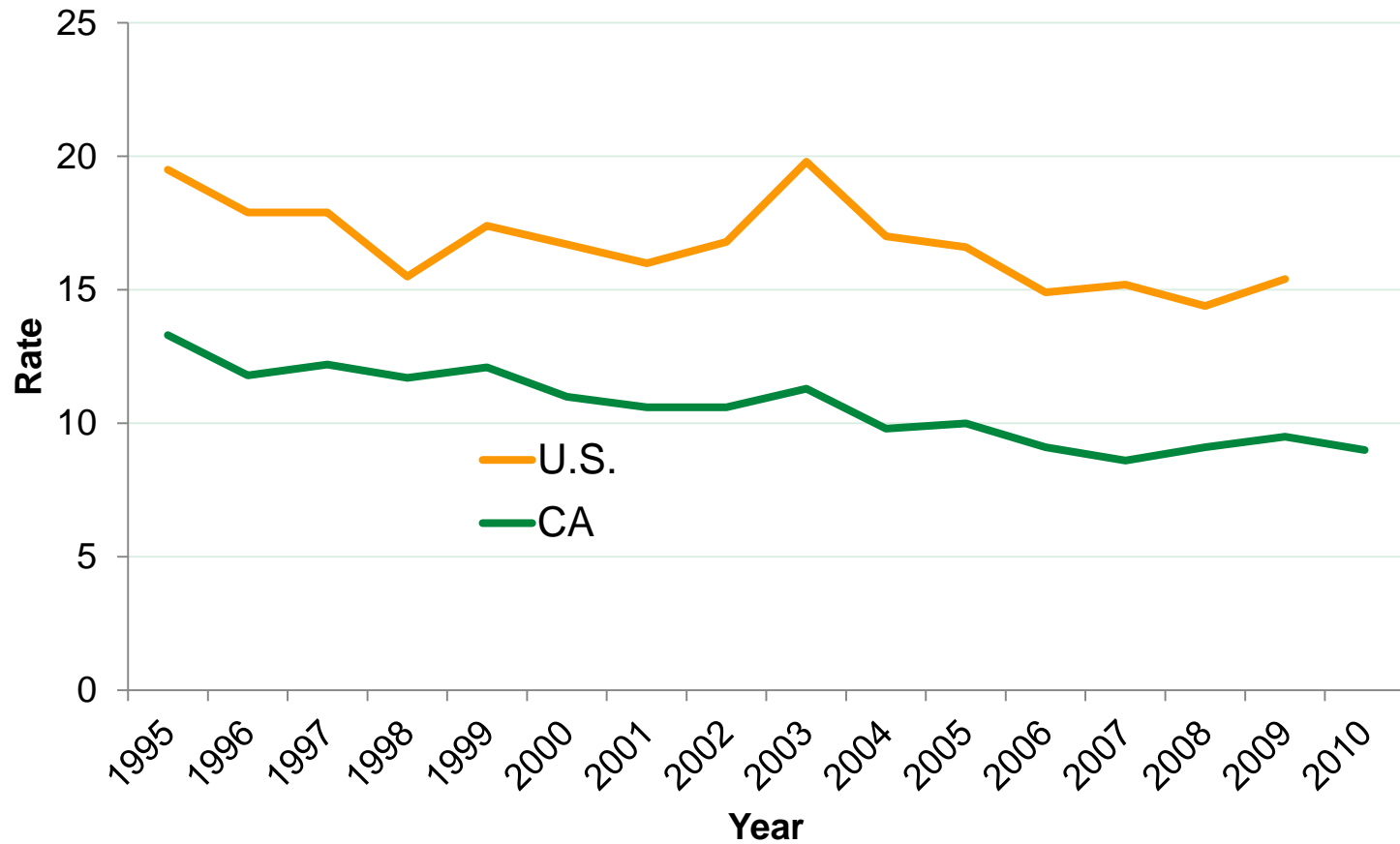
Expected Source of Payment for Asthma ED Visits, California 2010



Asthma Hospitalizations

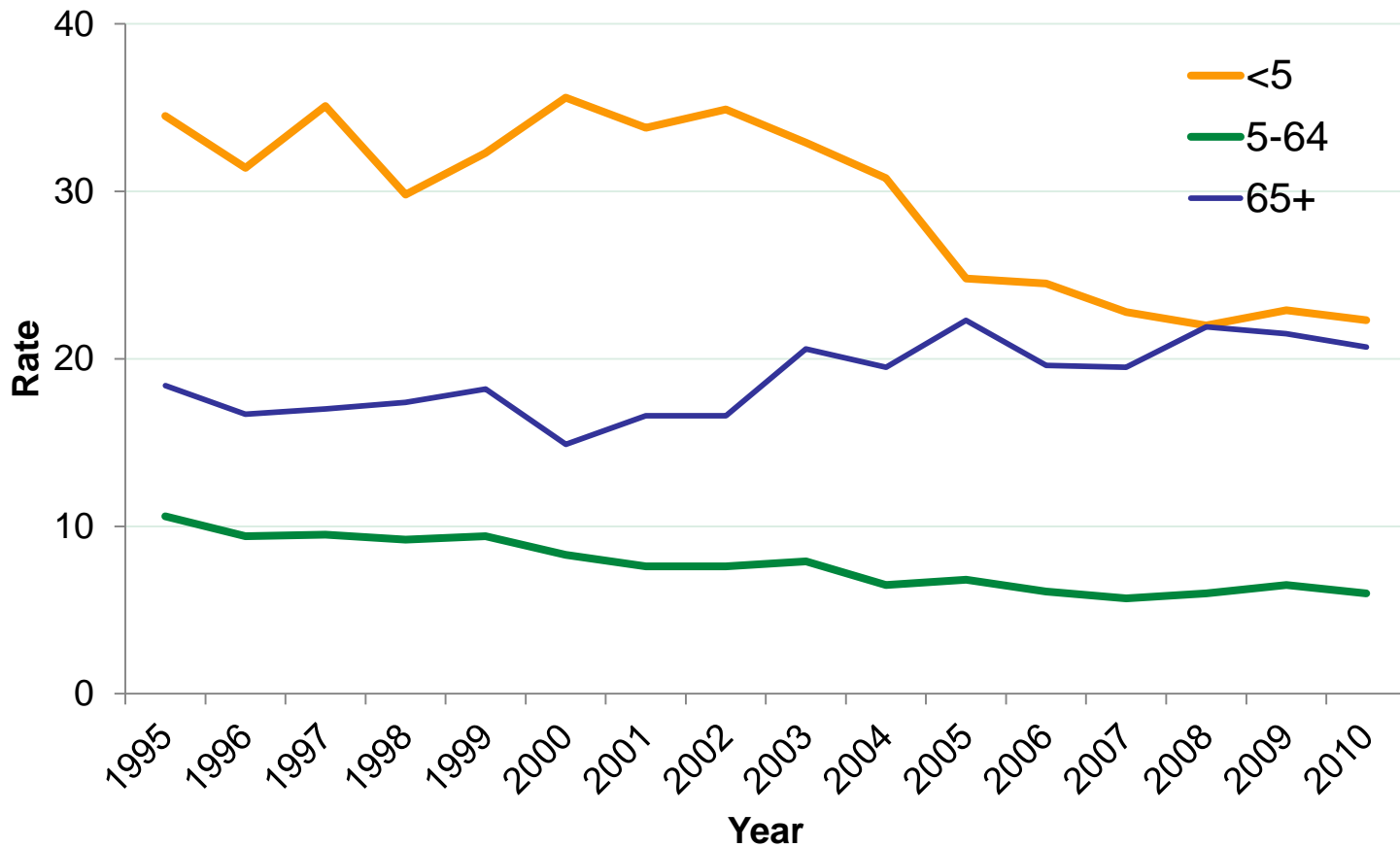


Age-Adjusted Asthma Hospitalizations per 10,000 Residents, California and the U.S., 1995-2010



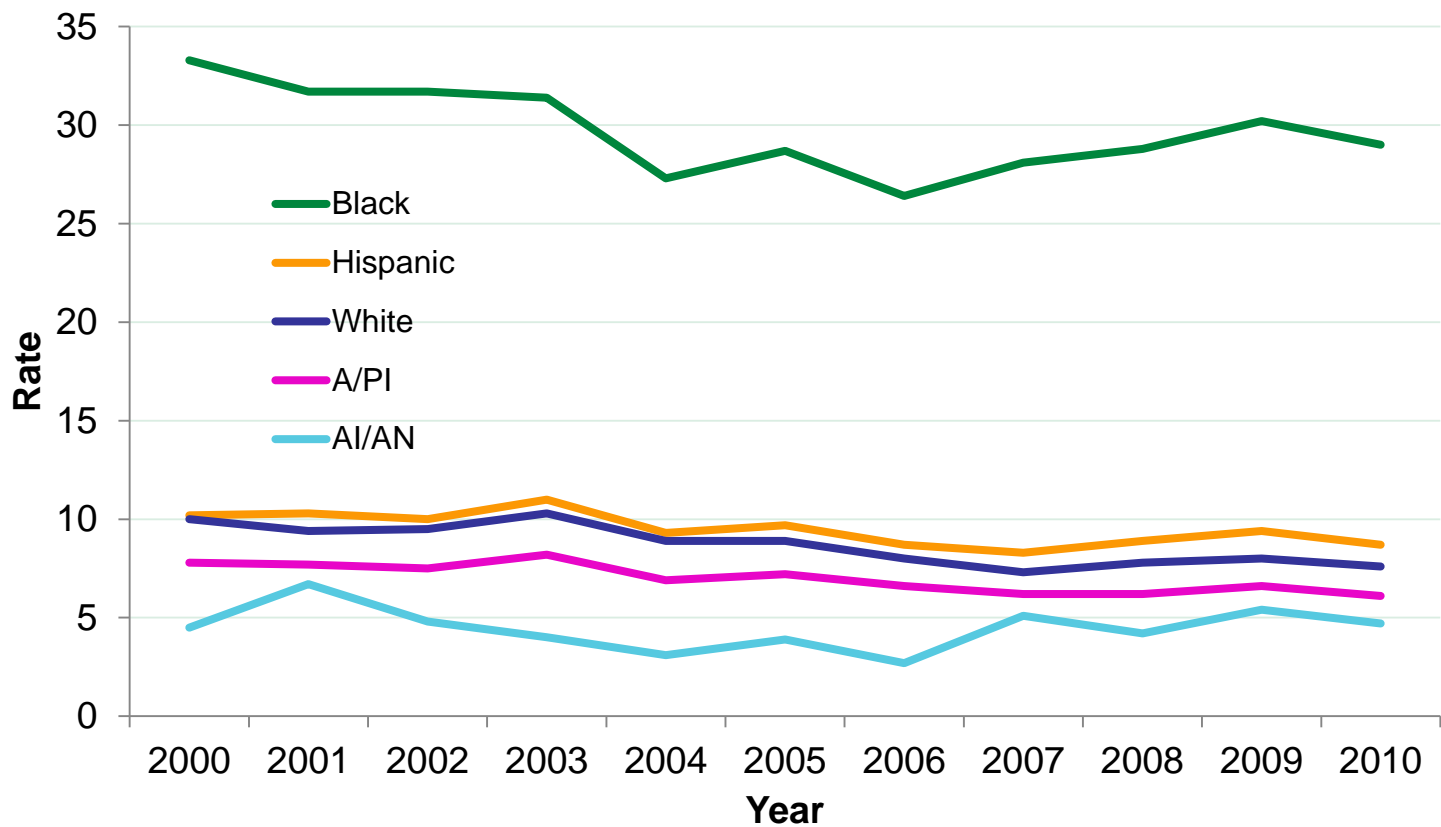


Asthma Hospitalizations per 10,000 California Residents by Age, 1995-2010



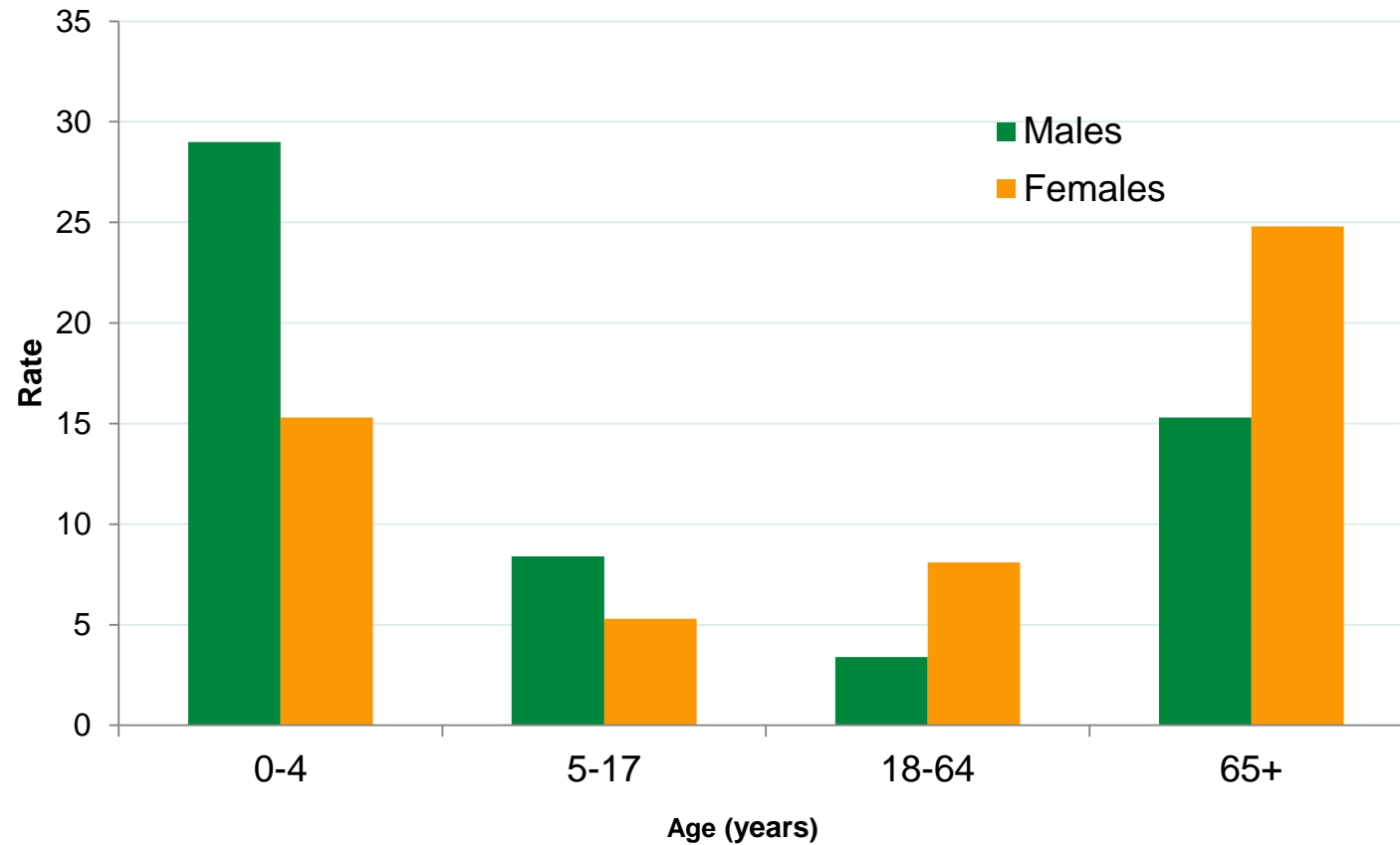


Age-Adjusted Asthma Hospitalizations per 10,000 California Residents by Race/Ethnicity, 2000-2010



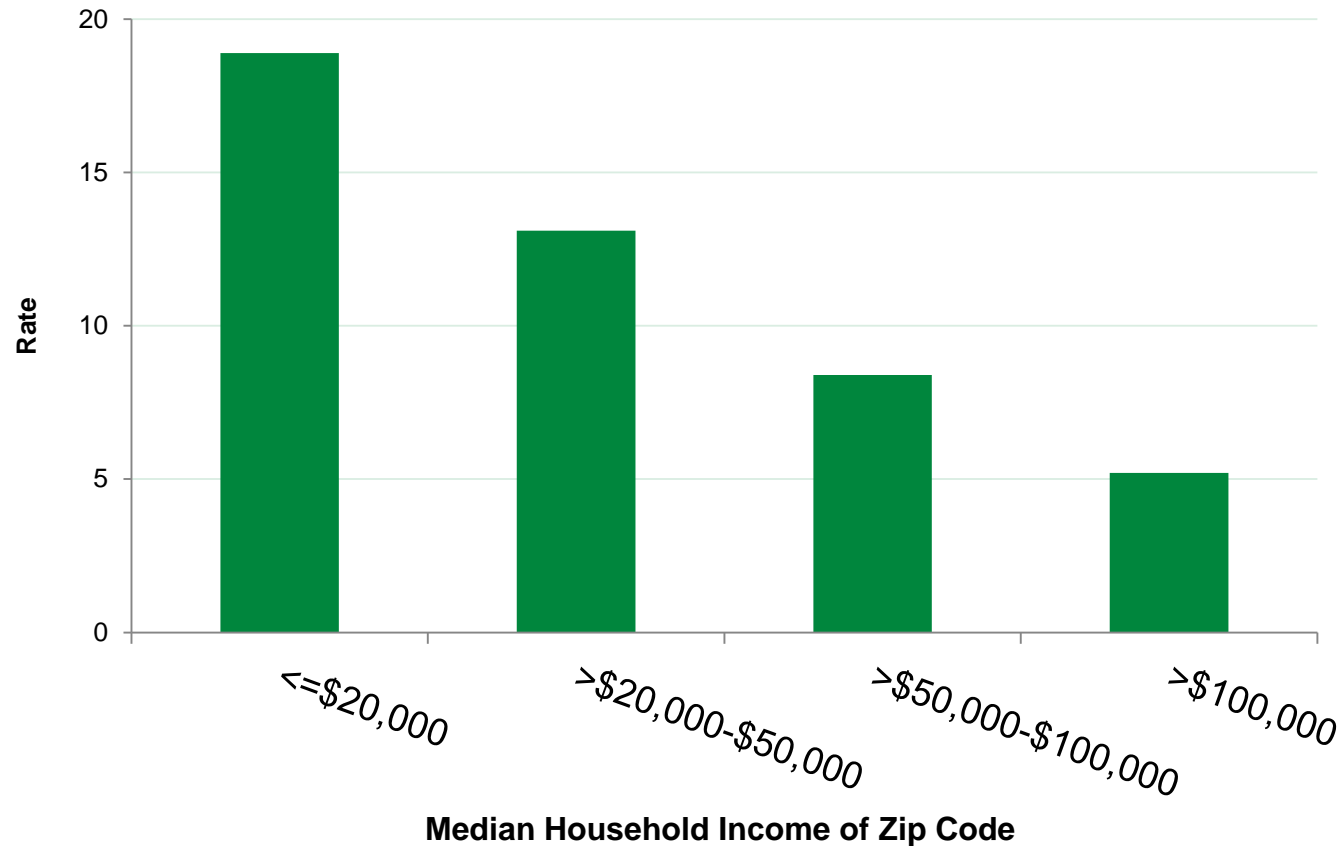


Age-Adjusted Asthma Hospitalizations per 10,000 California Residents by Sex and Age, 2010



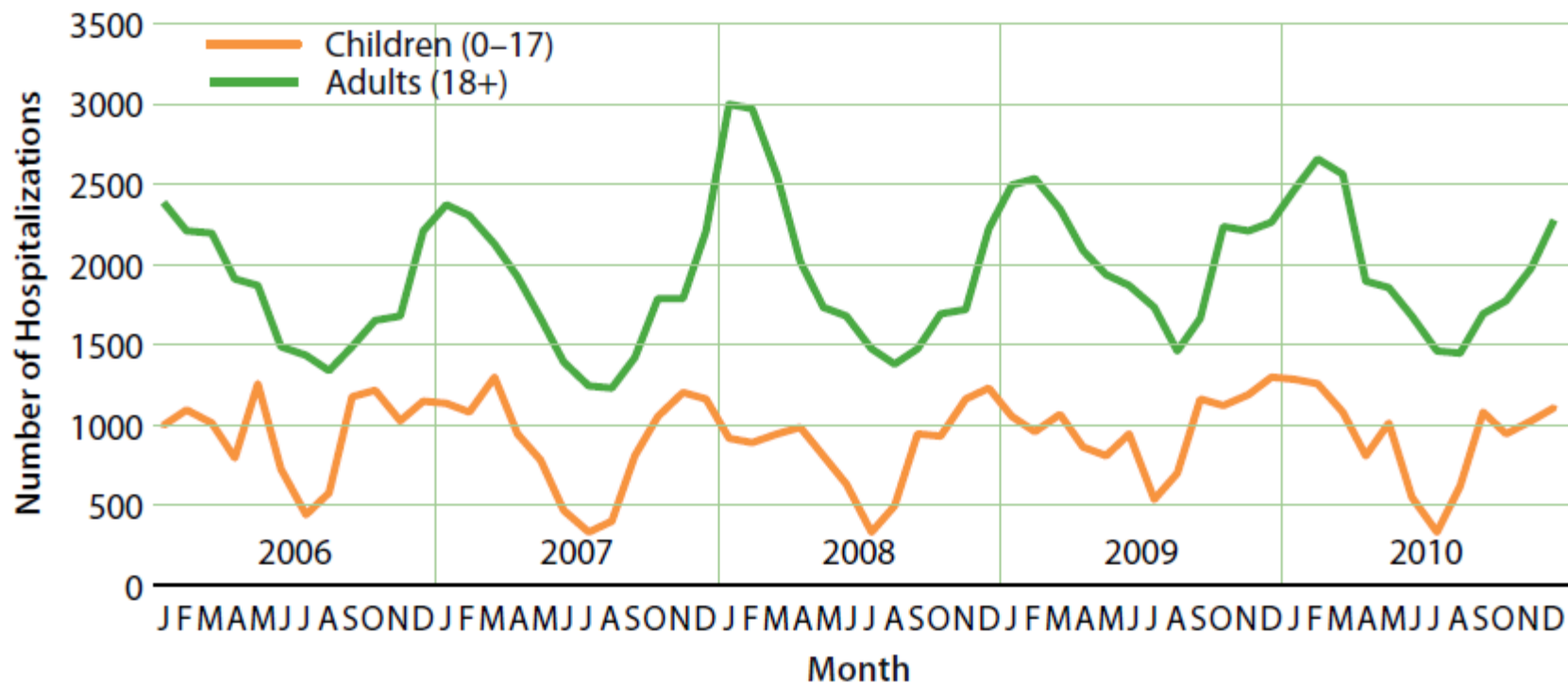


Age-Adjusted Asthma Hospitalizations per 10,000 California Residents by Median Household Income in Zip Code, 2009



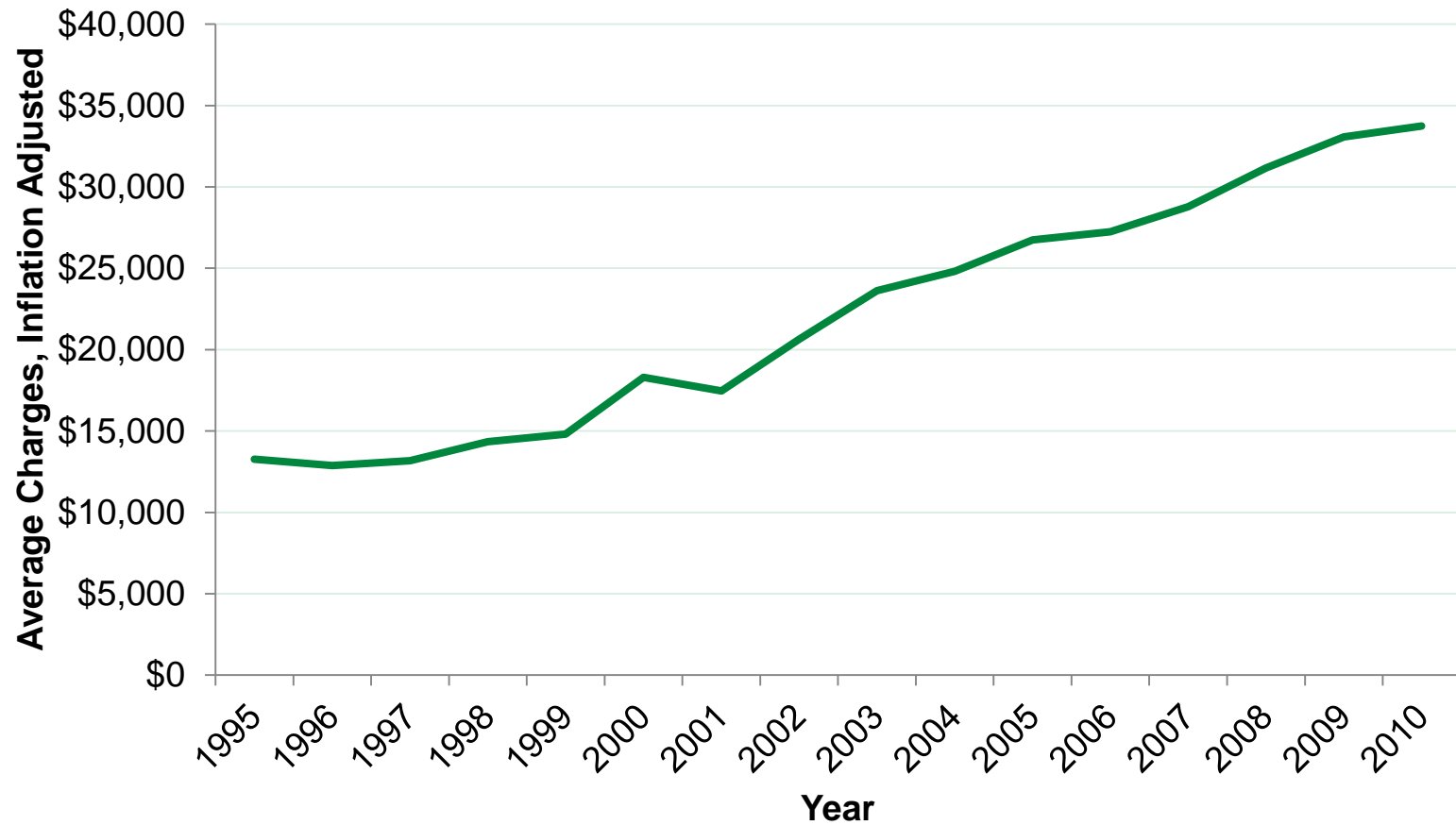


Asthma Hospitalizations by Month of Admission and Age, California 2006-2010



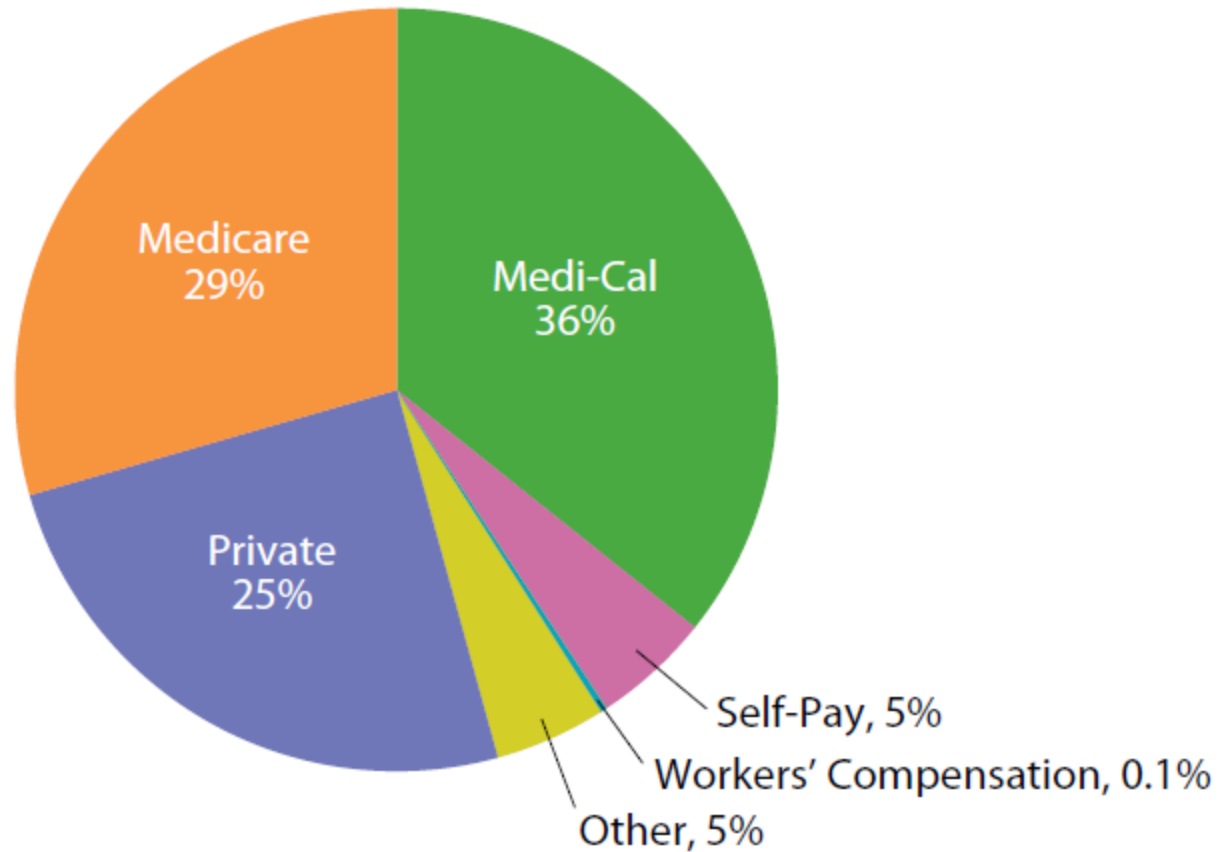


Average Charge per Asthma Hospitalization, California 1995-2010





Expected Source of Payment for Asthma Hospitalizations, California 2010



A repeat asthma hospitalization is when someone has more than one asthma hospitalization within a certain period.

- In 2010, 13.3% of asthma hospitalizations were repeats (n=4,612)
- These accounted for 15.3% of charges for asthma hospitalizations, or \$155.6 million
- \$53.4 million were charges covered by Medi-Cal and \$65.3 million were charges covered by Medicare
- Blacks had the highest percentage with repeat hospitalizations of any race/ethnicity
- Adults had a higher percentage with repeat hospitalizations than children
- Individuals with more repeat asthma hospitalizations were more likely to be from areas with lower median household income

Asthma Among Medi-Cal Beneficiaries

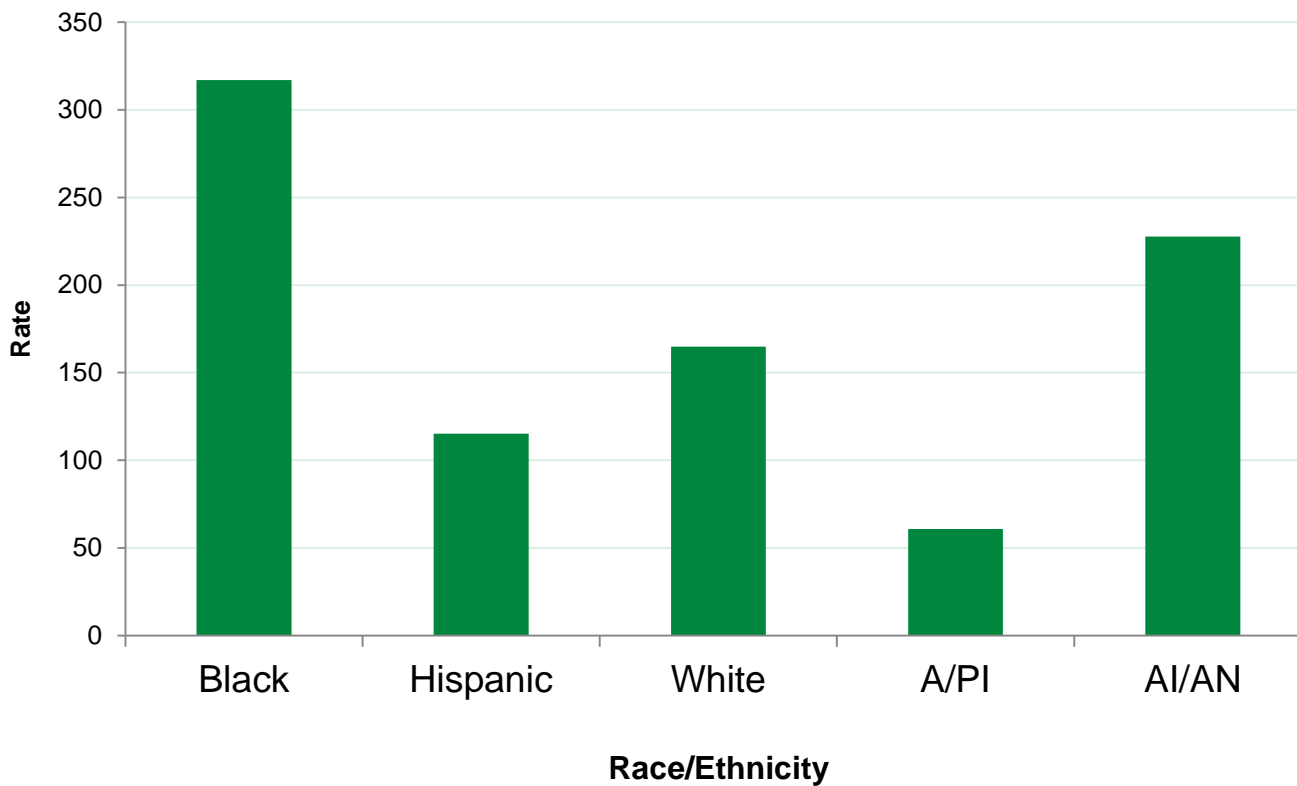


Percent of Medi-Cal Managed Care Beneficiaries (Ages 5-56) with Persistent Asthma who were Prescribed Appropriate Medications, 2006-2009

Year	Medi-Cal Managed Care Average (%)	National Medicaid Average (%)	National Commercial Average (%)
2006	84.5	85.7	89.9
2007	86.8	87.1	91.6
2008	88.8	86.9	92.3
2009	88.6	88.6	92.7

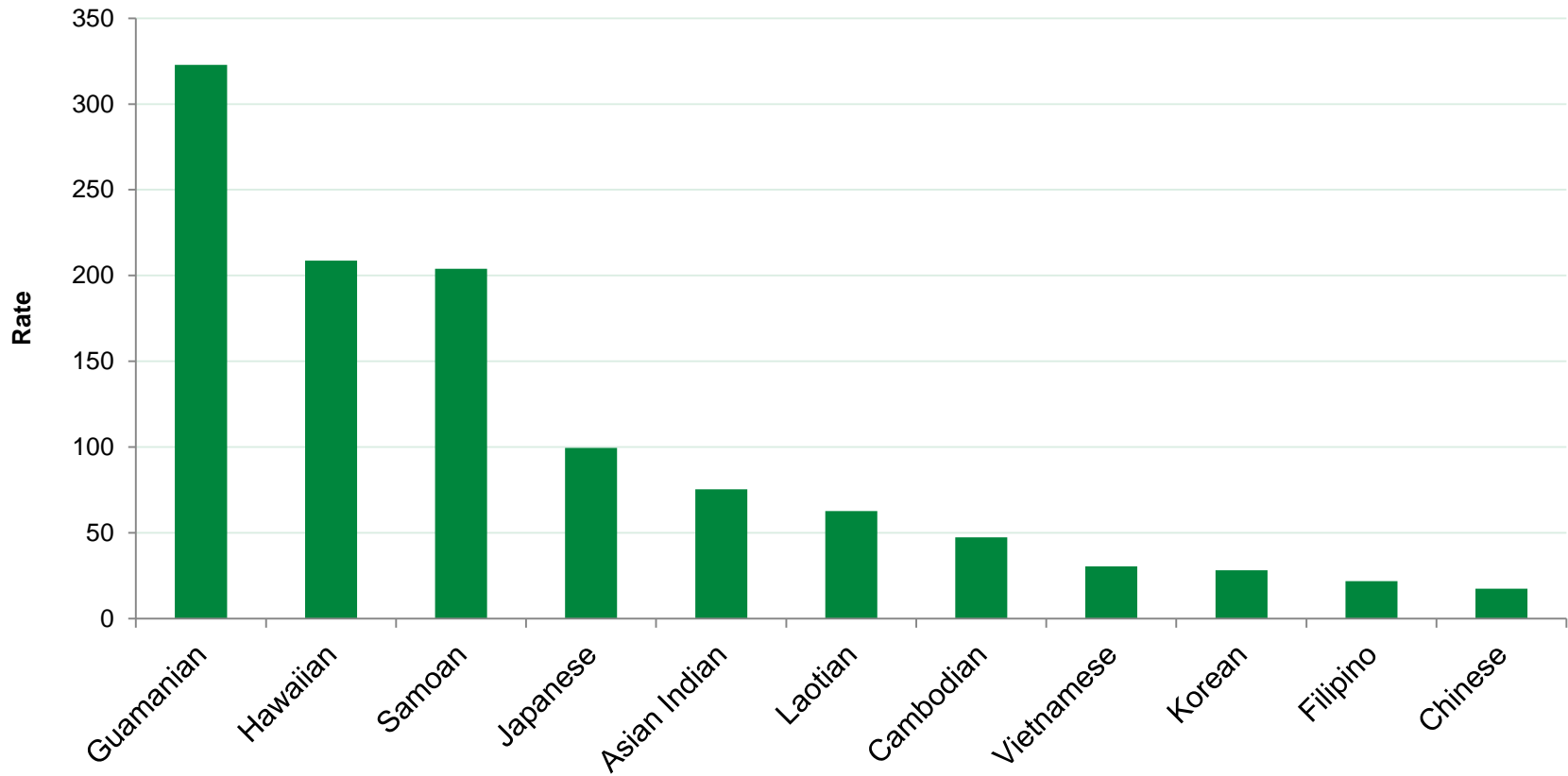


Medi-Cal Asthma ED Visits per 10,000 Continuously Enrolled Beneficiaries by Race/Ethnicity, 2010



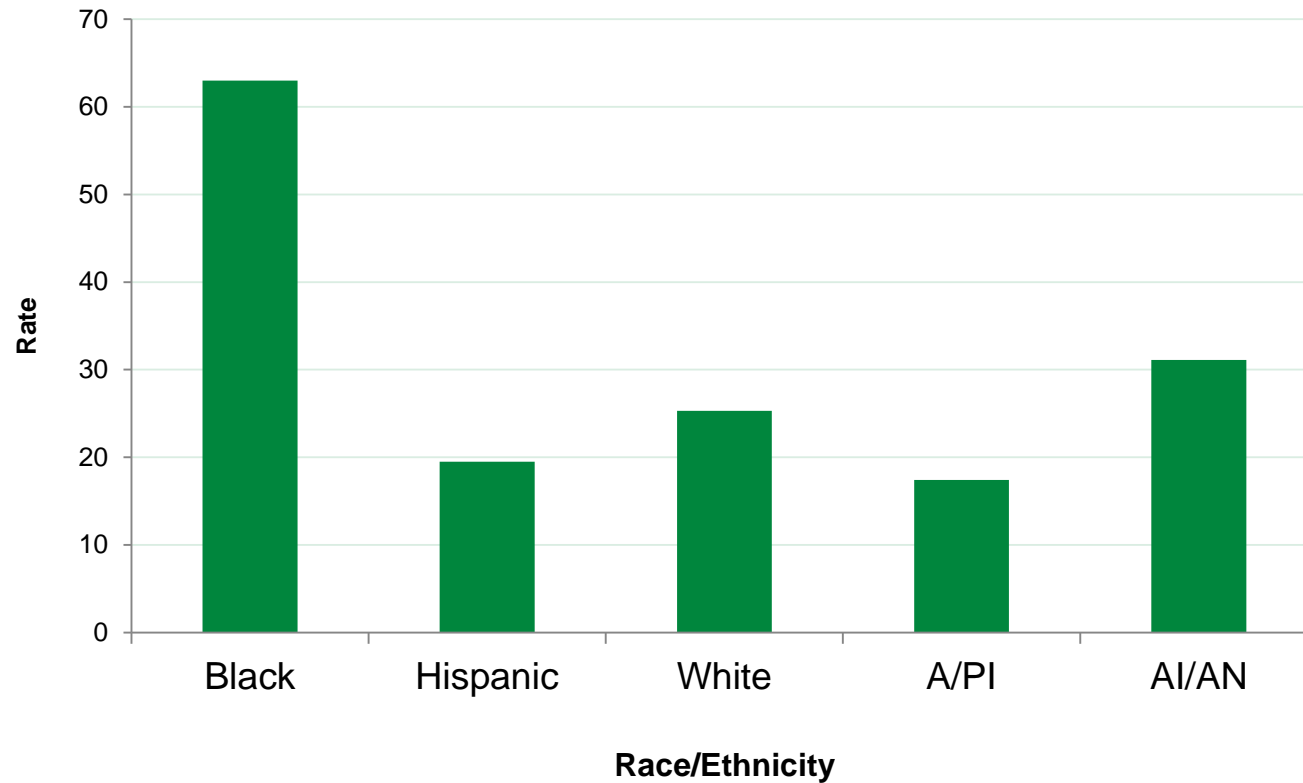


Age-Adjusted Medi-Cal Asthma ED Visits per 10,000 Continuously Enrolled Beneficiaries by Asian/Pacific Islander Subgroups, 2010



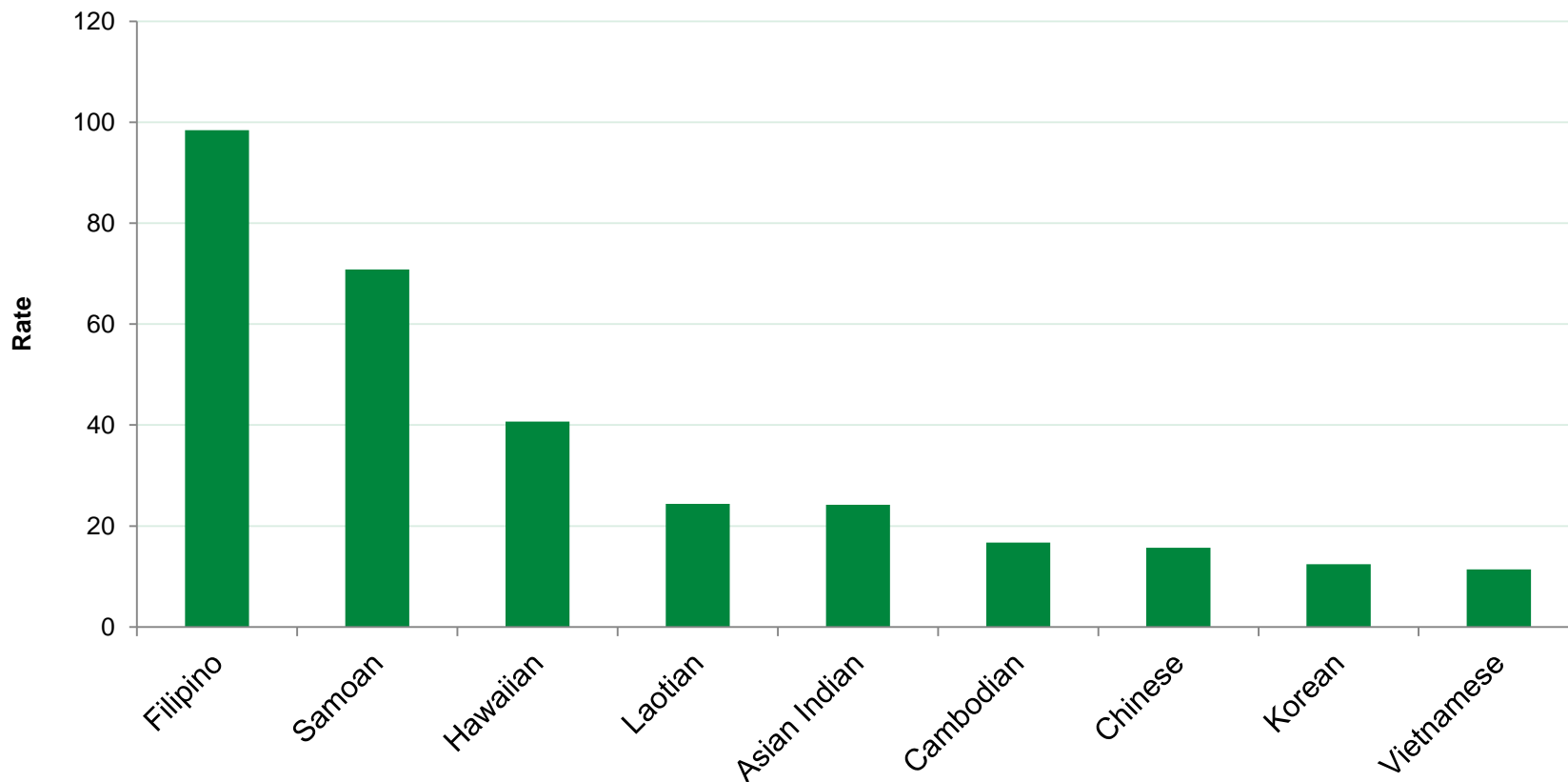


Medi-Cal Asthma Hospitalizations per 10,000 Continuously Enrolled Beneficiaries by Race/Ethnicity, 2010





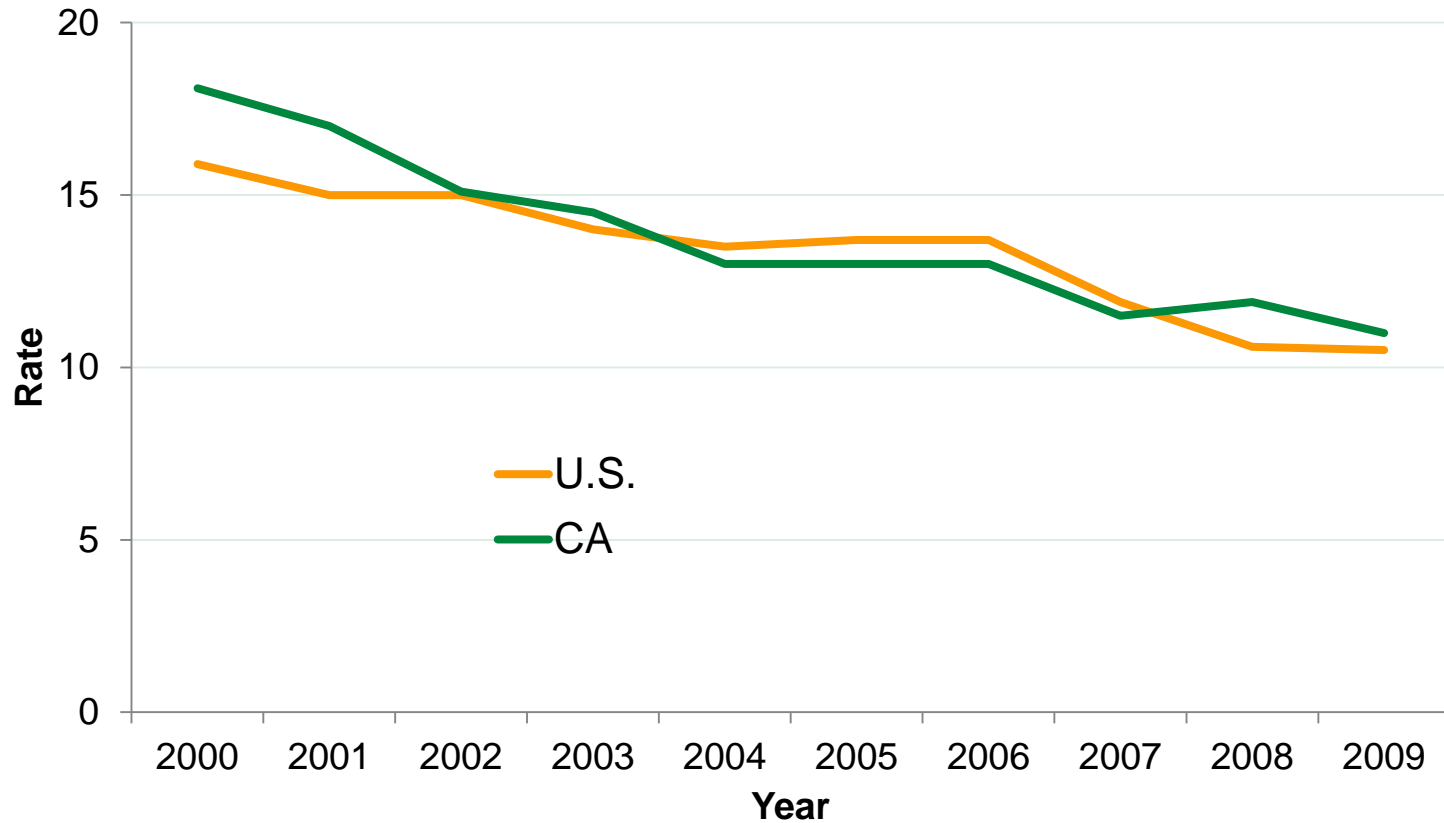
Age-Adjusted Medi-Cal Asthma Hospitalizations per 10,000 Continuously Enrolled Beneficiaries by Asian/Pacific Islander Subgroups, 2010



Asthma Mortality

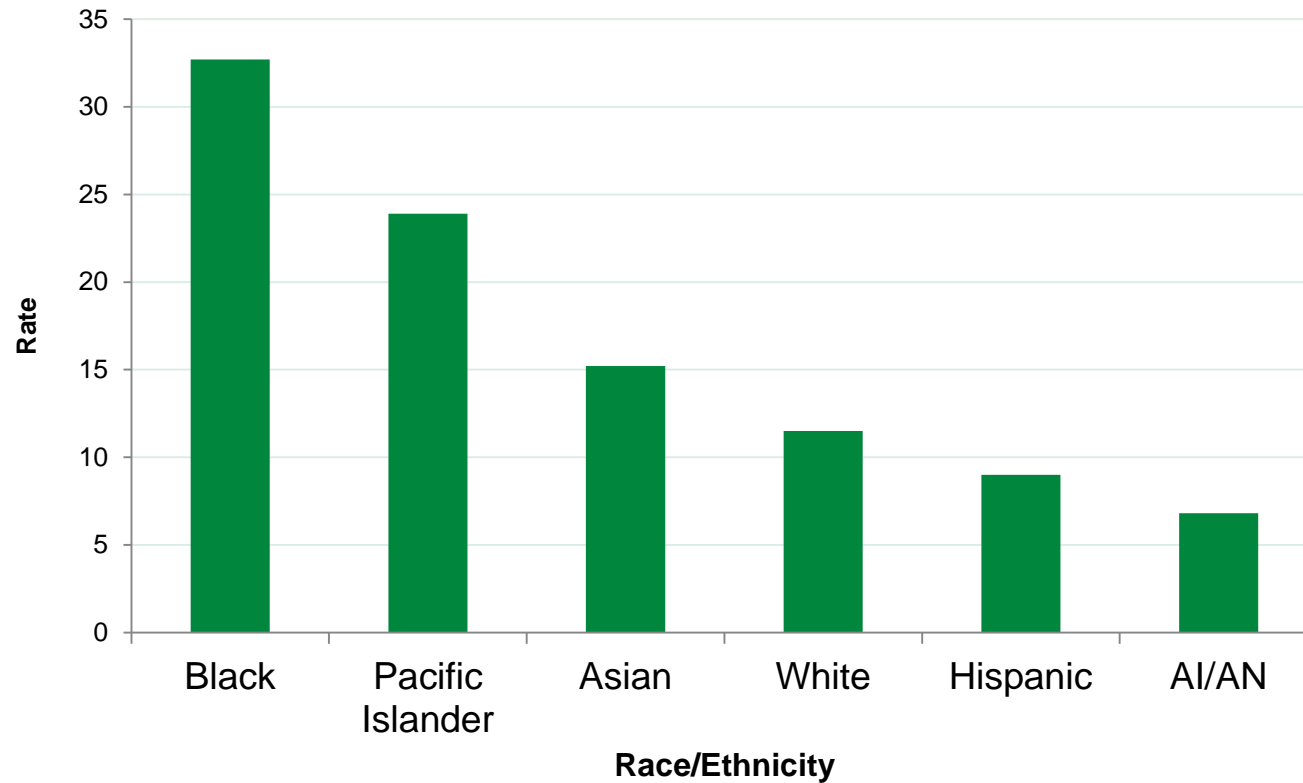


Age-Adjusted Asthma Deaths per 1,000,000 Residents, California and the U.S., 2000-2009



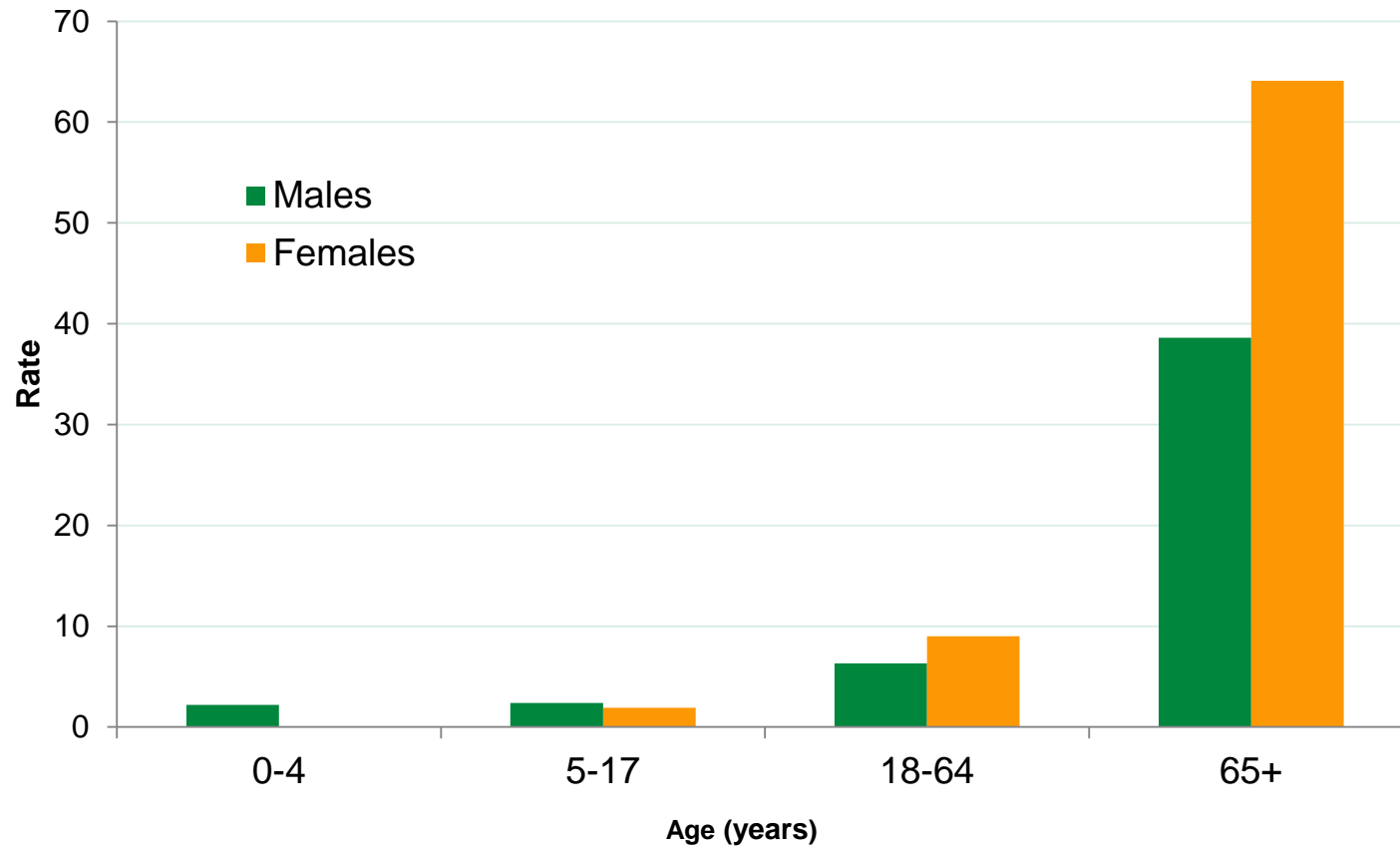


Age-Adjusted Asthma Deaths per 1,000,000 California Residents by Race/Ethnicity, 2003-2009 Aggregated





Age-Adjusted Asthma Deaths per 1,000,000 California Residents by Sex and Age, 2005-2009 Aggregated





Healthy People 2010/2020



Reduce Asthma Deaths (HP2010 Objective 24-1, HP2020 Objective RD-1)

Age	California, 2009 (per million)	HP2010 Target (per million)	HP2020 Target (per million)
0-14	1.8	0.9	NA
15-34	4.8	1.9	NA
35-64	9.0	8.0	6.0
65+	48.8	47.0	22.9



Reduce Hospitalizations for Asthma (HP2010 Objective 24-2, HP2020 Objective RD-2)

Age	California, 2010 (per 10,000)	HP2010 Target (per 10,000)	HP2020 Target (per 10,000)
0-4	22.3	25.0	18.1
5-64	6.0	7.7	8.6
65+	20.7	11.0	20.3



Reduce Hospital Emergency Department Visits for Asthma (HP2010 Objective 24-3, HP2020 Objective RD-3)

Age	California, 2010 (per 10,000)	HP2010 Target (per 10,000)	HP2020 Target (per 10,000)
0-4	109.5	80.0	95.5
5-64	41.7	50.0	49.1
65+	37.5	15.0	13.2



Reduce the Proportion of Persons with Asthma Who Miss School or Work Days (HP2020 Objectives RD-5.1 and RD-5.2)

Among people reporting an asthma episode or attack in the pas year	California, 2009 % (95% CI)	HP2010 Target %	HP2020 Target %
Missed any school days due to asthma in past year, Ages 5-17	48.4 (40.2-56.5)	NA	48.7
Missed any work days due to asthma in past year, Ages 18-64	20.0 (15.1-25.0)	NA	26.8



Increase the Proportion of Persons with Current Asthma Who Receive Formal Patient Education (HP2010 Objective 24-6, HP2020 Objectives RD-6)

Among people with current asthma	California, 2006-2008 % (95% CI)	HP2010 Target %	HP2020 Target %
Have ever taken a formal course or class on how to manage asthma	16.1 (12.2-19.9)	38.0	14.1



Increase the Proportion of Persons with Current Asthma Who Receive Appropriate Asthma Care According to NAEPP Guidelines (HP2010 Objective 24-7, HP2020 Objective RD-7)

Among people with current asthma	California, 2006-2008 % (95% CI)	HP2010 Target %	HP2020 Target %
Have ever received a written asthma management plan from their health care provider	31.9 (27.4-36.4)	40.0	39.8
Use a prescription asthma inhaler and have received instruction on how to use it properly	95.4 (93.4-97.4)	98.8	NA
Have received education on how to respond to an asthma episode, and either how to recognize early signs and symptoms or how to monitor peak flow results	71.4 (67.4-75.3)	68.0	68.5
Have been advised by a health professional to change their home, school, or work environment to reduce exposure to irritants or allergens	39.5 (35.2-43.8)	50.0	54.5