The Burden of Asthma in California and Tribal Communities

Leonie Avendano
Natalie Sacramento
California Breathing
July 11, 2023

California Department of PublicHealth

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 Department of PublicHealth

California Breathing Asthma Surveillance

Data sources:

Asthma indicators:

- **Prevalence**
- **Missed work and school days**
- **Management practices**

- **Emergency Department Visits**
- **Hospital Discharges**

- **Deaths**

California Department of PublicHealth

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)

Data sources: Census 2020

Asthma Prevalence

California Department of PublicHealth

Asthma Prevalence: percentage of people who have asthma

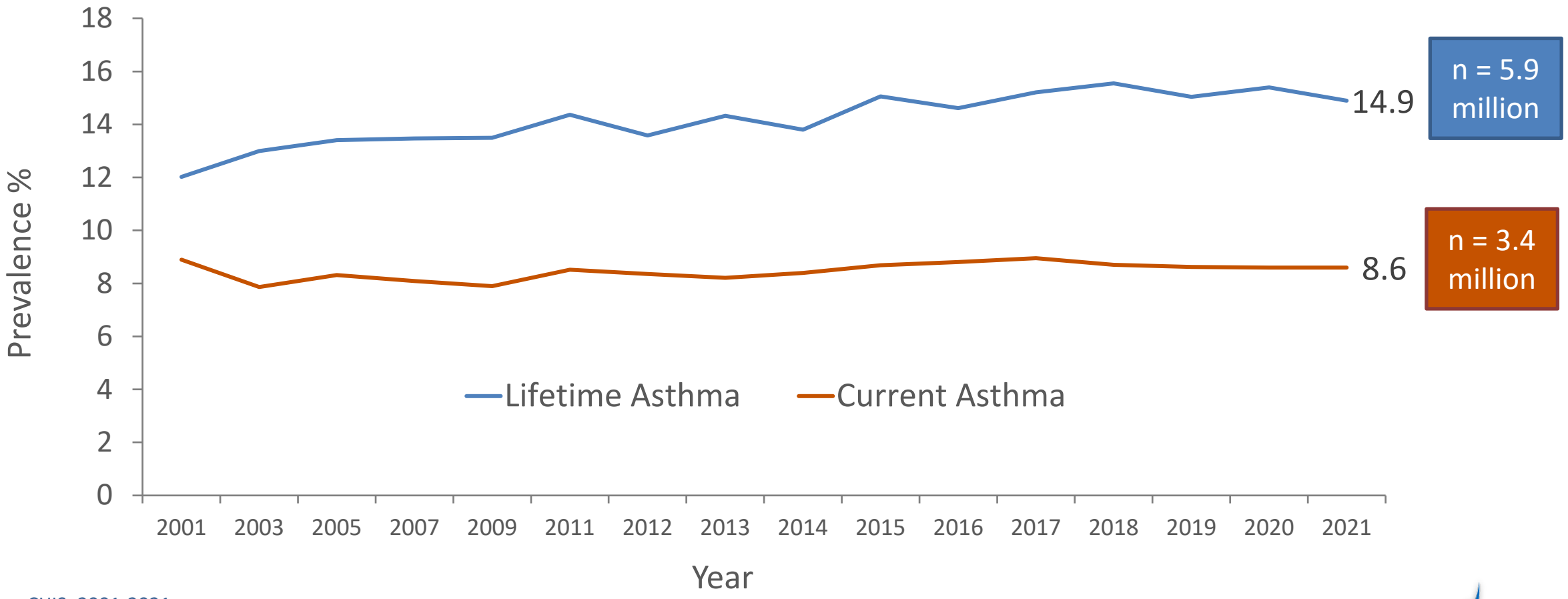
Lifetime

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

Current

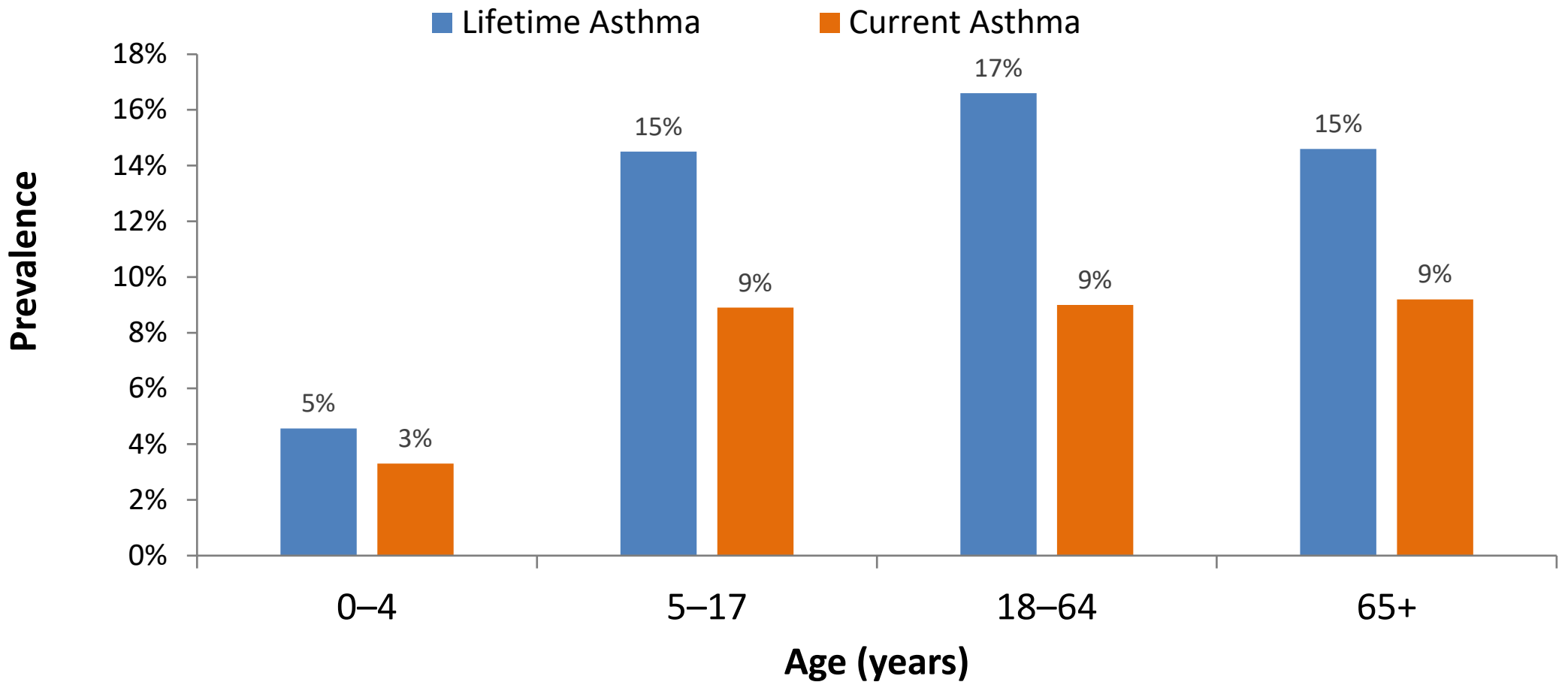
People that have been diagnosed with asthma and report still having asthma or having had asthma symptoms during the previous 12 months

Lifetime and Current Asthma Prevalence (2001–2021)



Data source: CHIS, 2001-2021

Lifetime and Current Asthma Prevalence by Age

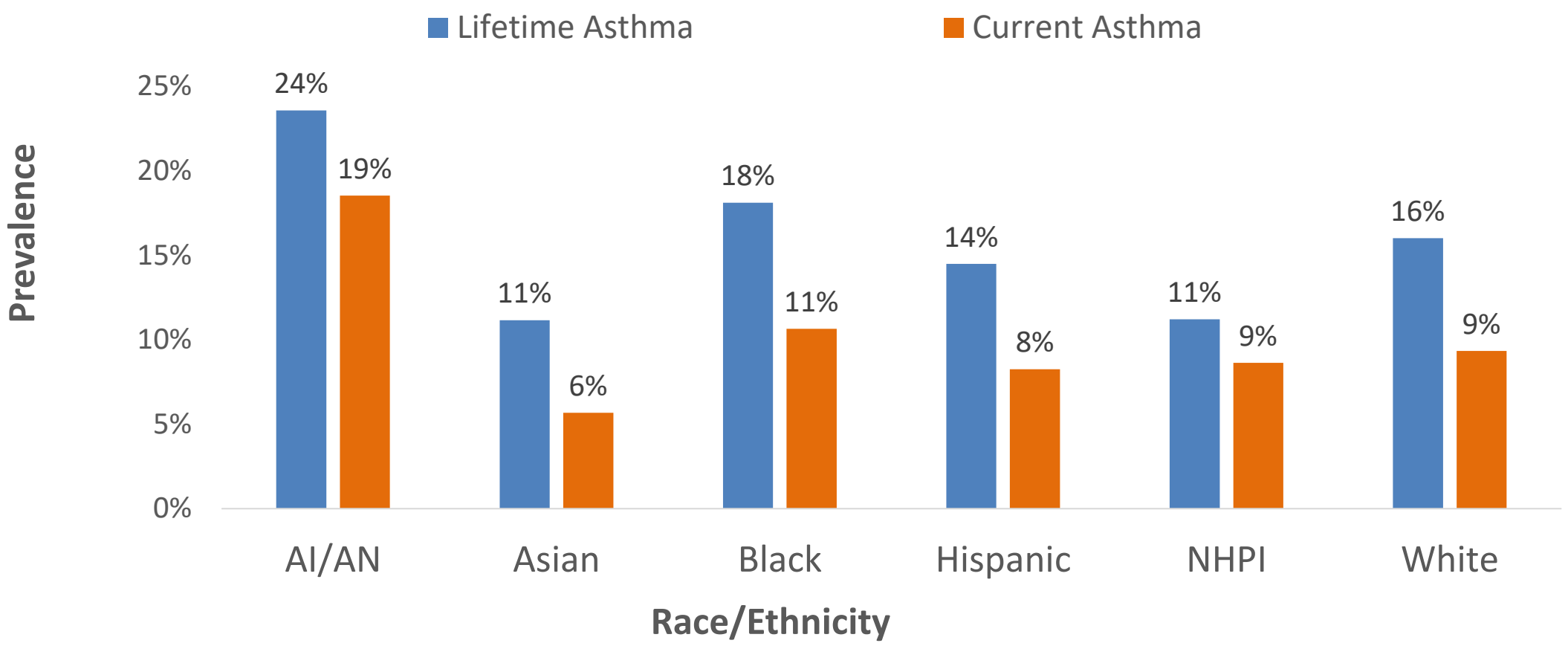


Data source: CHIS, 2019-2020

California Department of PublicHealth

Lifetime and Current Asthma Prevalence by Race/Ethnicity

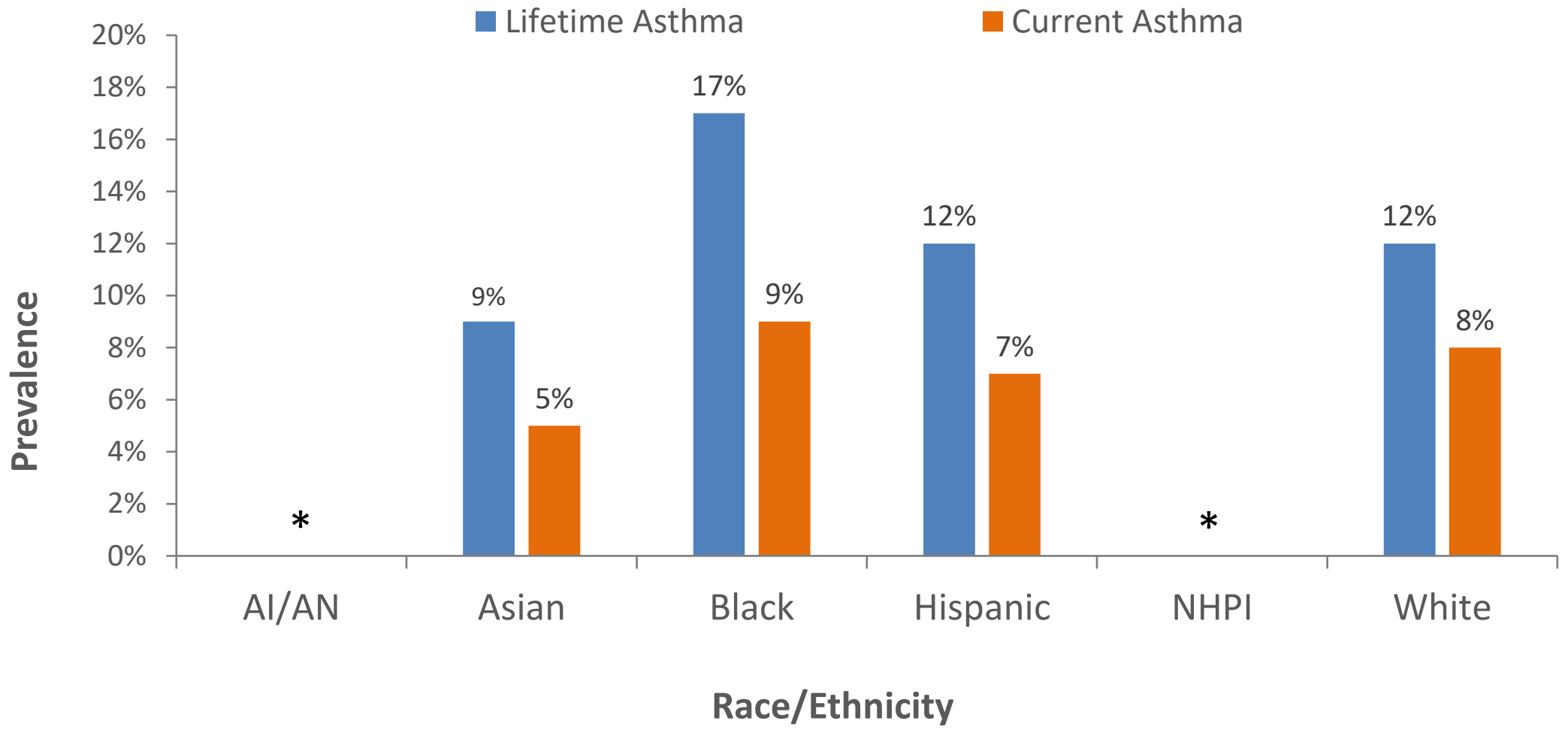
All ages



Data source: CHIS, 2019–2020

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

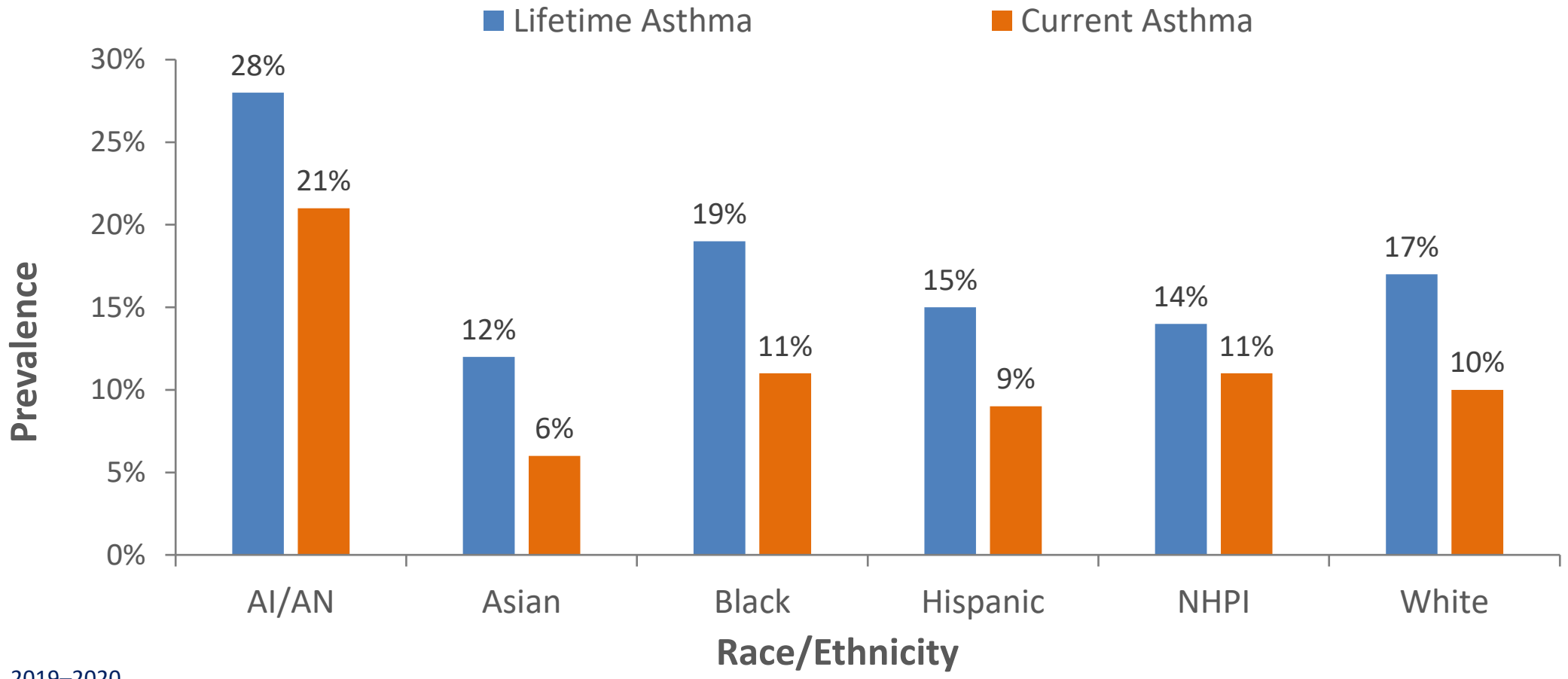
Lifetime and Current Asthma Prevalence by Race/Ethnicity
Children (0-17 years)



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.

California Department of PublicHealth

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

California Department of PublicHealth

Work and School Days Missed Due to Asthma

California Department of PublicHealth

Workdays Missed Due to Asthma

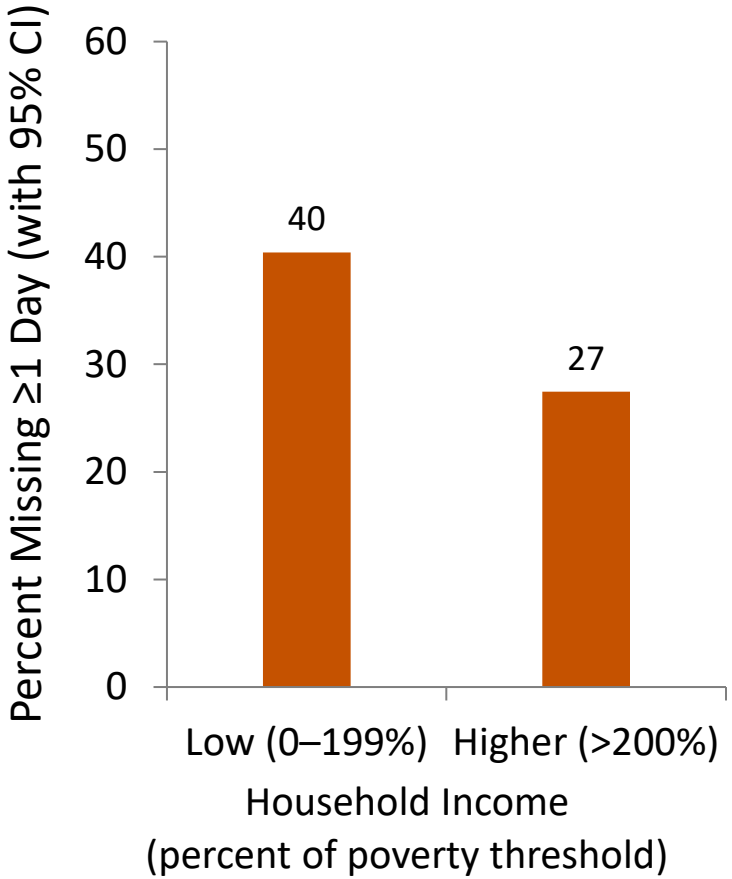
- 11.6% (n=280,000) unable to work in past year
- Average of 1.2 days missed/person/year
- Total of 2.9 million days missed
- No association between missing work and household income level

Data source: CHIS, 2017–2018

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



Data source: CHIS, 2018–2019

California Department of PublicHealth

Asthma Management Practices

California Department of PublicHealth

Use of Daily Controller Medication by Age

Among those with current asthma

- 50.4% of children
- 44.7% of adults

take daily controller medication

Data source: CHIS, 2018–2019

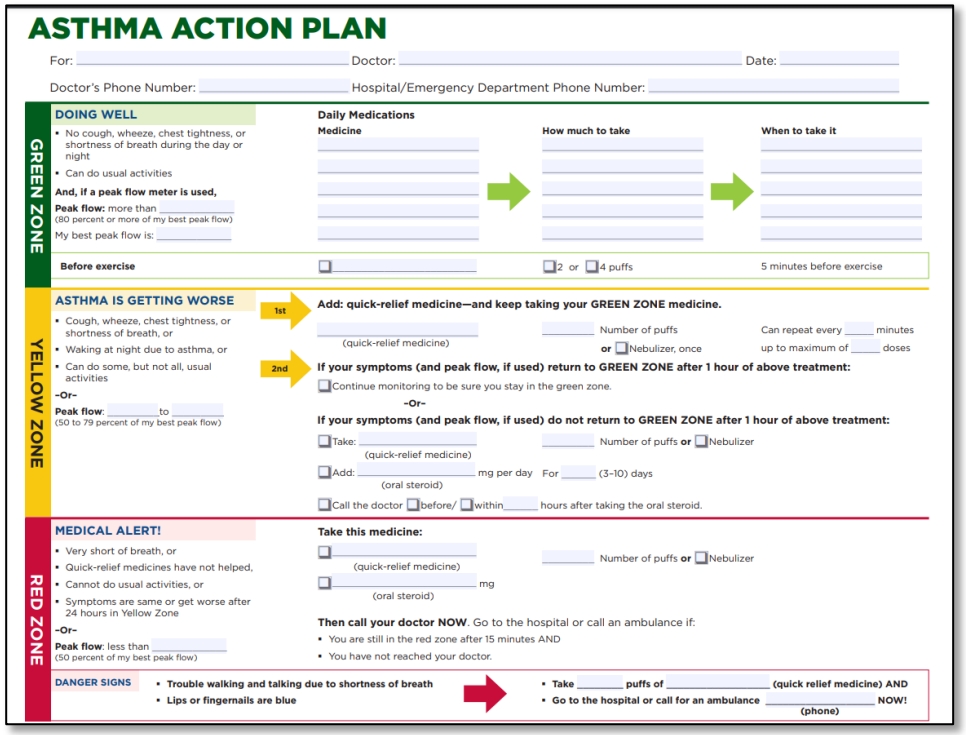
California Department of PublicHealth

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

- No cough, wheeze, chest tightness, or shortness of breath during the day or night
- Can do usual activities

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: _____

Daily Medications

Medicine | How much to take | When to take it

Before exercise | ☐ _____ | ☐2 or ☐4 puffs | 5 minutes before exercise

YELLOW ZONE

ASTHMA IS GETTING WORSE

- Cough, wheeze, chest tightness, or shortness of breath, or
- Waking at night due to asthma, or
- Can do some, but not all, usual activities

-Or-

Peak flow: _____ to _____ (50 to 79 percent of my best peak flow)

1st: Add: quick-relief medicine—and keep taking your GREEN ZONE medicine.

_____ (quick-relief medicine) _____ Number of puffs or ☐Nebulizer, once. Can repeat every _____ minutes up to maximum of _____ doses

2nd: If your symptoms (and peak flow, if used) return to GREEN ZONE after 1 hour of above treatment:

☐Continue monitoring to be sure you stay in the green zone.

-Or-

If your symptoms (and peak flow, if used) do not return to GREEN ZONE after 1 hour of above treatment:

☐Take: _____ (quick-relief medicine) _____ Number of puffs or ☐Nebulizer

☐Add: _____ (oral steroid) mg per day For _____ (3–10) days

☐Call the doctor ☐before/ ☐within_____ hours after taking the oral steroid.

RED ZONE

MEDICAL ALERT!

- Very short of breath, or
- Quick-relief medicines have not helped,
- Cannot do usual activities, or
- Symptoms are same or get worse after 24 hours in Yellow Zone

-Or-

Peak flow: less than _____ (50 percent of my best peak flow)

Take this medicine:

☐_____ (quick-relief medicine) _____ Number of puffs or ☐Nebulizer

☐_____ (oral steroid) mg

Then call your doctor NOW. Go to the hospital or call an ambulance if:

- You are still in the red zone after 15 minutes AND
- You have not reached your doctor.

DANGER SIGNS

- Trouble walking and talking due to shortness of breath
- Lips or fingernails are blue

- Take _____ puffs of _____ (quick relief medicine) AND
- Go to the hospital or call for an ambulance _____ (phone) NOW!

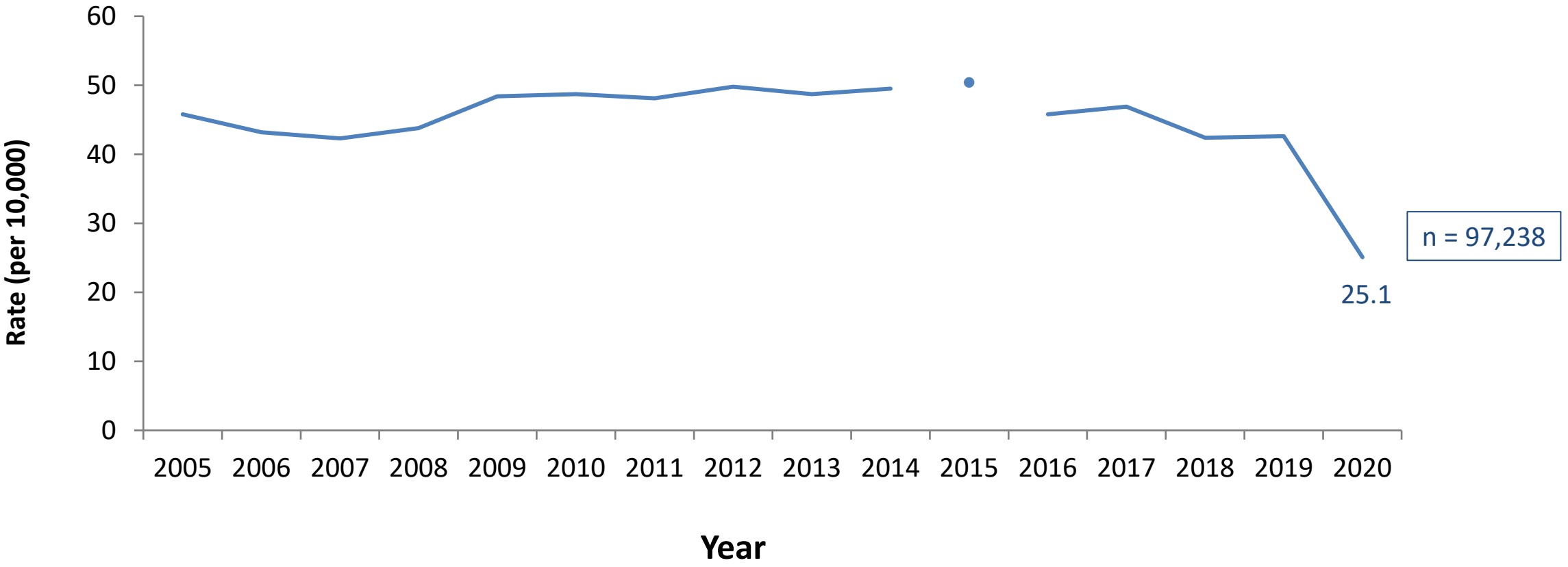
Data source: CHIS, 2018–2019

California Department of PublicHealth

Asthma-related Emergency Department (ED) Visits

California Department of PublicHealth

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

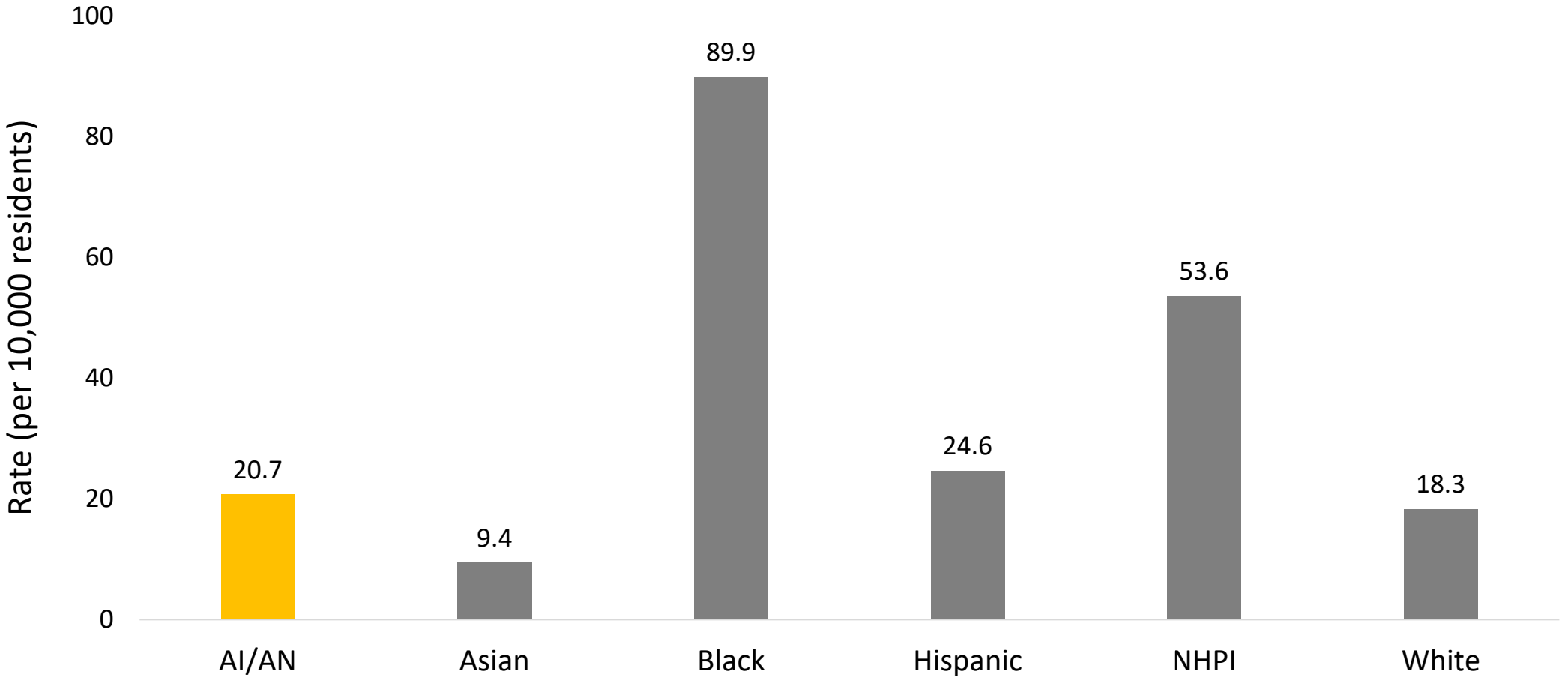


Data sources: CA data from the Office of Statewide Health Planning and Development (OSHPD), 2005–2020

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.

California Department of PublicHealth

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

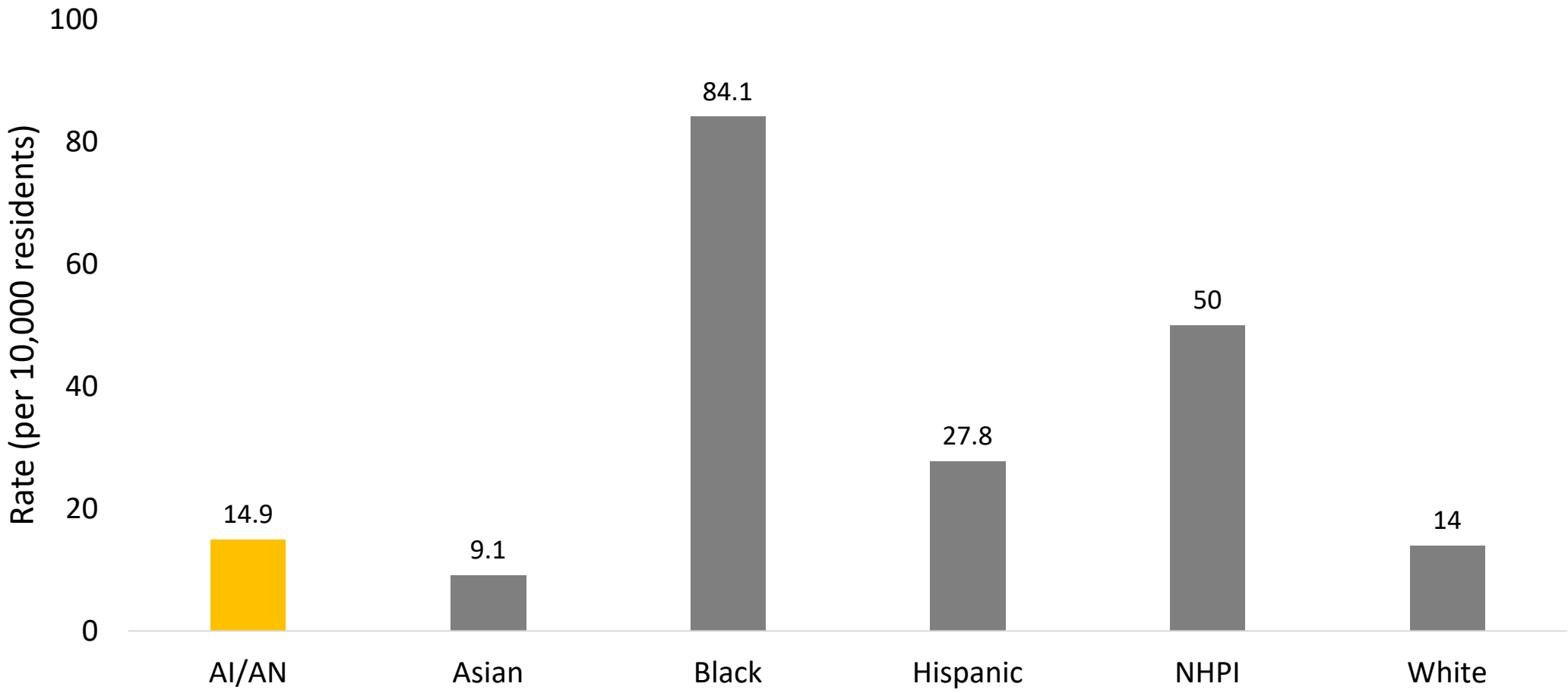


Data sources: Department of Health Care Access and Information (HCAI), 2020

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

California Department of PublicHealth

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

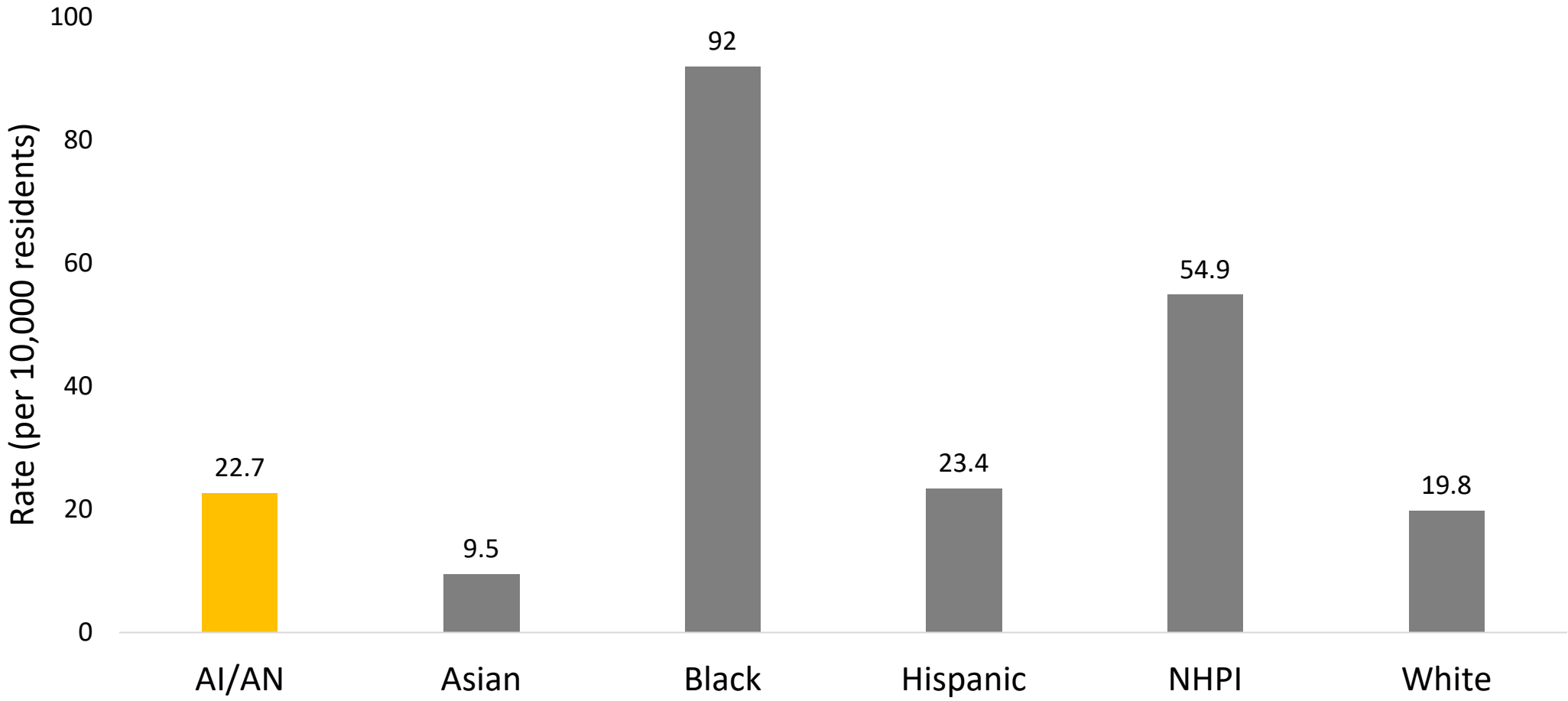


Data sources: Department of Health Care Access and Information (HCAI), 2020

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

California Department of PublicHealth

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

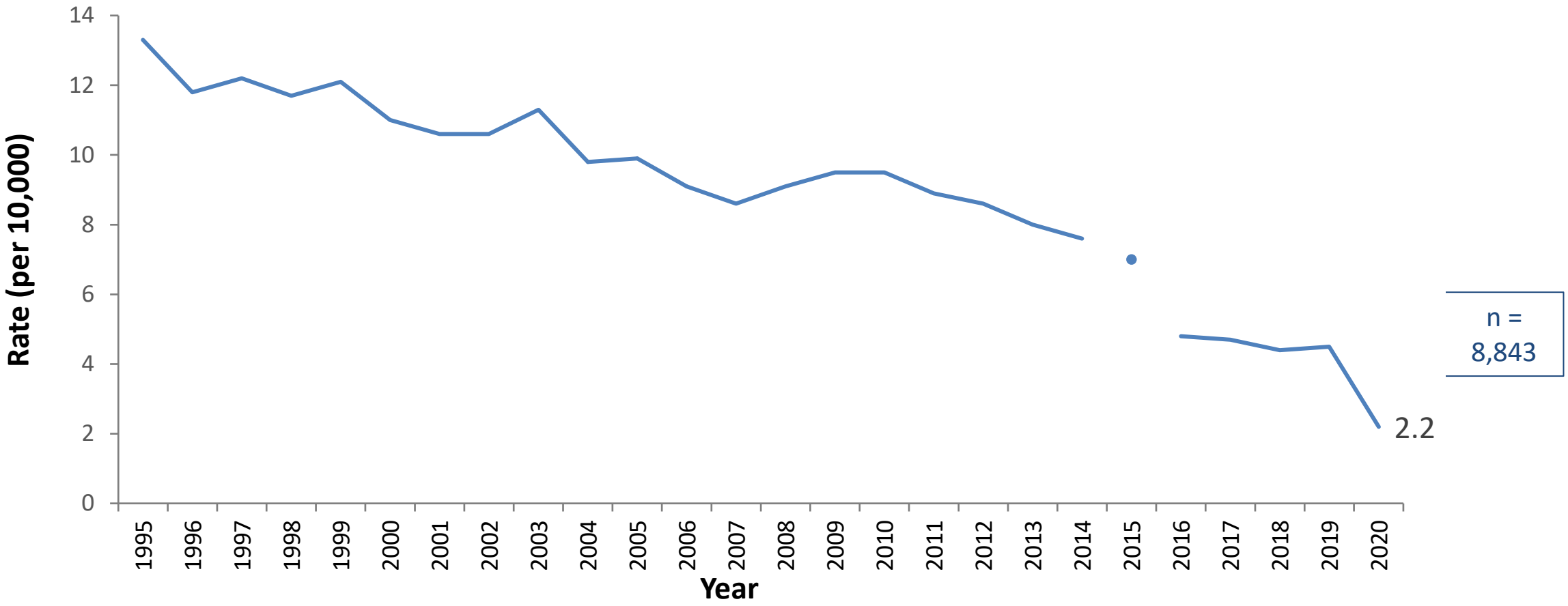
Abbreviations: AI/AN = American Indian/Alaskan Native, NHPI = Native Hawaiian or Pacific Islander

California Department of PublicHealth

Asthma-related Hospitalizations

California Department of PublicHealth

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

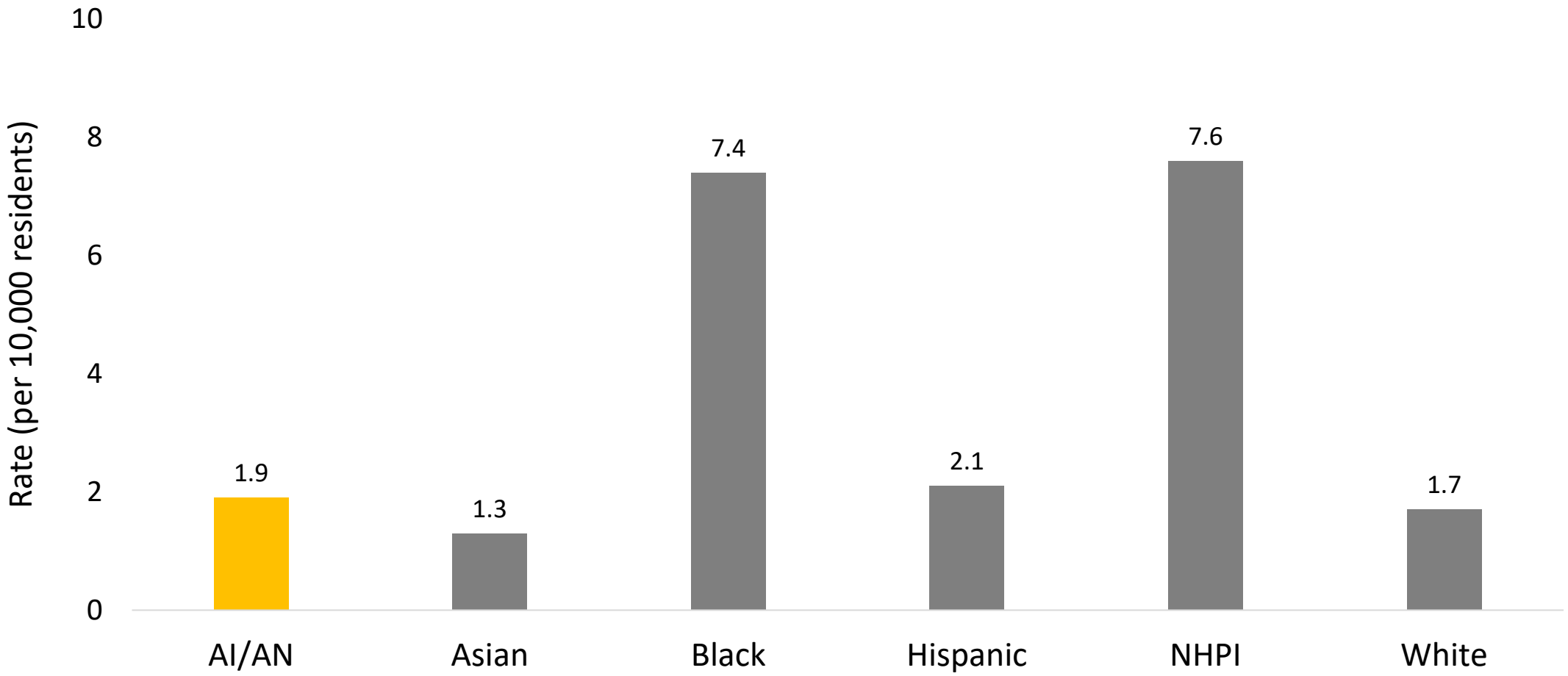


Data sources: Department of Health Care Access and Information (HCAI), 2005–2020

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.

California Department of PublicHealth

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

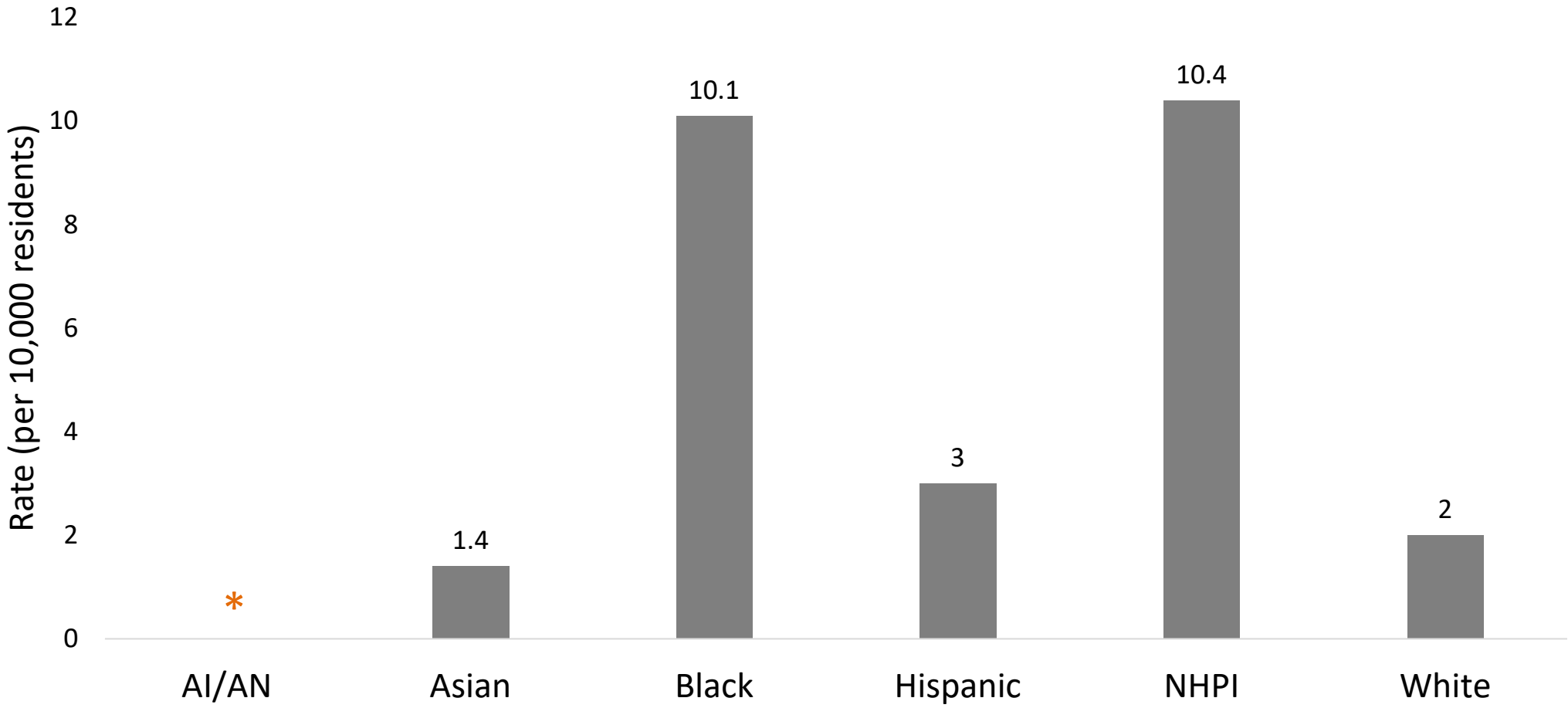


Data sources: Department of Health Care Access and Information (HCAI), 2020

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

California Department of PublicHealth

Age-Adjusted Asthma Hospitalizations per 10,000 Residents by Race/Ethnicity, California, 2020
Children (0-17 years)



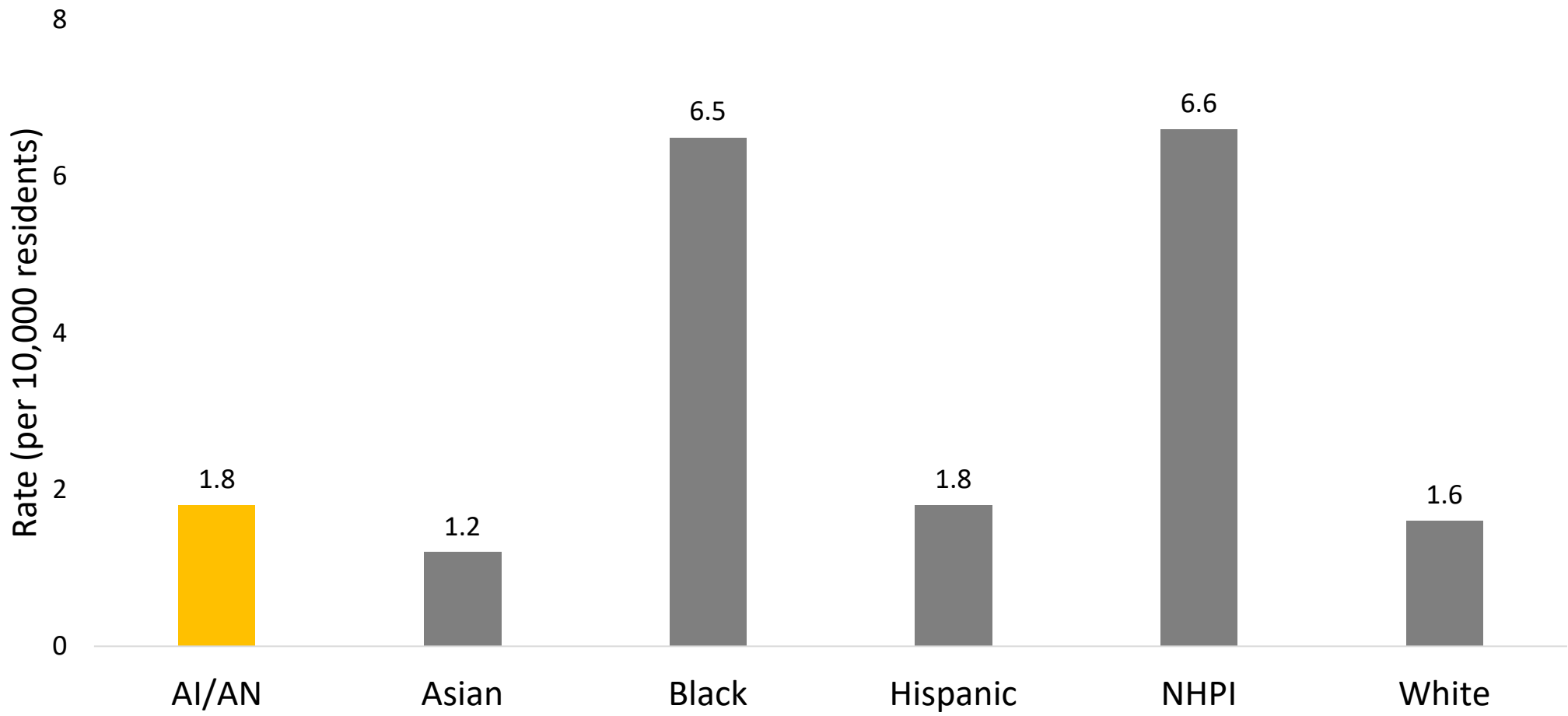
Data sources: Department of Health Care Access and Information (HCAI), 2020

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

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

California Department of PublicHealth

Age-Adjusted Asthma Hospitalizations per 10,000 Residents by Race/Ethnicity, California, 2020
Adults (18+ years)



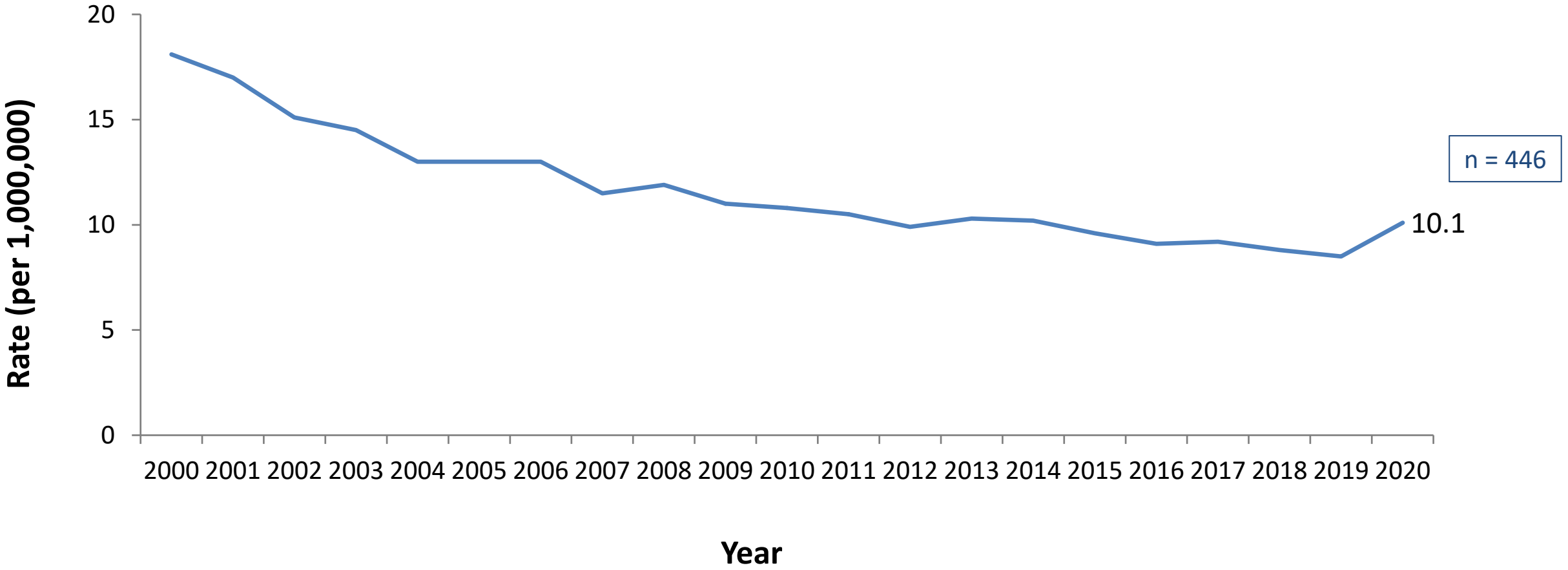
Data sources: Department of Health Care Access and Information (HCAI), 2020

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

California Department of PublicHealth

Asthma-related Deaths

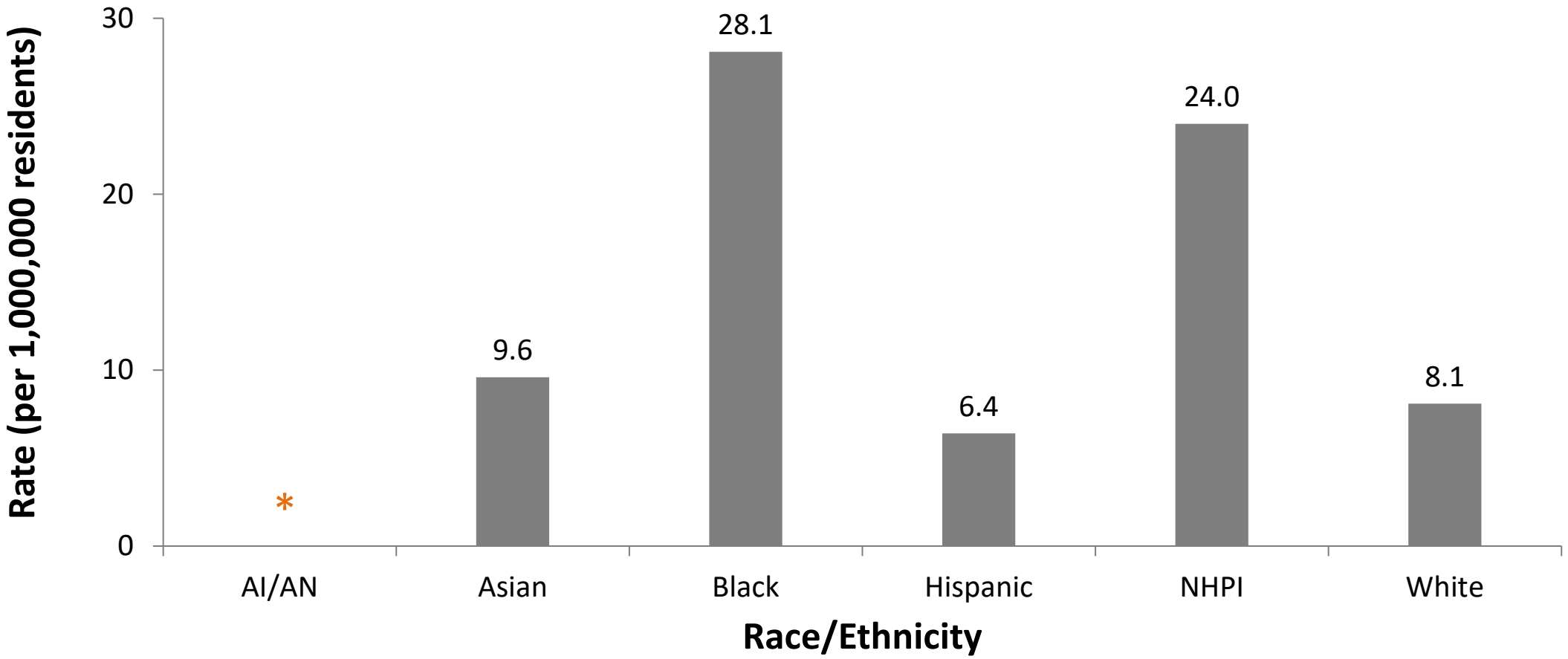
Age-Adjusted Asthma Deaths per 1,000,000 Residents California and the U.S., 2000–2020



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

California Department of PublicHealth

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.

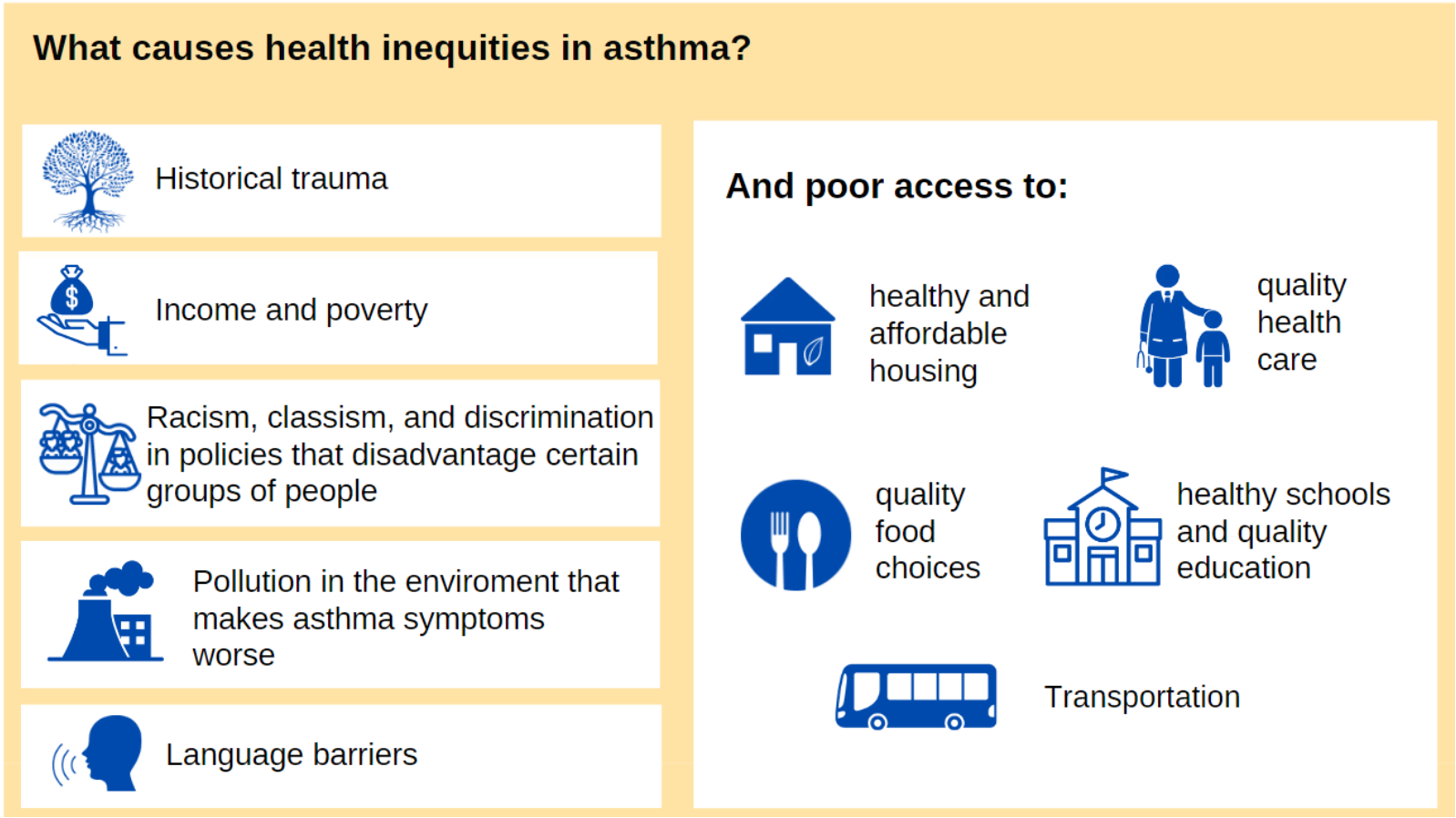
California Department of PublicHealth

Asthma Inequities

California Department of PublicHealth

Asthma Inequities and Social Determinants of Health

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



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

California Department of PublicHealth

Resources

California Department of PublicHealth

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

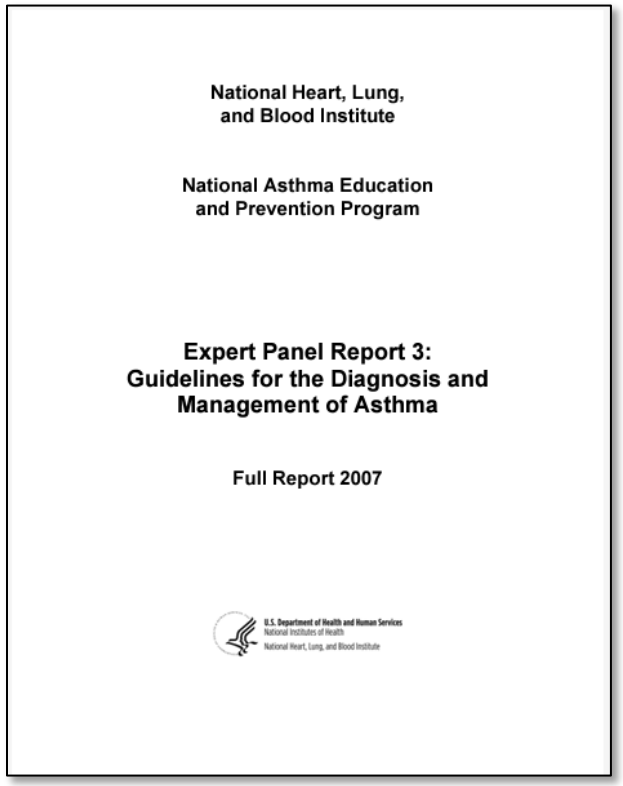
A: Achievement of guidelines-based medical management

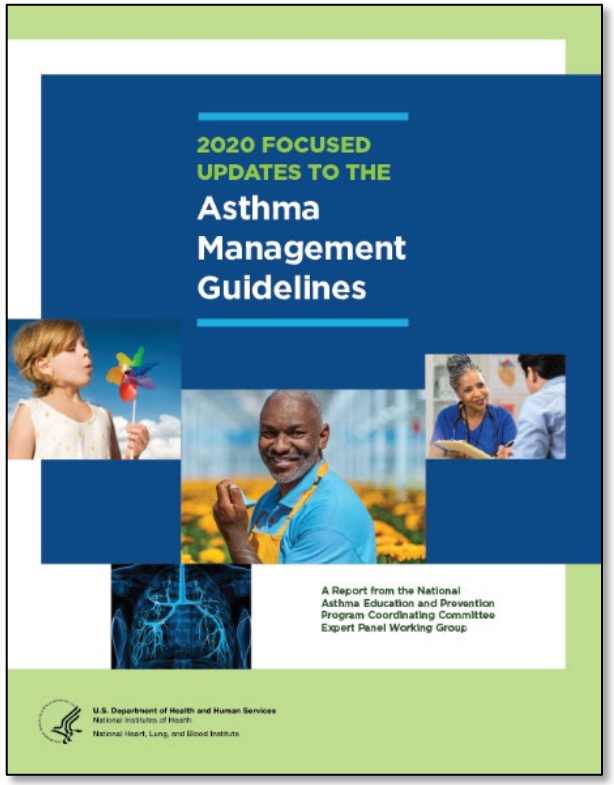
L: Linkages and coordination of care across settings

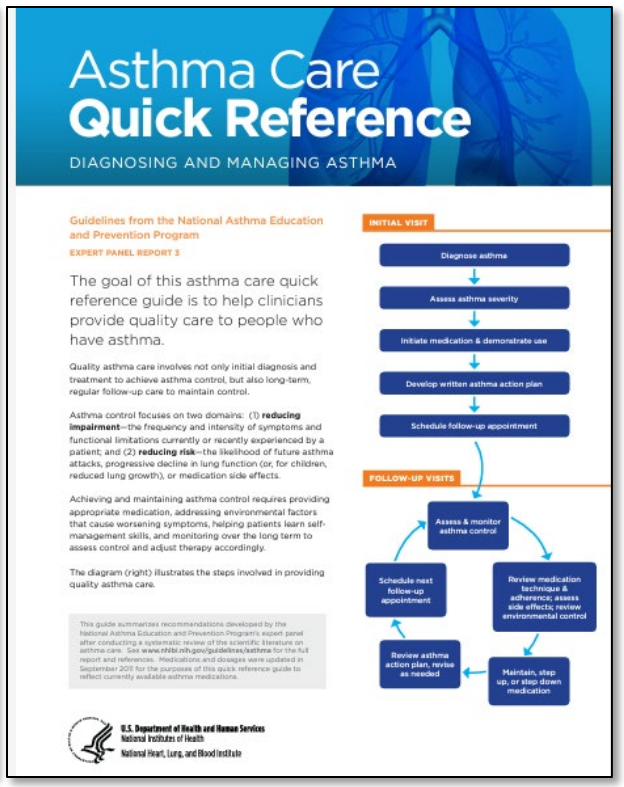
E: Environmental policies or best practices to reduce asthma triggers from indoor, outdoor, and occupational sources

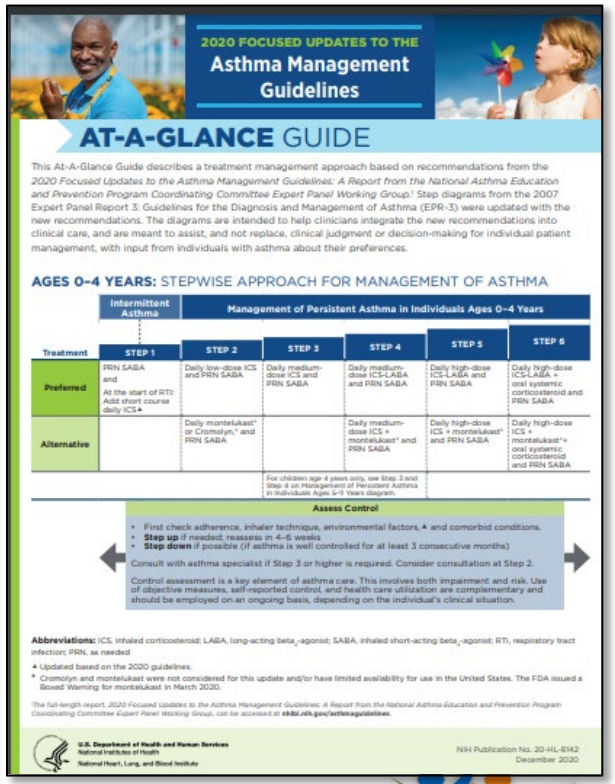
National Asthma Management Guidelines

- National Institutes of Health





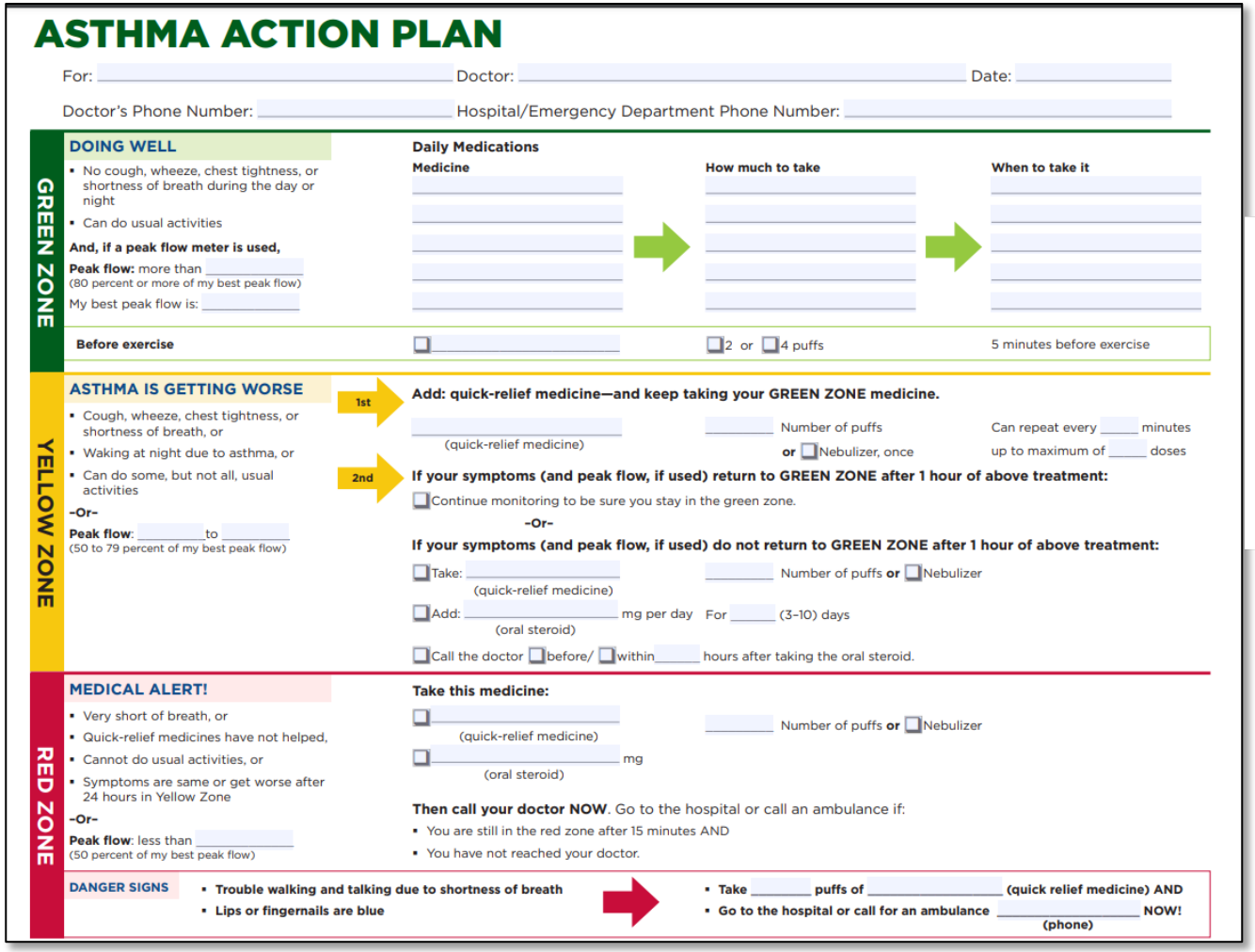




California Department of PublicHealth

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: _____

GREEN ZONE

DOING WELL

- No cough, wheeze, chest tightness, or shortness of breath during the day or night
- Can do usual activities

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: _____

Daily Medications

Medicine	How much to take	When to take it

Before exercise	☐ _____	☐2 or ☐4 puffs	5 minutes before exercise

YELLOW ZONE

ASTHMA IS GETTING WORSE

- Cough, wheeze, chest tightness, or shortness of breath, or
- Waking at night due to asthma, or
- Can do some, but not all, usual activities

–Or–

Peak flow: _____ to _____
(50 to 79 percent of my best peak flow)

1st **Add: quick-relief medicine—and keep taking your GREEN ZONE medicine.**

_____ (quick-relief medicine) _____ Number of puffs **or** ☐Nebulizer, once — Can repeat every _____ minutes up to maximum of _____ doses

2nd **If your symptoms (and peak flow, if used) return to GREEN ZONE after 1 hour of above treatment:**

☐Continue monitoring to be sure you stay in the green zone.

–Or–

If your symptoms (and peak flow, if used) do not return to GREEN ZONE after 1 hour of above treatment:

☐Take: _____ (quick-relief medicine) _____ Number of puffs **or** ☐Nebulizer

☐Add: _____ mg per day (oral steroid) For _____ (3–10) days

☐Call the doctor ☐before/ ☐within _____ hours after taking the oral steroid.

RED ZONE

MEDICAL ALERT!

- Very short of breath, or
- Quick-relief medicines have not helped,
- Cannot do usual activities, or
- Symptoms are same or get worse after 24 hours in Yellow Zone

–Or–

Peak flow: less than _____
(50 percent of my best peak flow)

Take this medicine:

☐ _____ (quick-relief medicine) _____ Number of puffs **or** ☐Nebulizer

☐ _____ mg (oral steroid)

Then call your doctor NOW. Go to the hospital or call an ambulance if:

- You are still in the red zone after 15 minutes AND
- You have not reached your doctor.

DANGER SIGNS

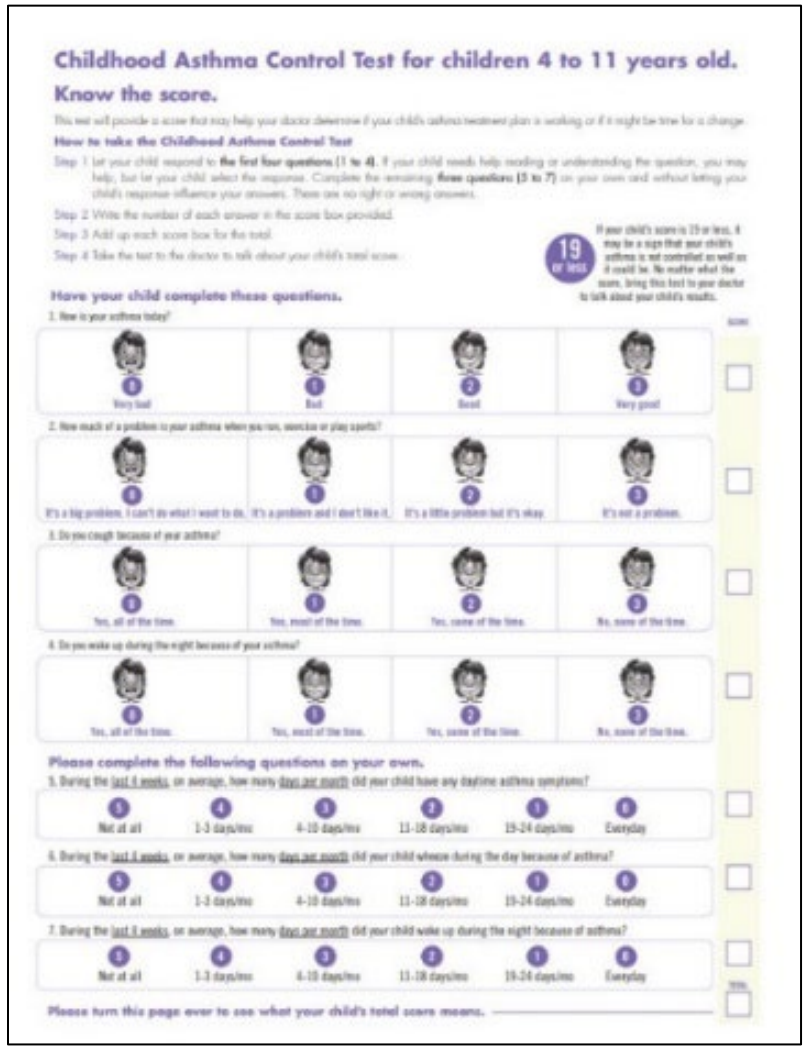
- **Trouble walking and talking due to shortness of breath**
- **Lips or fingernails are blue**

→

- **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.

How to take the Childhood Asthma Control Test

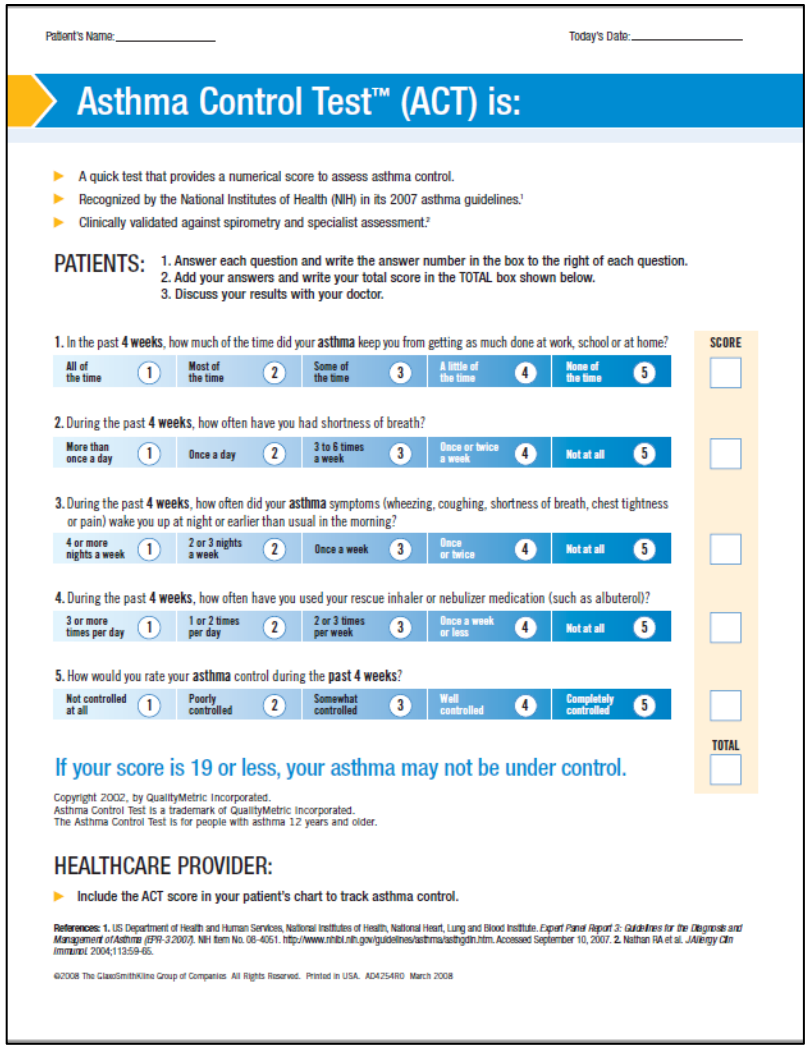
19 or less

Have your child complete these questions.

Please complete the following questions on your own.

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

					SCORE
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	
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	
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	
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	
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	
					TOTAL	

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

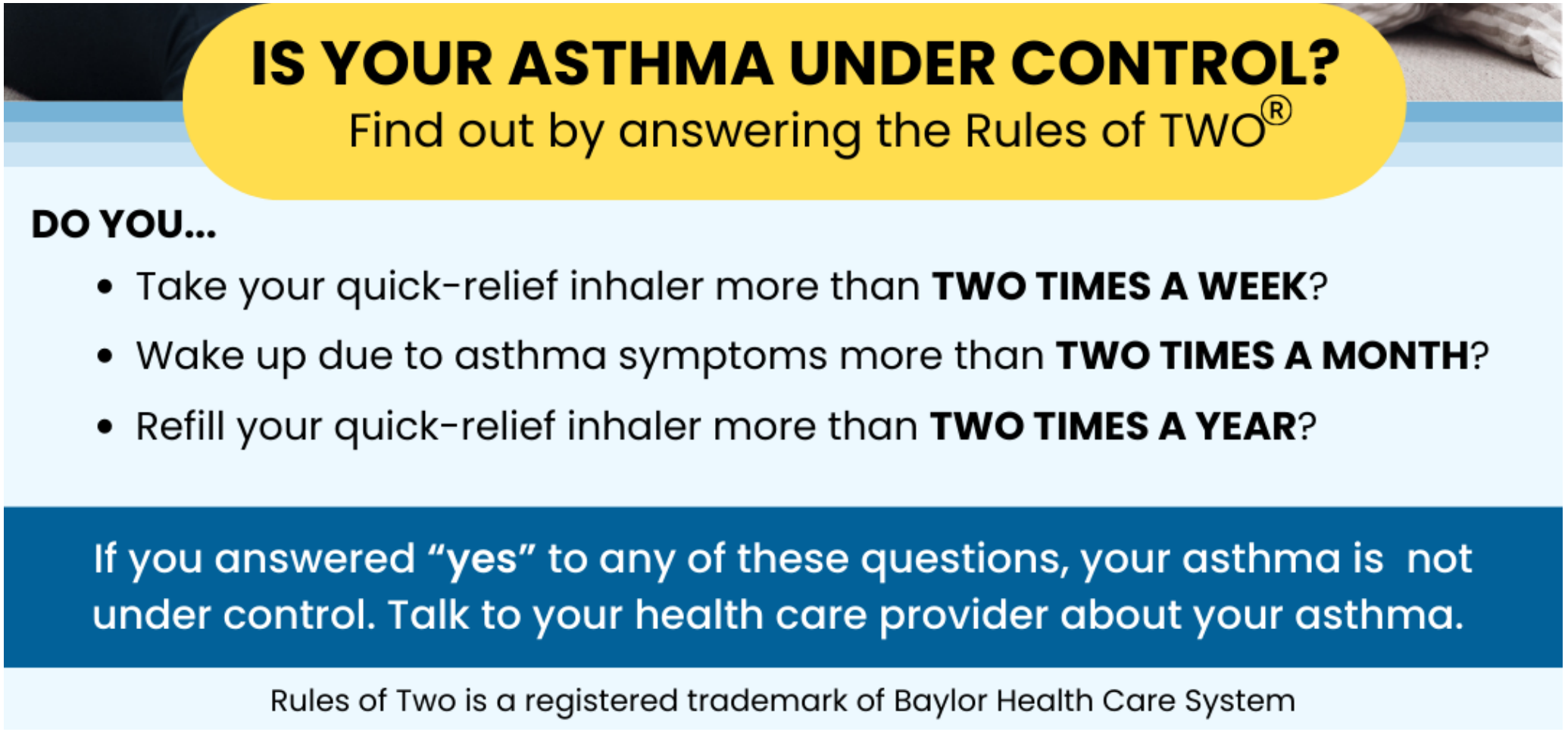
The Asthma Control Test is for people with asthma 12 years and older.

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/asthgdln.htm. Accessed September 10, 2007. 2. Nathan RA et al. *JAllergy Clin Immunol.* 2004;113:59-65.

Guidelines-Based Tools: Rules of Two



California Breathing Support for Tribal Organizations

California Department of PublicHealth

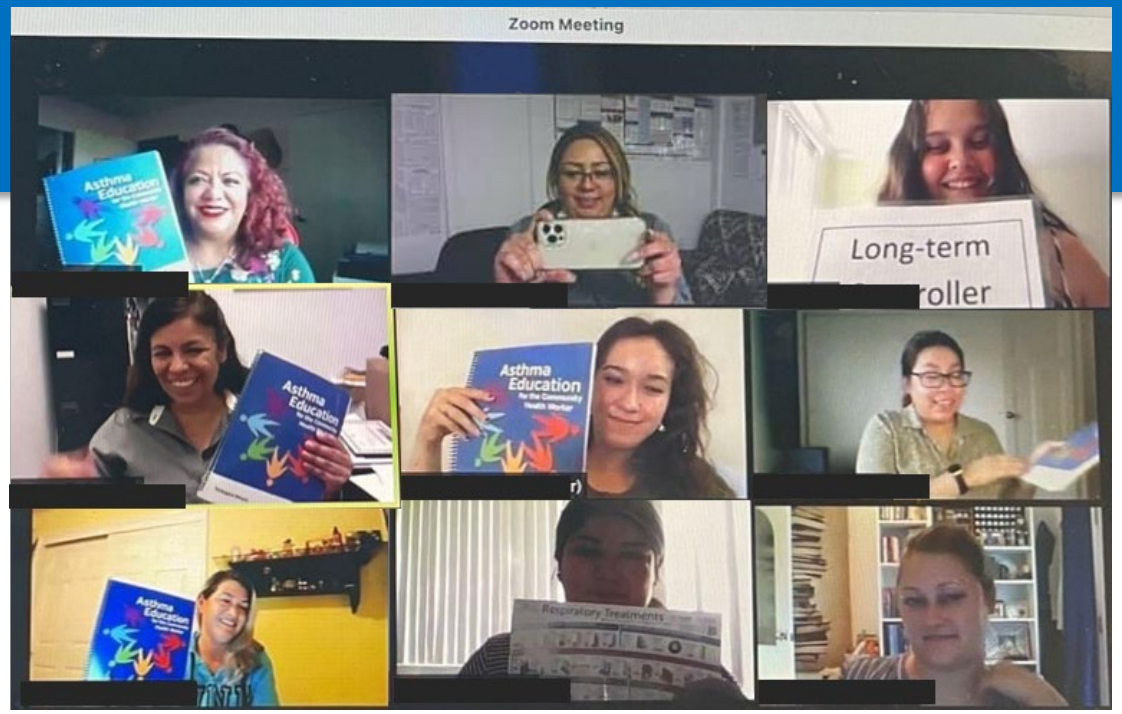
Asthma Management Academy (AsMA)

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 Training Logistics

- ~20-hours of training
  - Typically, 3-days
- Live, virtual training via Zoom or in-person
- Each participant receives an AsMA Training Kit



California Department of PublicHealth

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

TOIYABE INDIAN HEALTH PROJECT

United Indian Health Services, Inc.

SONOMA COUNTY INDIAN HEALTH PROJECT

GREENVILLE RANCHERIA

California Department of PublicHealth

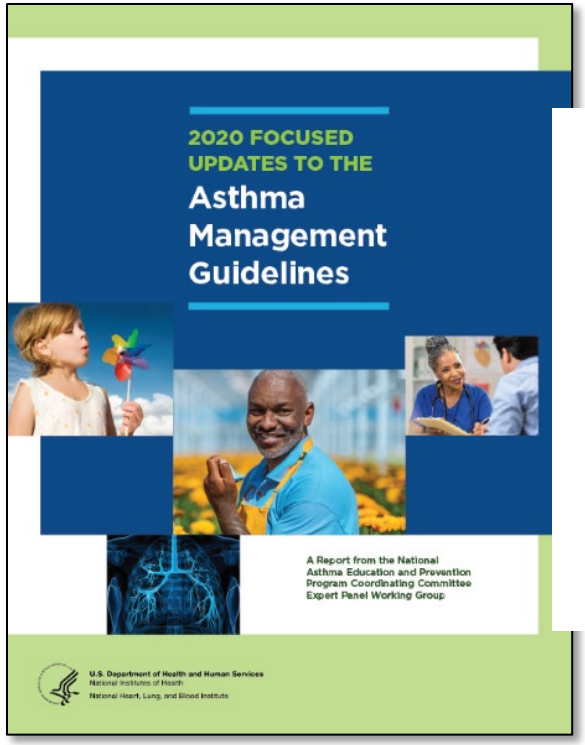
CHRs, CHWs, and patients all benefit from the AsMA

- 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

California Department of PublicHealth

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



California Department of PublicHealth

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?

California Department of PublicHealth

Contact Information

California.Breathing@cdph.ca.gov

cdph.ca.gov/californiabreathing

- Leonie Avendano, DVM, MPH

Leonie.Avendano@cdph.ca.gov

- Natalie Sacramento, MPH

Natalie.Sacramento@cdph.ca.gov