
The Burden of Asthma in California and Tribal Communities

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Natalie Sacramento
California Breathing
July 11, 2023



Webinar Objectives

- 1) Understand the burden of asthma in California, in terms of prevalence, emergency visits, hospitalizations, and deaths.
- 2) Examine asthma disparities among Tribal communities in California.
- 3) Identify guidelines-based resources to assess and control asthma.
- 4) Describe how California Breathing supports organizations to implement guidelines-based asthma care.

California Breathing

California Breathing focuses on asthma surveillance and developing interventions that improve asthma self-management and environmental conditions that cause or worsen asthma in the most burdened communities.



What is asthma?

Asthma is...



a serious
lung disease



symptoms include coughing,
wheezing, shortness of
breath, and chest tightness



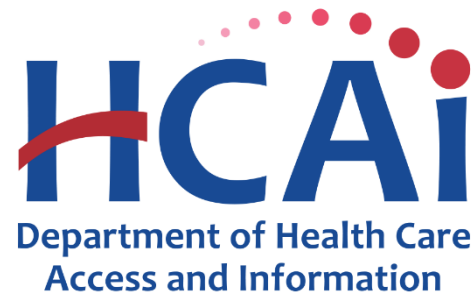
can be controlled
with proper
treatment

California Breathing Asthma Surveillance

Data sources:



california
health
interview
survey



- Prevalence
- Missed work and school days
- Management practices



- Emergency Department Visits
- Hospital Discharges



- Deaths

Asthma indicators:

California demographics



- Total population in California about 40 millions
- Tribal communities make up 2% of total population
- Tribal communities categorized as American Indian and Alaska Native (AI/AN)

Asthma Prevalence

Asthma Prevalence: percentage of people who have asthma

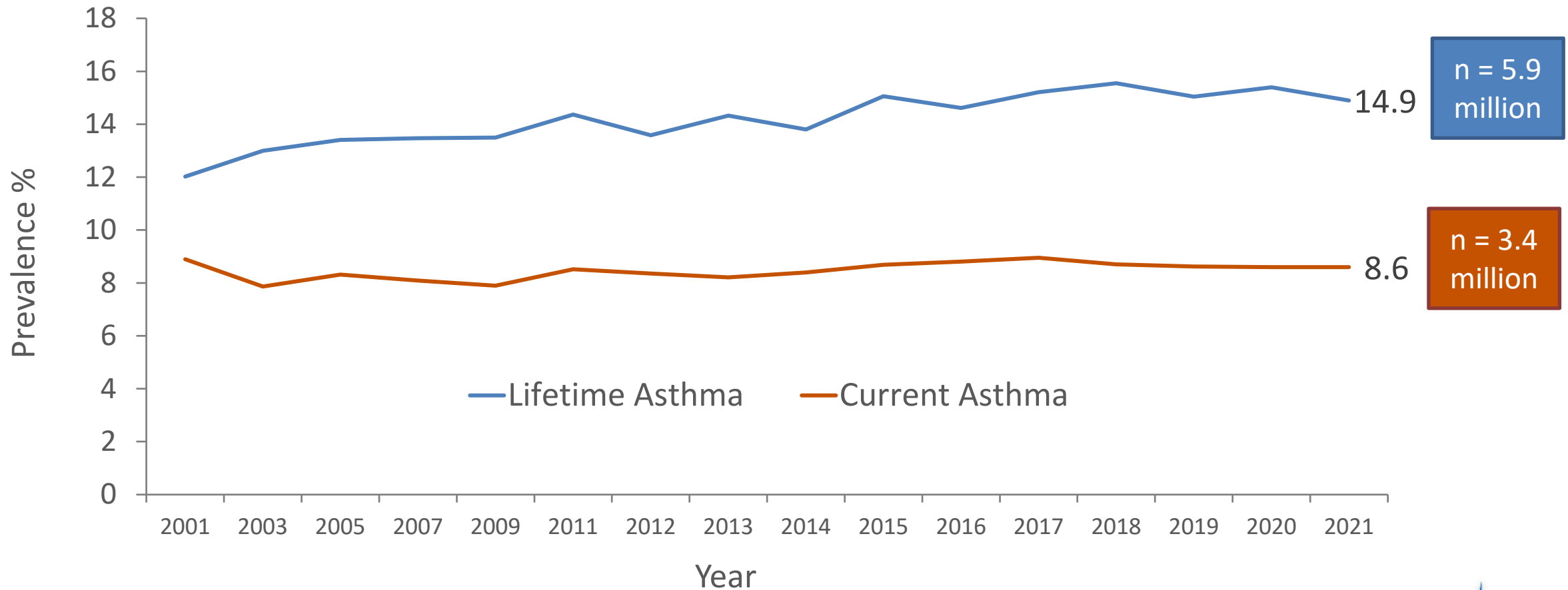
Lifetime

People that have been diagnosed with asthma by a health care provider at some time in the past

Current

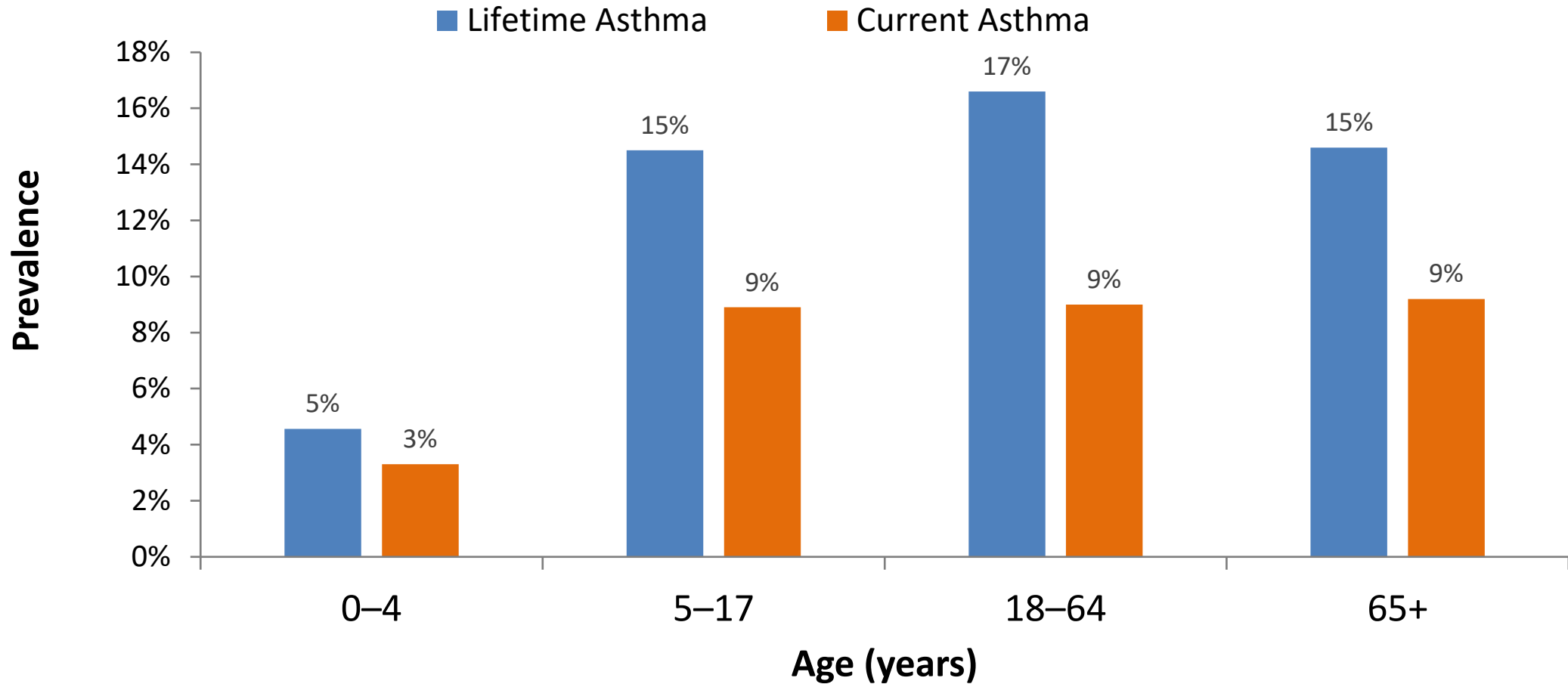
People that have been diagnosed with asthma and report still having asthma or having had asthma symptoms during the previous 12 months

Lifetime and Current Asthma Prevalence (2001–2021)



Data source: CHIS, 2001-2021

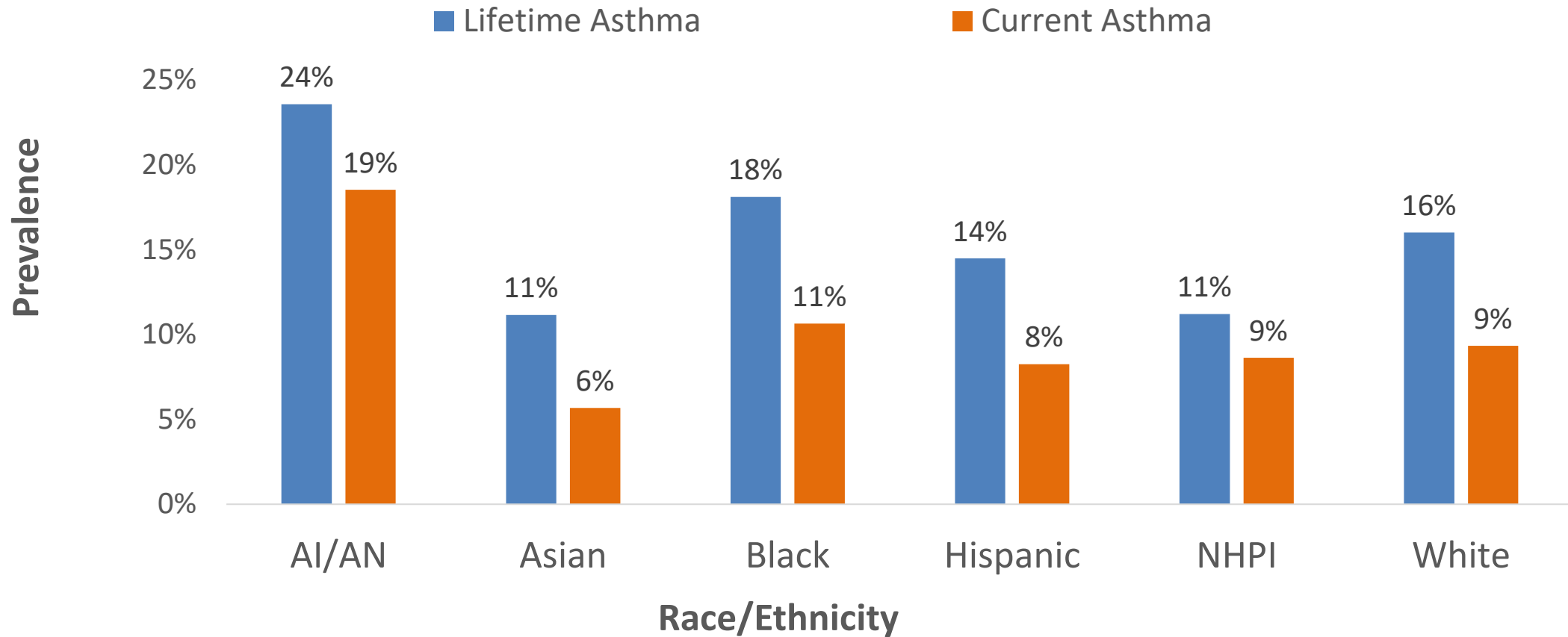
Lifetime and Current Asthma Prevalence by Age



Data source: CHIS, 2019-2020

Lifetime and Current Asthma Prevalence by Race/Ethnicity

All ages

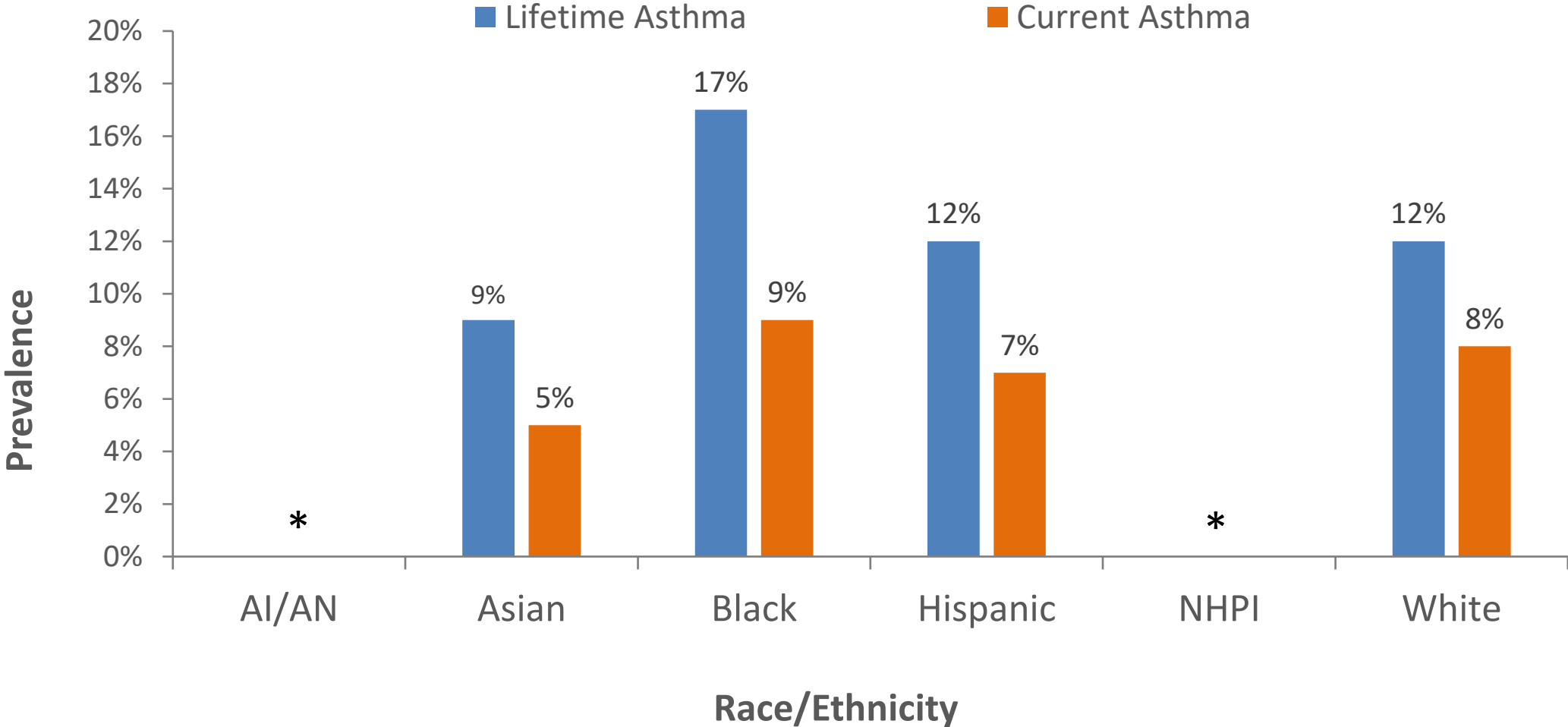


Data source: CHIS, 2019–2020

Abbreviations: AI/AN = American Indian or Alaskan Native, NHPI = Native Hawaiian or Pacific Islander



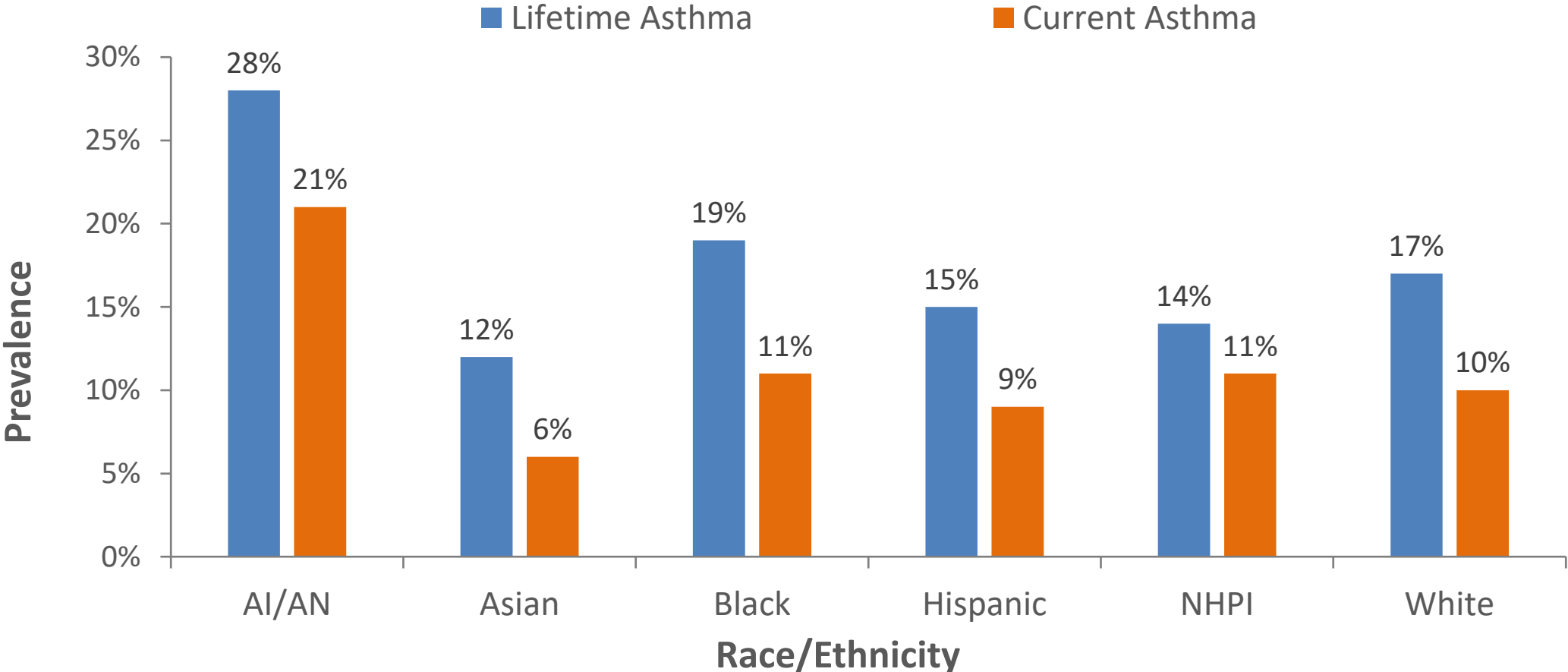
Lifetime and Current Asthma Prevalence by Race/Ethnicity Children (0-17 years)



Data source: CHIS, 2019–2020
Abbreviations: AI/AN = American Indian or Alaskan Native, NHPI = Native Hawaiian or Pacific Islander
* : Data are not available due to small sample size.



Lifetime and Current Asthma Prevalence by Race/Ethnicity Adults (18+ years)



Data source: CHIS, 2019–2020

Abbreviations: AI/AN = American Indian or Alaskan Native, NHPI = Native Hawaiian or Pacific Islander



Work and School Days Missed Due to Asthma

Workdays Missed Due to Asthma

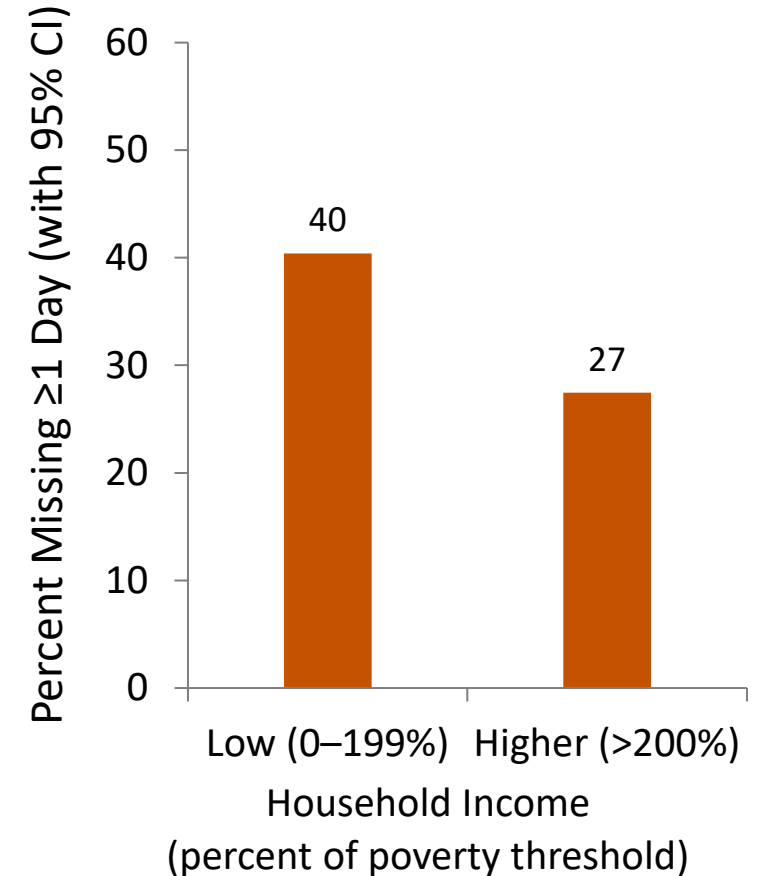


- 11.6% (n=280,000) unable to work in past year
- Average of 1.2 days missed/person/year
- Total of 2.9 million days missed
- No association between missing work and household income level

School or Daycare Days Missed Due to Asthma

Among children (0–17 years) with current asthma

- 32.3% (n=230,000) unable to attend school or daycare in past year
- Average of 2 days missed/person/year
- Total of 1.4 million days missed
- Low household income may increase likelihood of missing school or daycare



Asthma Management Practices

Use of Daily Controller Medication by Age

Among those with current asthma

- 50.4% of children
- 44.7% of adults

take daily controller medication



Development of Asthma Action Plan by Age

Among those with current asthma

- 70.2% of children
- 72.3% of adults

developed an asthma action plan with health care providers

ASTHMA ACTION PLAN

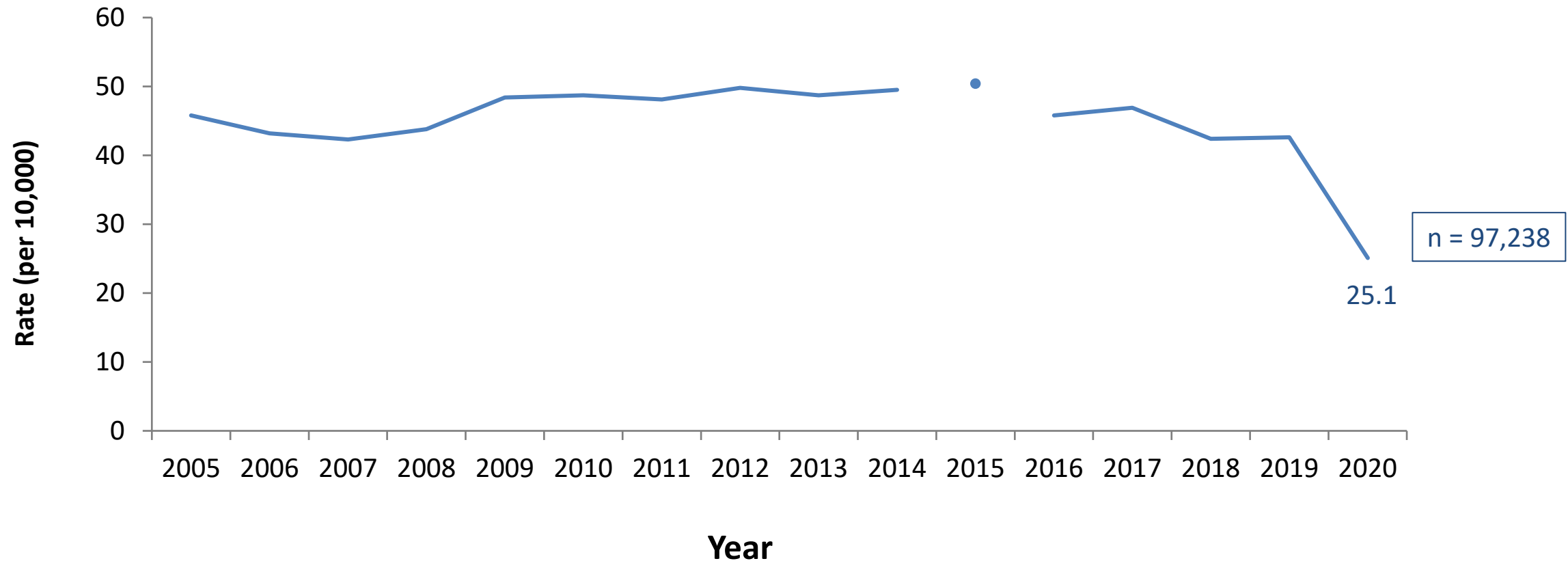
For: _____ Doctor: _____ Date: _____
 Doctor's Phone Number: _____ Hospital/Emergency Department Phone Number: _____

GREEN ZONE	DOING WELL	Daily Medications	How much to take	When to take it																								
	<ul style="list-style-type: none"> No cough, wheeze, chest tightness, or shortness of breath during the day or night Can do usual activities <p>And, if a peak flow meter is used, Peak flow: more than _____ (80 percent or more of my best peak flow) My best peak flow is: _____</p>	<table border="1"> <thead> <tr> <th>Medicine</th> <th>How much to take</th> <th>When to take it</th> </tr> </thead> <tbody> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table>	Medicine	How much to take	When to take it	_____	_____	_____	_____	_____	_____	_____	_____	_____	<table border="1"> <thead> <tr> <th>How much to take</th> <th>When to take it</th> </tr> </thead> <tbody> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> <tr> <td>_____</td> <td>_____</td> </tr> </tbody> </table>	How much to take	When to take it	_____	_____	_____	_____	_____	_____	<table border="1"> <thead> <tr> <th>When to take it</th> </tr> </thead> <tbody> <tr> <td>_____</td> </tr> <tr> <td>_____</td> </tr> <tr> <td>_____</td> </tr> </tbody> </table>	When to take it	_____	_____	_____
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RED ZONE	<p>DANGER SIGNS</p> <ul style="list-style-type: none"> Trouble walking and talking due to shortness of breath Lips or fingernails are blue 			<p>Take _____ puffs of _____ (quick relief medicine) AND Go to the hospital or call for an ambulance _____ NOW! (phone)</p>																								

Asthma-related Emergency Department (ED) Visits

Age-Adjusted Asthma ED Visits per 10,000 Residents California and the U.S., 2005–2020

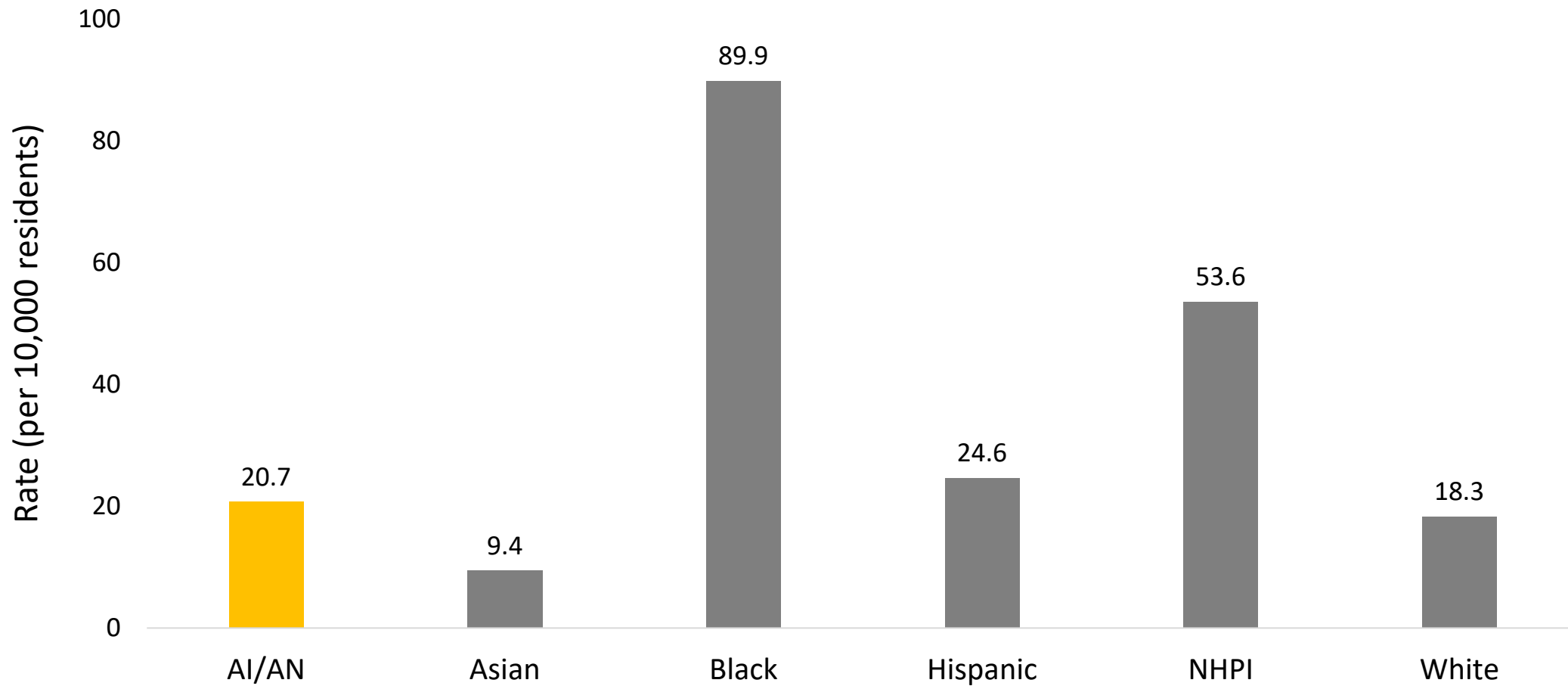


Data sources: CA data from the Office of Statewide Health Planning and Development (OSHPD), 2005–2020

Note: Diagnosis codes changed from ICD-CM-9 to ICD-CM-10 on October 1, 2015. Direct comparisons should not be made between data collected prior to and after this change.



Age-Adjusted Asthma ED Visits per 10,000 Residents by Race/Ethnicity, California, 2020

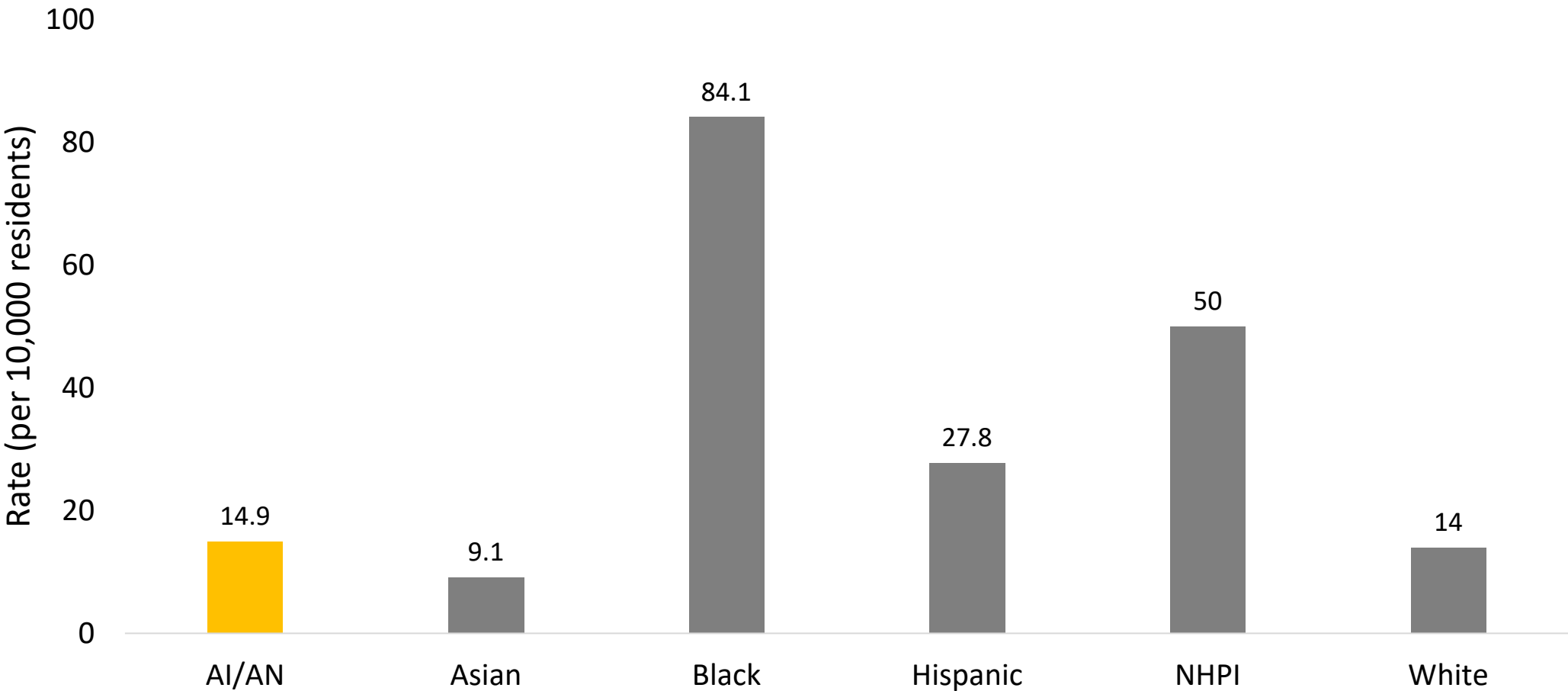


Data sources: Department of Health Care Access and Information (HCAI), 2020

Abbreviations: AI/AN = American Indian/Alaskan Native, NHPI = Native Hawaiian or Pacific Islander



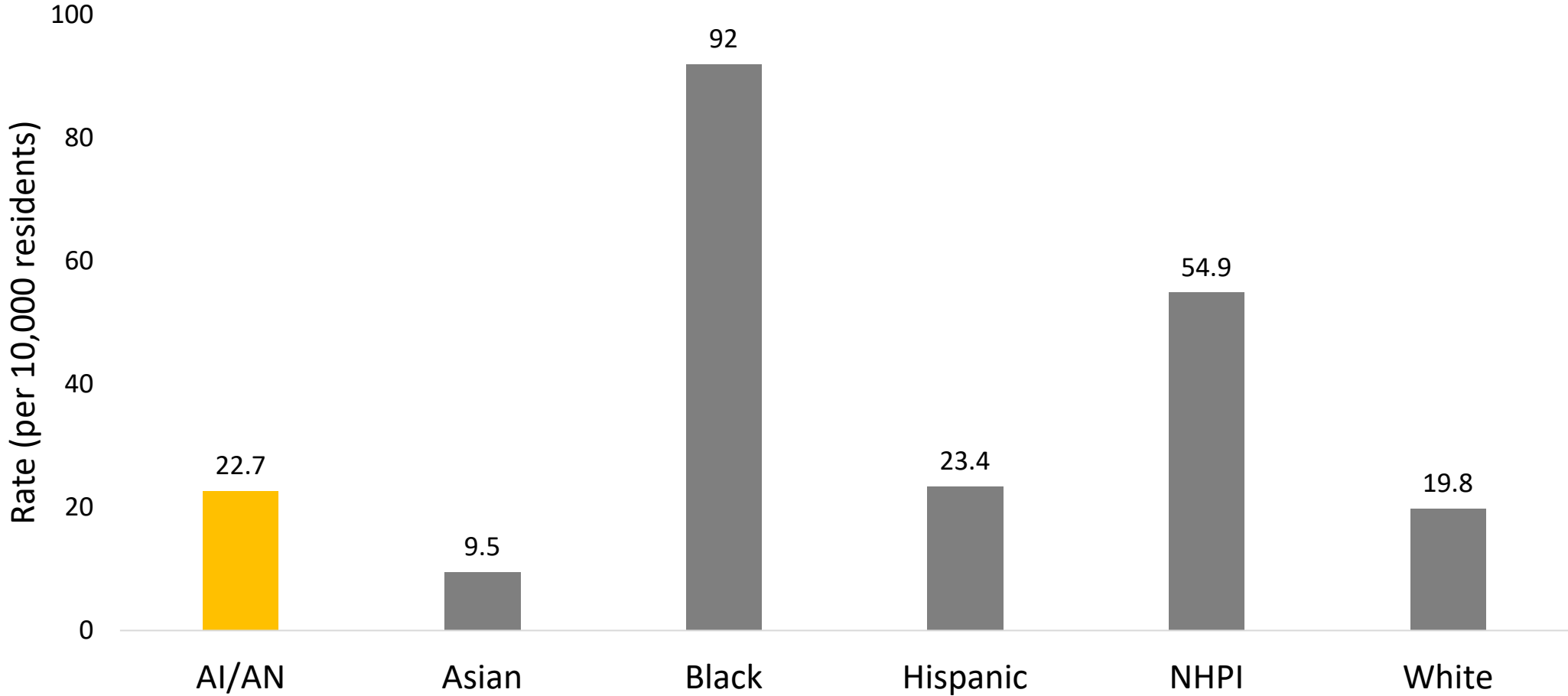
Age-Adjusted Asthma ED Visits per 10,000 Residents by Race/Ethnicity - Children (0-17 years)



Data sources: Department of Health Care Access and Information (HCAI), 2020
Abbreviations: AI/AN = American Indian/Alaskan Native, NHPI = Native Hawaiian or Pacific Islander



Age-Adjusted Asthma ED Visits per 10,000 Residents by Race/ Ethnicity - Adults (18 + years)

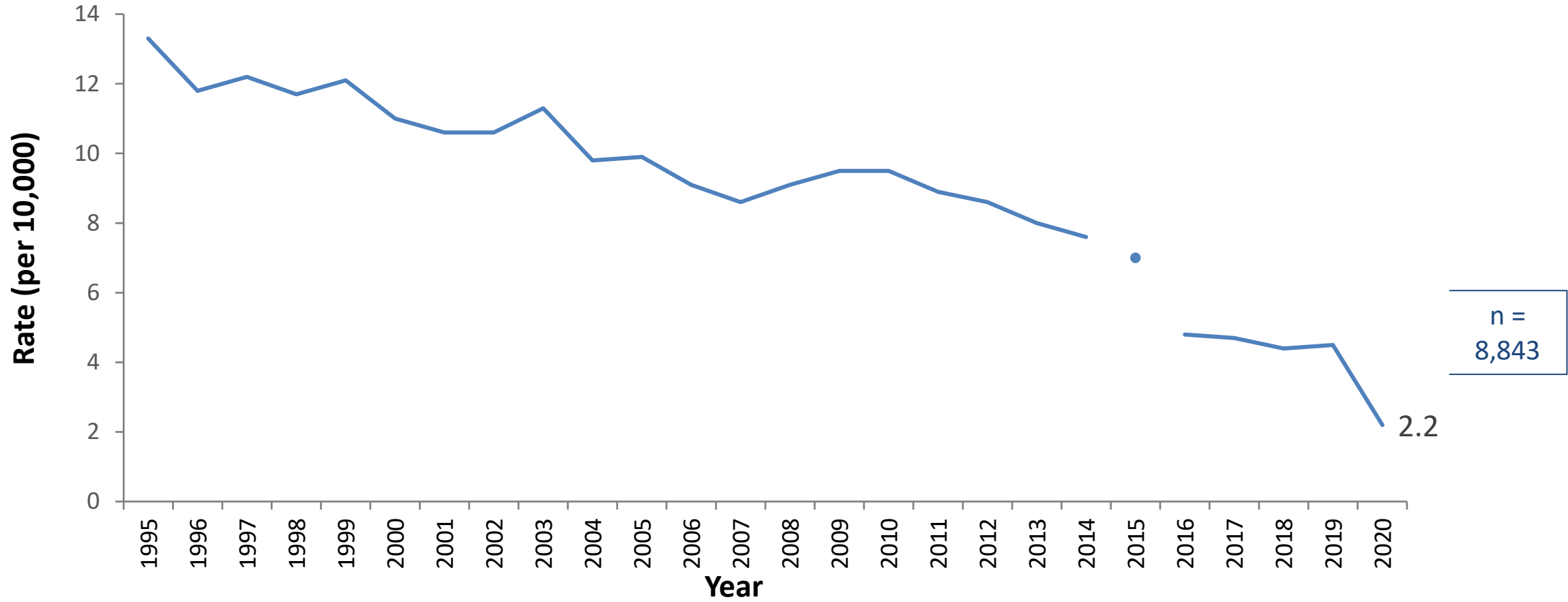


Data sources: Department of Health Care Access and Information (HCAI), 2020
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Asthma-related Hospitalizations

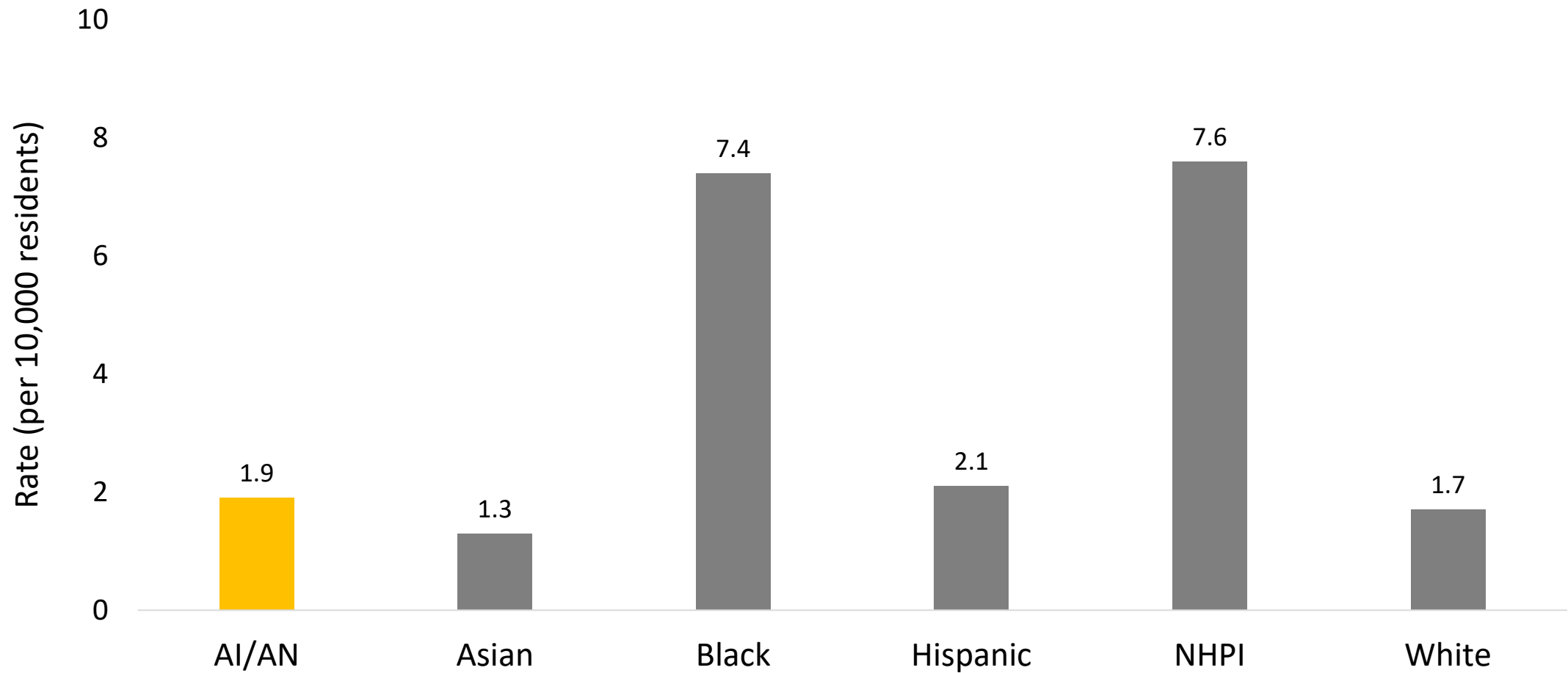
Age-Adjusted Asthma Hospitalizations per 10,000 Residents California and the U.S., 1995–2020



Data sources: Department of Health Care Access and Information (HCAI), 2005–2020

Note: Diagnosis codes changed from ICD-CM-9 to ICD-CM-10 on October 1, 2015. Direct comparisons should not be made between data collected prior to and after this change.

Age-Adjusted Asthma Hospitalizations per 10,000 Residents by Race/Ethnicity, California, 2020



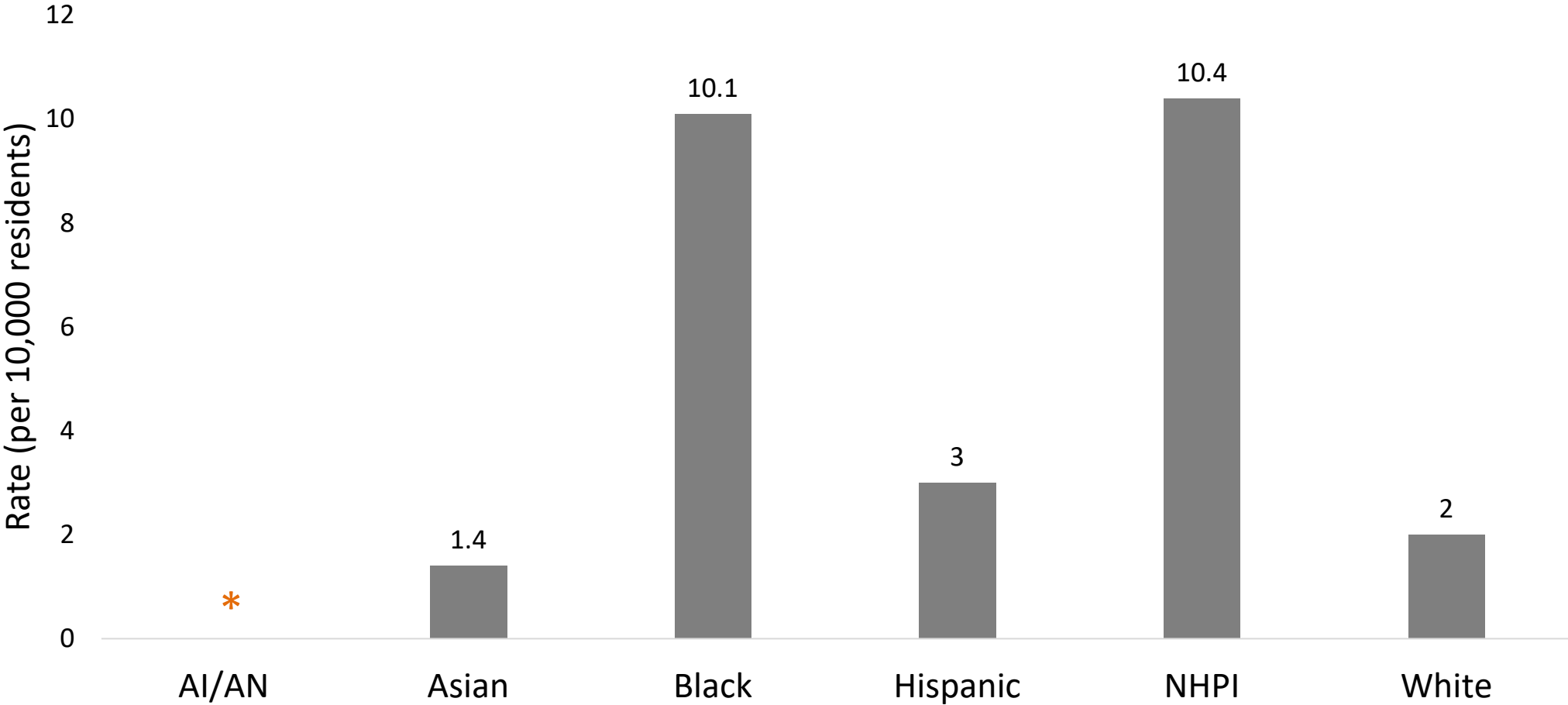
Data sources: Department of Health Care Access and Information (HCAI), 2020

Abbreviations: AI/AN = American Indian/Alaskan Native, NHPI = Native Hawaiian or Pacific Islander



Age-Adjusted Asthma Hospitalizations per 10,000 Residents by Race/Ethnicity, California, 2020

Children (0-17 years)



Data sources: Department of Health Care Access and Information (HCAI), 2020

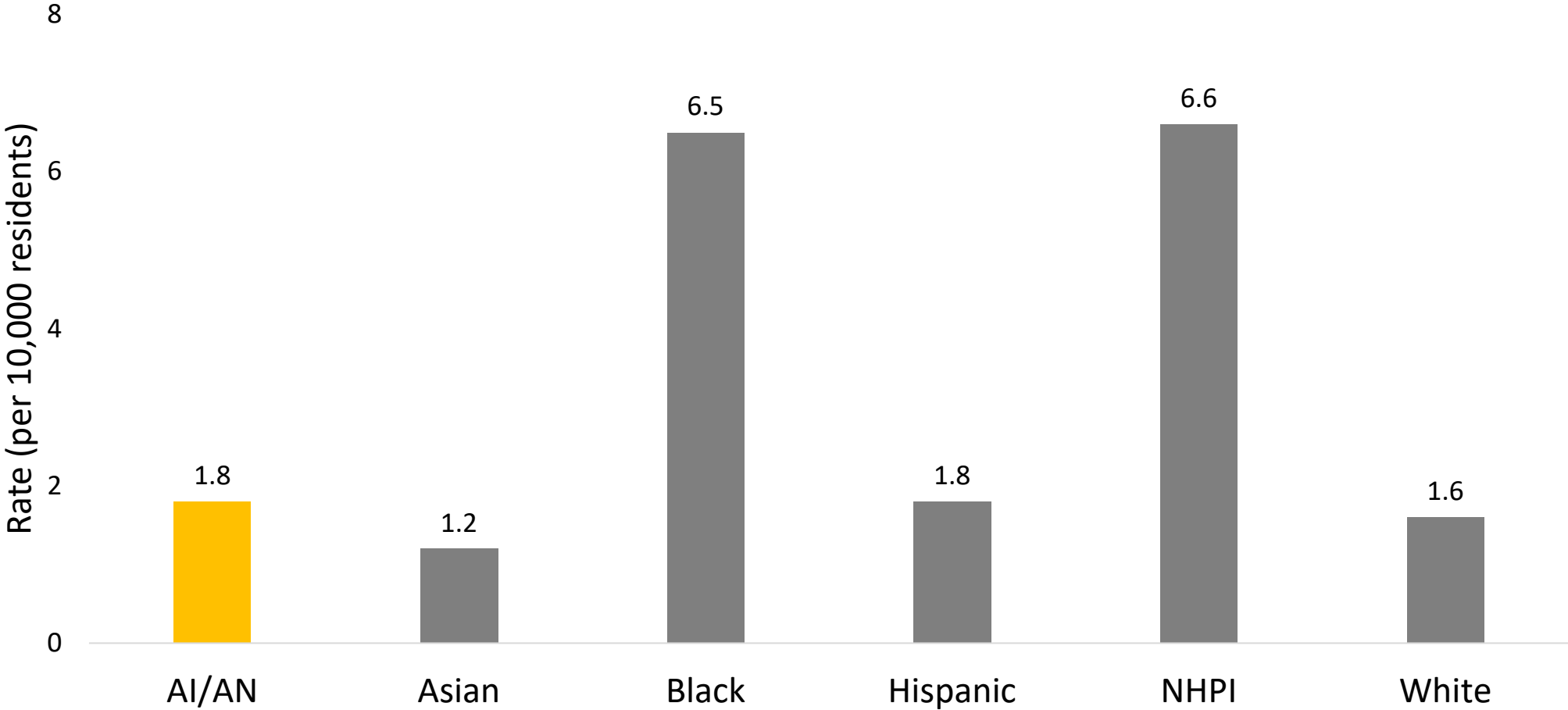
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* : Data are not available due to small sample size.



Age-Adjusted Asthma Hospitalizations per 10,000 Residents by Race/Ethnicity, California, 2020

Adults (18+ years)

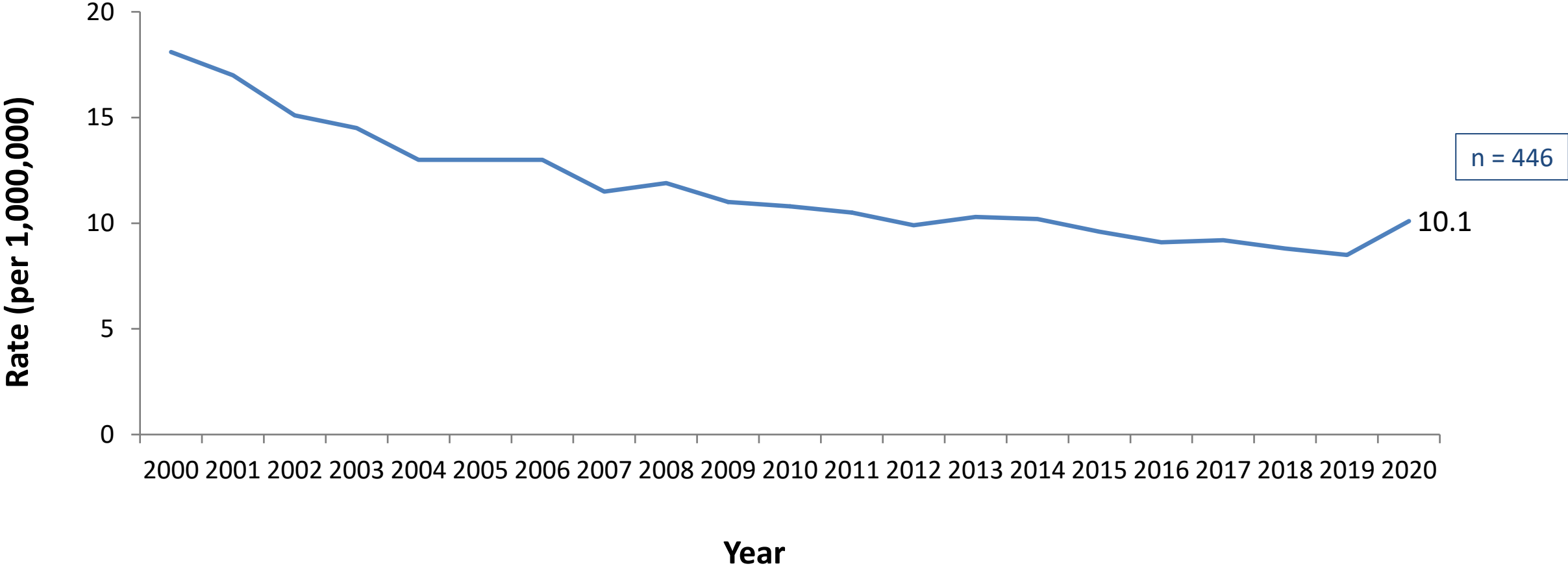


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Abbreviations: AI/AN = American Indian/Alaskan Native, NHPI = Native Hawaiian or Pacific Islander



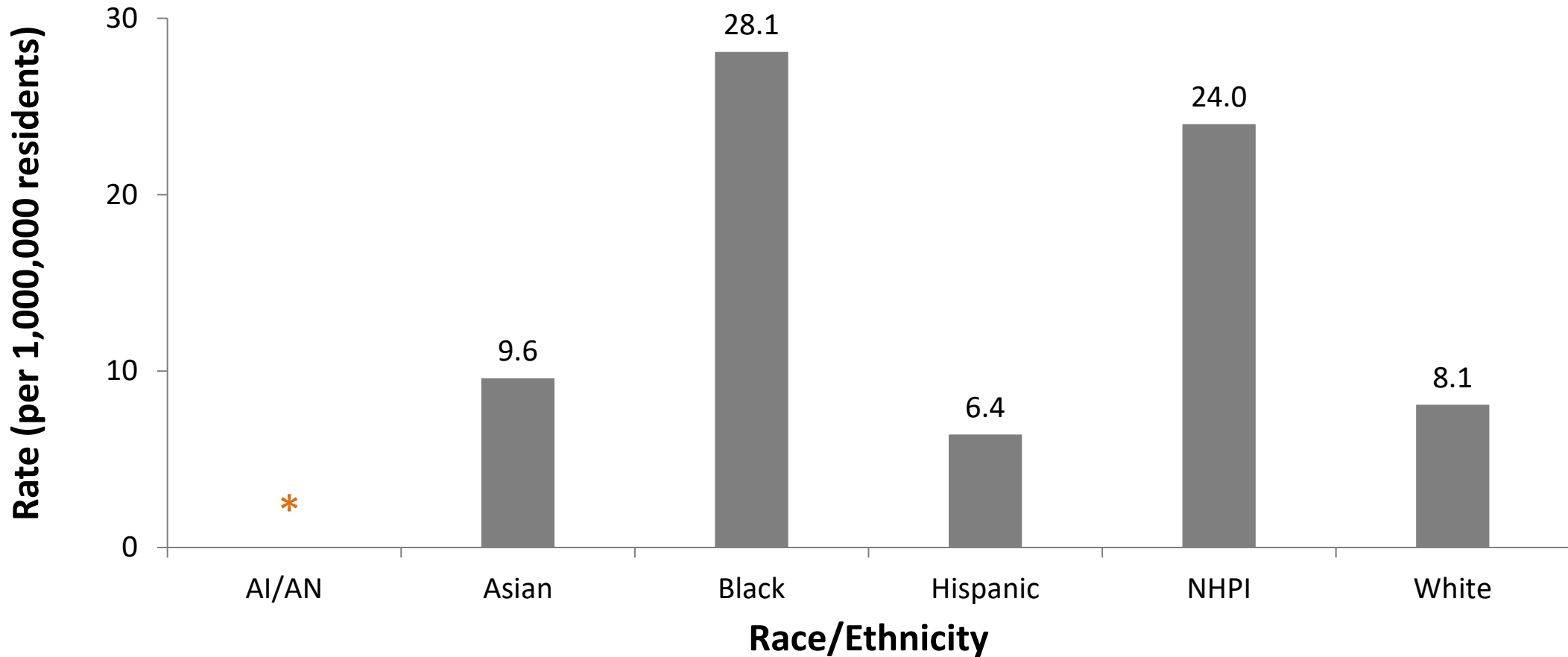
Asthma-related Deaths

Age-Adjusted Asthma Deaths per 1,000,000 Residents California and the U.S., 2000–2020



Data sources: CA data from CDPH Vital Records, 2000–2020

Age-Adjusted Asthma Deaths per 1,000,000 Residents by Race/Ethnicity, California, 2017–2020



Data sources: CA data from CDPH Vital Records, 2017–2020

Abbreviations: AI/AN = American Indian/Alaskan Native, NHPI = Native Hawaiian or Pacific Islander






* : Data are not available due to small sample size.






Asthma Inequities

Asthma Inequities and Social Determinants of Health

Social determinants of health are the conditions in which people live, work, and play.

What causes health inequities in asthma?

 Historical trauma	And poor access to:
 Income and poverty	
 Racism, classism, and discrimination in policies that disadvantage certain groups of people	
 Pollution in the environment that makes asthma symptoms worse	
 Language barriers	

 healthy and affordable housing	 quality health care
 quality food choices	 healthy schools and quality education
 Transportation	

Asthma Inequities in Tribal Members

1 in 4 Tribal members have asthma



Tribal members are more likely to suffer from severe asthma compared to White Californians:



50%

more likely to have asthma



10%

more likely to visit the emergency room



10%

more likely to be hospitalized

Severe asthma:

- Requires high-dose medication.
- Causes higher rates of emergency room visits, hospital stay, and death.
- Remains uncontrolled despite medication.
- Impacts daily activities, work or school, and quality of life.

Data sources: HCAI, 2020
CHIS, 2019–2020

Resources

Indian Health Services Strategic Initiative

- Announced on April 20, 2023
- Strategic Initiative to
 - Increase asthma awareness
 - Recognize and diagnose asthma
 - Support asthma control
 - Improve asthma-related outcomes
- Areas and Facilities are encouraged to
 - Incorporate CDC asthma-control strategies (EXHALE)
 - Implement National Asthma Management Guidelines



EXHALE Strategies

- E:** Education on asthma self-management
- X:** Extinguishing smoking and secondhand smoke
- H:** Home visits for trigger reduction and asthma self-management education
- A:** Achievement of guidelines-based medical management
- L:** Linkages and coordination of care across settings
- E:** Environmental policies or best practices to reduce asthma triggers from indoor, outdoor, and occupational sources



National Asthma Management Guidelines



- National Institutes of Health

National Heart, Lung, and Blood Institute

National Asthma Education and Prevention Program

Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma

Full Report 2007

2020 FOCUSED UPDATES TO THE Asthma Management Guidelines

A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group.

Asthma Care Quick Reference

DIAGNOSING AND MANAGING ASTHMA

Guidelines from the National Asthma Education and Prevention Program
EXPERT PANEL REPORT 3

The goal of this asthma care quick reference guide is to help clinicians provide quality care to people who have asthma.

Quality asthma care involves not only initial diagnosis and treatment to achieve asthma control, but also long-term, regular follow-up care to maintain control.

Asthma control focuses on two domains: (1) **reducing impairment**—the frequency and intensity of symptoms and functional limitations currently or recently experienced by a patient; and (2) **reducing risk**—the likelihood of future asthma attacks, progressive decline in lung function (or, for children, reduced lung growth), or medication side effects.

Achieving and maintaining asthma control requires providing appropriate medication, addressing environmental factors that cause worsening symptoms, helping patients learn self-management skills, and monitoring over the long term to assess control and adjust therapy accordingly.

The diagram (right) illustrates the steps involved in providing quality asthma care.

This guide summarizes recommendations developed by the National Asthma Education and Prevention Program expert panel after conducting a systematic review of the scientific literature on asthma care. See www.nhlbi.nih.gov/guidelines/asthma for the full report and references. Medications and dosages were updated in September 2017 for the purposes of this quick reference guide to reflect currently available asthma medications.

```

    graph TD
      A[INITIAL VISIT] --> B[Diagnose asthma]
      B --> C[Assess asthma severity]
      C --> D[Initiate medication & demonstrate use]
      D --> E[Develop written asthma action plan]
      E --> F[Schedule followup appointment]
      F --> G[FOLLOW-UP VISITS]
      G --> H[Assess & monitor asthma control]
      H --> I[Review medication technique & adherence; assess side effects; review environmental control]
      H --> J[Schedule next follow-up appointment]
      I --> K[Maintain, step up, or step down medication]
      J --> K
      K --> L[Review asthma action plan; revise as needed]
      L --> H
  
```

2020 FOCUSED UPDATES TO THE Asthma Management Guidelines

AT-A-GLANCE GUIDE

This At-A-Glance Guide describes a treatment management approach based on recommendations from the 2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group.¹ Step diagrams from the 2007 Expert Panel Report 3, Guidelines for the Diagnosis and Management of Asthma (EPR-3) were updated with the new recommendations. The diagrams are intended to help clinicians integrate the new recommendations into clinical care, and are meant to assist, and not replace, clinical judgment or decision-making for individual patient management, with input from individuals with asthma about their preferences.

AGES 0-4 YEARS: STEPWISE APPROACH FOR MANAGEMENT OF ASTHMA

Treatment	Management of Persistent Asthma in Individuals Ages 0-4 Years					
	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6
Preferred	PRN SABA and Add short course daily ICS ^a	Daily low-dose ICS and PRN SABA	Daily medium-dose ICS and PRN SABA	Daily high-dose ICS+LABA and PRN SABA	Daily high-dose ICS+LABA and PRN SABA	Daily high-dose ICS+LABA + oral systemic corticosteroid and PRN SABA
Alternative		Daily montelukast ^b or Cromolyn ^c and PRN SABA		Daily medium-dose ICS + montelukast ^b and PRN SABA	Daily high-dose ICS + montelukast ^b and PRN SABA	Daily high-dose ICS + montelukast ^b + oral systemic corticosteroid and PRN SABA

For children age 4 years only, use Step 3 and Step 4 as management of Persistent Asthma in Individuals Ages 0-4 Year Diagram.

Assess Control

- First check adherence, inhaler technique, environmental factors, 4 and comorbid conditions.
- Step up** if needed; reassess in 4-6 weeks.
- Step down** if possible (if asthma is well controlled for at least 3 consecutive months).

Consult with asthma specialist if Step 5 or higher is required. Consider consultation at Step 2.

Control assessment is a key element of asthma care. This involves both impairment and risk. Use of objective measures, self-reported control, and health care utilization are complementary and should be employed on an ongoing basis, depending on the individual's clinical situation.

Abbreviations: ICS, inhaled corticosteroid; LABA, long-acting beta₂-agonist; SABA, inhaled short-acting beta₂-agonist; RTI, respiratory tract infection; PRN, as needed.

^a Updated based on the 2020 guidelines.

^b Cromolyn and montelukast were not considered for this update and/or have limited availability for use in the United States. The FDA issued a boxed warning for montelukast in March 2020.

The full-length report, 2020 Focused Updates to the Asthma Management Guidelines: A Report from the National Asthma Education and Prevention Program Coordinating Committee Expert Panel Working Group, can be accessed at nhlbi.nih.gov/asthmaguidelines.

NHL Publication No. 20-141-8142
December 2020

Guidelines-Based Tools: Asthma Action Plan

- Medical provider fills out with patient
- Guide is like a stop light and is based on symptoms and peak flow meter readings

ASTHMA ACTION PLAN

For: _____ Doctor: _____ Date: _____
 Doctor's Phone Number: _____ Hospital/Emergency Department Phone Number: _____

	DOING WELL	Daily Medications	How much to take	When to take it															
GREEN ZONE	<ul style="list-style-type: none"> No cough, wheeze, chest tightness, or shortness of breath during the day or night Can do usual activities <p>And, if a peak flow meter is used, Peak flow: more than _____ (80 percent or more of my best peak flow) My best peak flow is: _____</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Medicine</th> <th>How much to take</th> <th>When to take it</th> </tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table>	Medicine	How much to take	When to take it														
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	<p>DANGER SIGNS</p> <ul style="list-style-type: none"> Trouble walking and talking due to shortness of breath Lips or fingernails are blue 	➔		<ul style="list-style-type: none"> Take _____ puffs of _____ (quick relief medicine) AND Go to the hospital or call for an ambulance _____ (phone) NOW! 															



Guidelines-Based Tools: Asthma Control Test

For children 4-11 years

Childhood Asthma Control Test for children 4 to 11 years old.
Know the score.

This test will provide a score that may help your doctor determine if your child's asthma treatment plan is working or if it might be time for a change.

How to take the Childhood Asthma Control Test

Step 1: Let your child respond to the **first four questions (1 to 4)**. If your child needs help reading or understanding the question, you may help, but let your child select the response. Complete the remaining **three questions (5 to 7)** on your own and without letting your child's response influence your answers. There are no right or wrong answers.

Step 2: Write the number of each answer in the score box provided.

Step 3: Add up each score box for the total.

Step 4: Take the test to the doctor to talk about your child's total score.

19 If your child's score is 19 or less, it may be a sign that your child's asthma is not controlled as well as it could be. No matter what the score, bring the test to your doctor to talk about your child's results.

Have your child complete these questions.

1. How is your asthma today?

1	2	3	4	Score: <input type="text"/>
---	---	---	---	-----------------------------

2. How much of a problem is your asthma when you run, exercise or play sports?

1	2	3	Score: <input type="text"/>
---	---	---	-----------------------------

3. Do you cough because of your asthma?

1	2	3	4	Score: <input type="text"/>
---	---	---	---	-----------------------------

4. Do you wake up during the night because of your asthma?

1	2	3	4	Score: <input type="text"/>
---	---	---	---	-----------------------------

Please complete the following questions on your own.

5. During the **last 4 weeks**, on average, how many **days per month** did your child have any daytime asthma symptoms?

1	2	3	4	5	6	Score: <input type="text"/>
---	---	---	---	---	---	-----------------------------

6. During the **last 4 weeks**, on average, how many **days per month** did your child wheeze during the day because of asthma?

1	2	3	4	5	6	Score: <input type="text"/>
---	---	---	---	---	---	-----------------------------

7. During the **last 4 weeks**, on average, how many **days per month** did your child wake up during the night because of asthma?

1	2	3	4	5	6	Score: <input type="text"/>
---	---	---	---	---	---	-----------------------------

Please turn this page over to see what your child's total score means.

For ages 12 years and older

Patient's Name: _____ Today's Date: _____

Asthma Control Test™ (ACT) is:

- A quick test that provides a numerical score to assess asthma control.
- Recognized by the National Institutes of Health (NIH) in its 2007 asthma guidelines.¹
- Clinically validated against spirometry and specialist assessment.²

PATIENTS:

- Answer each question and write the answer number in the box to the right of each question.
- Add your answers and write your total score in the TOTAL box shown below.
- Discuss your results with your doctor.

1. In the past **4 weeks**, how much of the time did your **asthma** keep you from getting as much done at work, school or at home?

All of the time	1	Most of the time	2	Some of the time	3	A little of the time	4	None of the time	5	SCORE: <input type="text"/>
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2. During the past **4 weeks**, how often have you had shortness of breath?

More than once a day	1	Once a day	2	3 to 6 times a week	3	Once or twice a week	4	Not at all	5	SCORE: <input type="text"/>
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3. During the past **4 weeks**, how often did your **asthma** symptoms (wheezing, coughing, shortness of breath, chest tightness or pain) wake you up at night or earlier than usual in the morning?

4 or more nights a week	1	2 or 3 nights a week	2	Once a week	3	Once or twice	4	Not at all	5	SCORE: <input type="text"/>
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4. During the past **4 weeks**, how often have you used your rescue inhaler or nebulizer medication (such as albuterol)?

3 or more times per day	1	1 or 2 times per day	2	2 or 3 times per week	3	Once a week or less	4	Not at all	5	SCORE: <input type="text"/>
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5. How would you rate your **asthma** control during the **past 4 weeks**?

Not controlled at all	1	Poorly controlled	2	Somewhat controlled	3	Well controlled	4	Completely controlled	5	SCORE: <input type="text"/>
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TOTAL

If your score is 19 or less, your asthma may not be under control.

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 Asthma Control Test is a trademark of QualityMetric Incorporated.
 The Asthma Control Test is for people with asthma 12 years and older.

HEALTHCARE PROVIDER:

- Include the ACT score in your patient's chart to track asthma control.

References: 1. US Department of Health and Human Services, National Institutes of Health, National Heart, Lung and Blood Institute. *Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma* (EPR-3 2007). NIH Item No. 08-4051. <http://www.nhlbi.nih.gov/guidelines/asthma/asthma3.htm>. Accessed September 10, 2007. 2. Nathan RA et al. *J Allergy Clin Immunol* 2004;113:59-66.

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Guidelines-Based Tools: Rules of Two

IS YOUR ASTHMA UNDER CONTROL?

Find out by answering the Rules of TWO[®]

DO YOU...

- Take your quick-relief inhaler more than **TWO TIMES A WEEK?**
- Wake up due to asthma symptoms more than **TWO TIMES A MONTH?**
- Refill your quick-relief inhaler more than **TWO TIMES A YEAR?**

If you answered “yes” to any of these questions, your asthma is not under control. Talk to your health care provider about your asthma.

Rules of Two is a registered trademark of Baylor Health Care System



California Breathing Support for Tribal Organizations

Asthma Management Academy (AsMA)



Community Health Representatives (CHRs) receive training on:

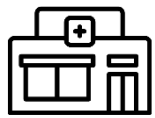
- How to deliver asthma self-management education
- How to conduct an in-home trigger assessment
- Best practices for asthma home visiting



AsMA Partner Organizations and Participants



Since 2018, the AsMA has trained over **600** CHWs and other health educators from over **88** organizations including:



Federally Qualified Health Centers



Community-Based Organizations



Managed Care Plans



Local Health Departments



Hospitals

Tribal Partner Organizations



SONOMA COUNTY
INDIAN HEALTH PROJECT



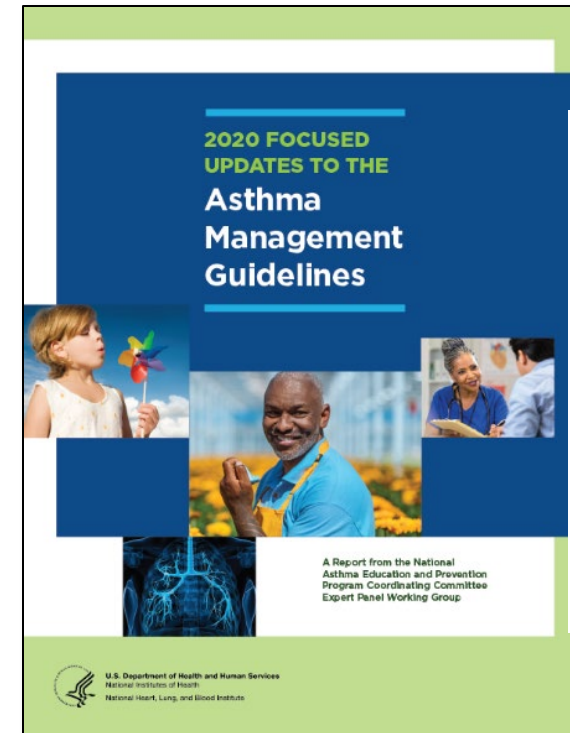
CHRs, CHWs, and patients all benefit from the AsMA



- CHRs, CHWs, and other health educators **increased** their asthma knowledge and skills
- Patients seen by AsMA-trained CHWs had:
 - **reduced** emergency department visits and hospitalizations
 - **fewer** missed work or school days
 - had **improved** asthma control

Trainings for Other Health Providers

- Tailored trainings for nurses, medical students, and respiratory therapists
 - Review National Asthma Guidelines
 - Spirometry
 - Evidence of Asthma Self-Management Education
 - In-home Trigger Assessments



Technical Assistance



- Assist organizations in developing asthma programs and implementing guidelines-based asthma care
 - Integrate evidence-based tools
 - Develop educational resources
 - Create evaluation tools
 - Develop quality improvement projects

Questions?

Contact Information

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