



Asthma in Contra Costa County

Presentation for the Contra Costa County Board of Supervisors Ad Hoc Committee on Sustainability

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Chris Farnitano, MD
Health Officer, Contra Costa County

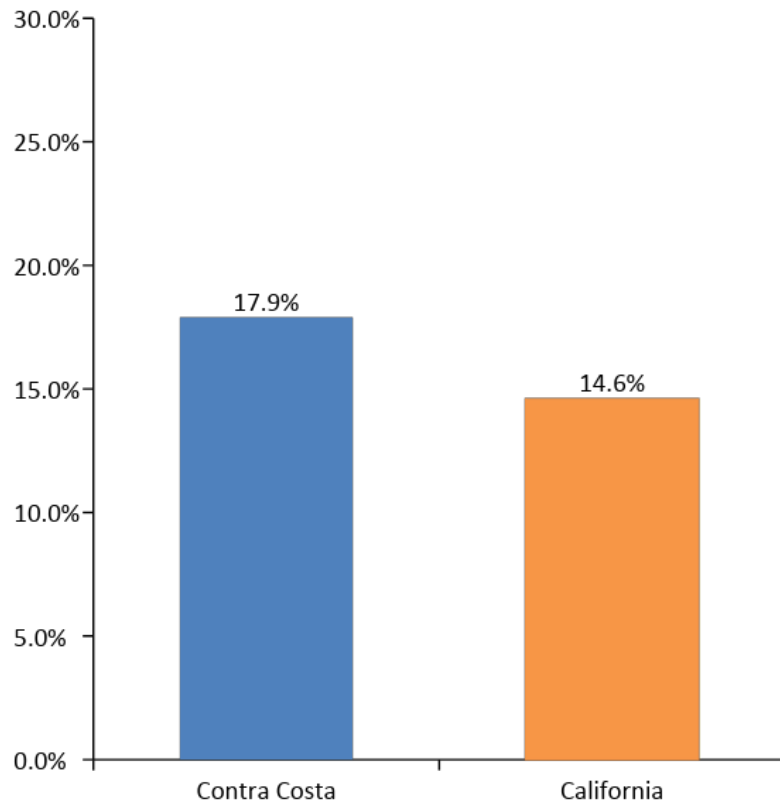


- Asthma's impact on Contra Costa County
- Where are the disparities?
- What are current improvement efforts within and without the Health Services department?
- What has been done in the past?
- What more can we do in the future (that will be effective and sustainable)?

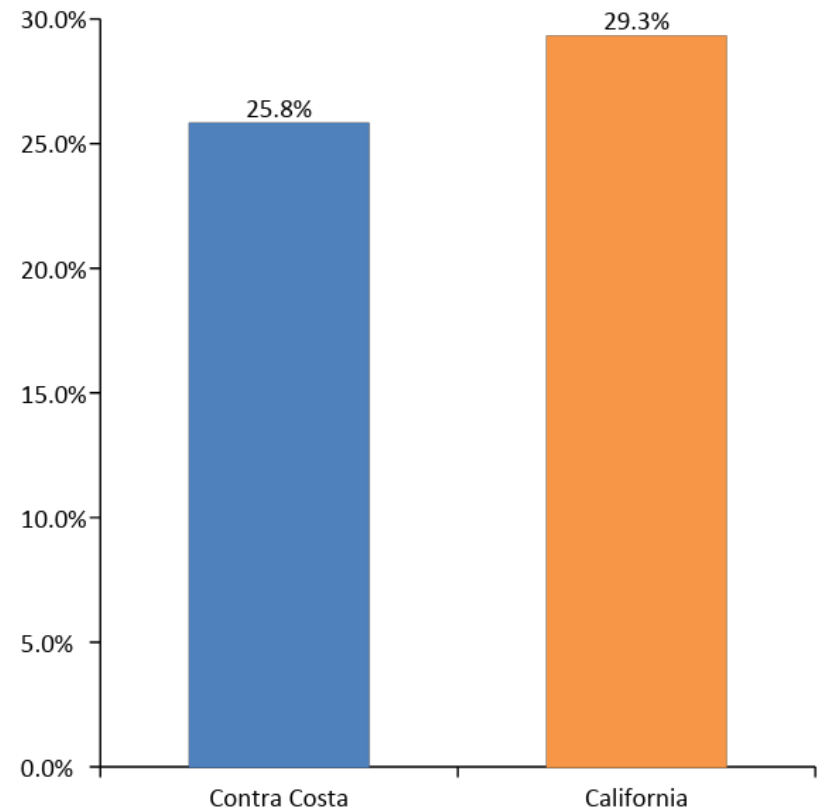
Asthma is a common disease in Contra Costa County

Asthma – Ever Diagnosed and Recent Episode Contra Costa and California, 2013-2016

Ever diagnosed with asthma



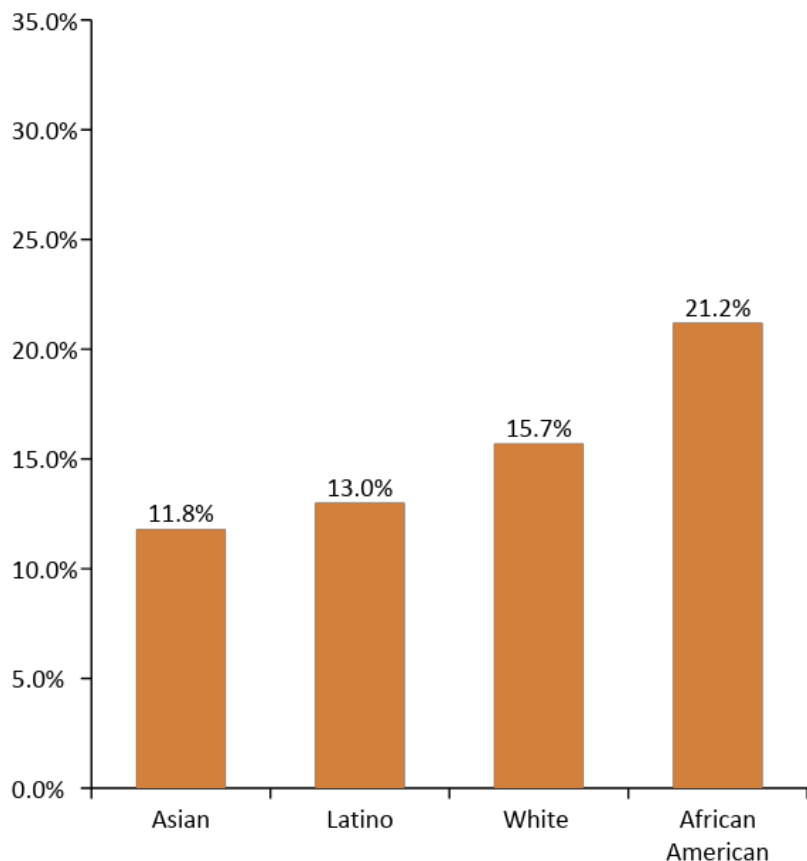
Had asthma episode/attack in past 12 months - among all diagnosed



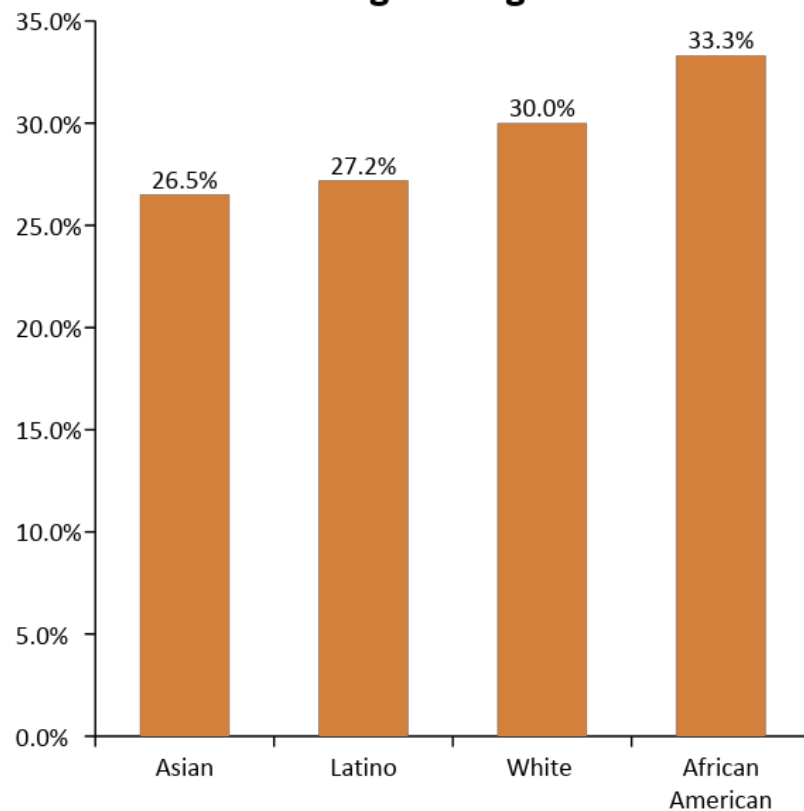
Asthma is more commonly diagnosed and more severe among African-Americans

Ever Diagnosed and Recent Episode California by Race/Ethnicity, 2013-2016

Ever diagnosed with asthma



Had asthma episode/attack in past 12 months - among all diagnosed

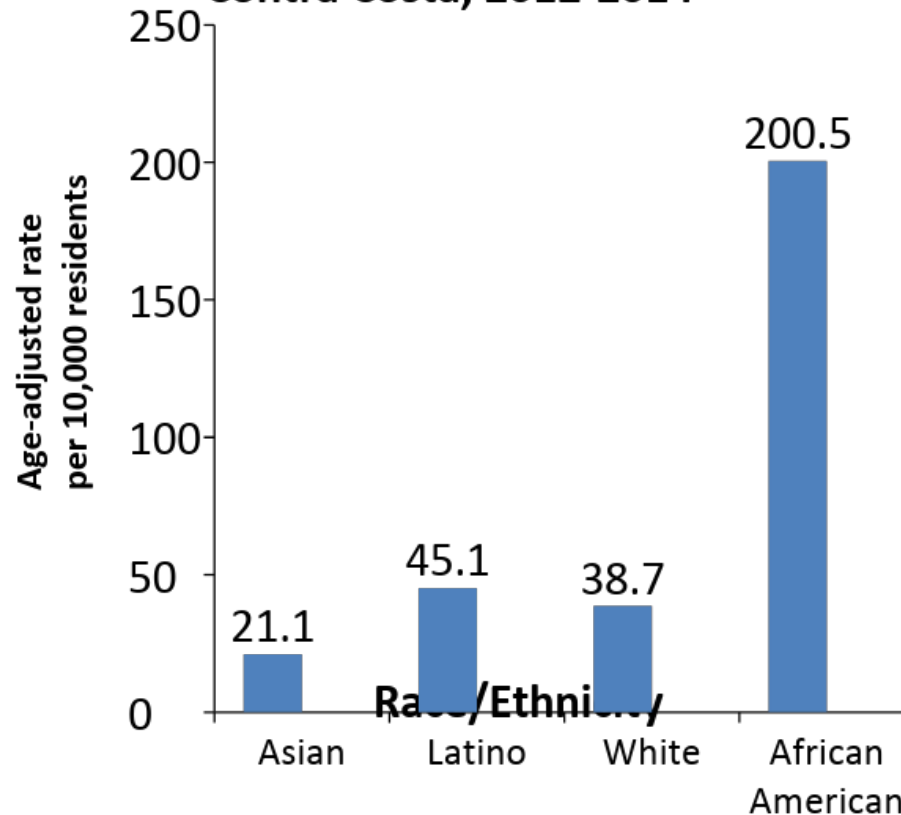


Source: California Health Interview Survey

Asthma is more commonly diagnosed and more severe among African-Americans

Asthma Emergency Department Visits

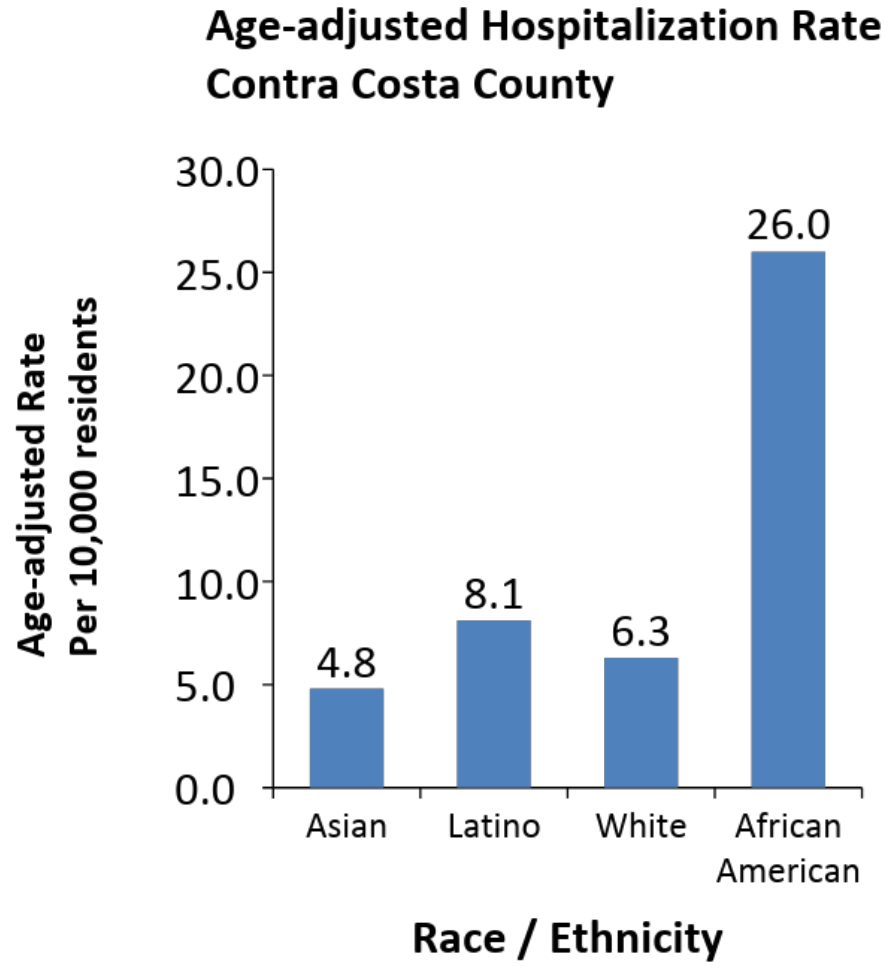
Age-adjusted rates by race/ethnicity
Contra Costa, 2012-2014





Asthma is more commonly diagnosed and more severe among African-Americans

Asthma Hospitalizations by Race/Ethnicity, 2014



Asthma's burden falls heaviest on children

Asthma Emergency Department Visits

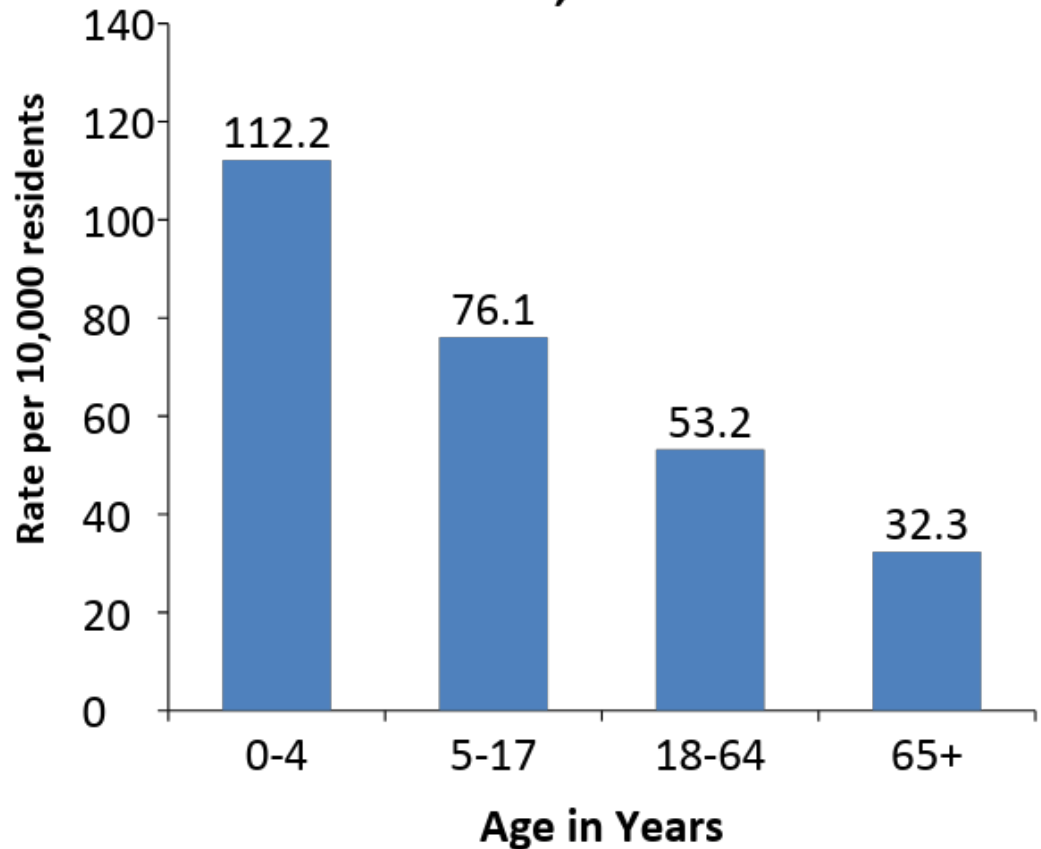
**2014 Age-adjusted rate
per 10,000 residents**

California 49.5

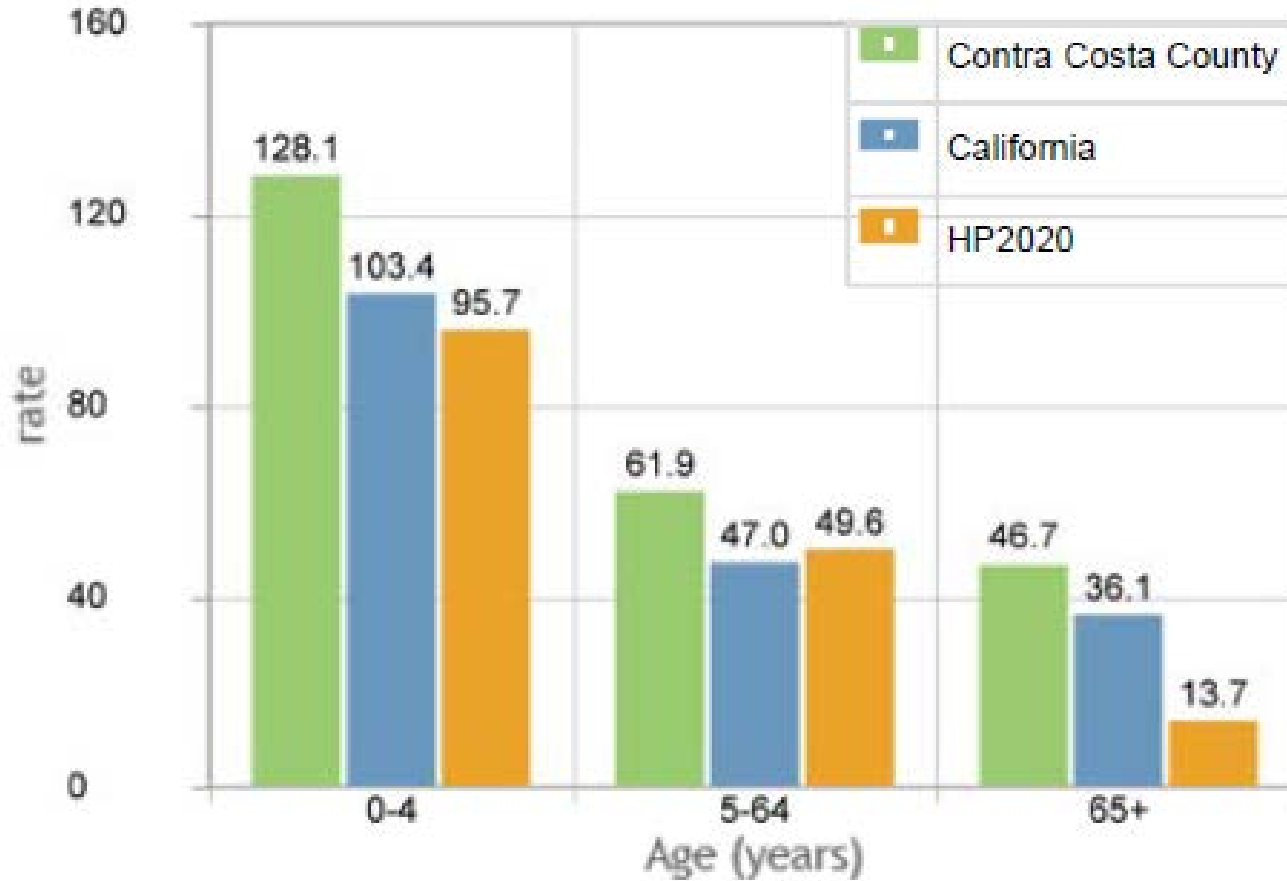
Contra Costa 64.6

Rate by Age Group

Contra Costa, 2012-2014



Contra Costa County Asthma ED Visits per 10,000 Residents by Age Compared to California and HP2020 Targets, 2014



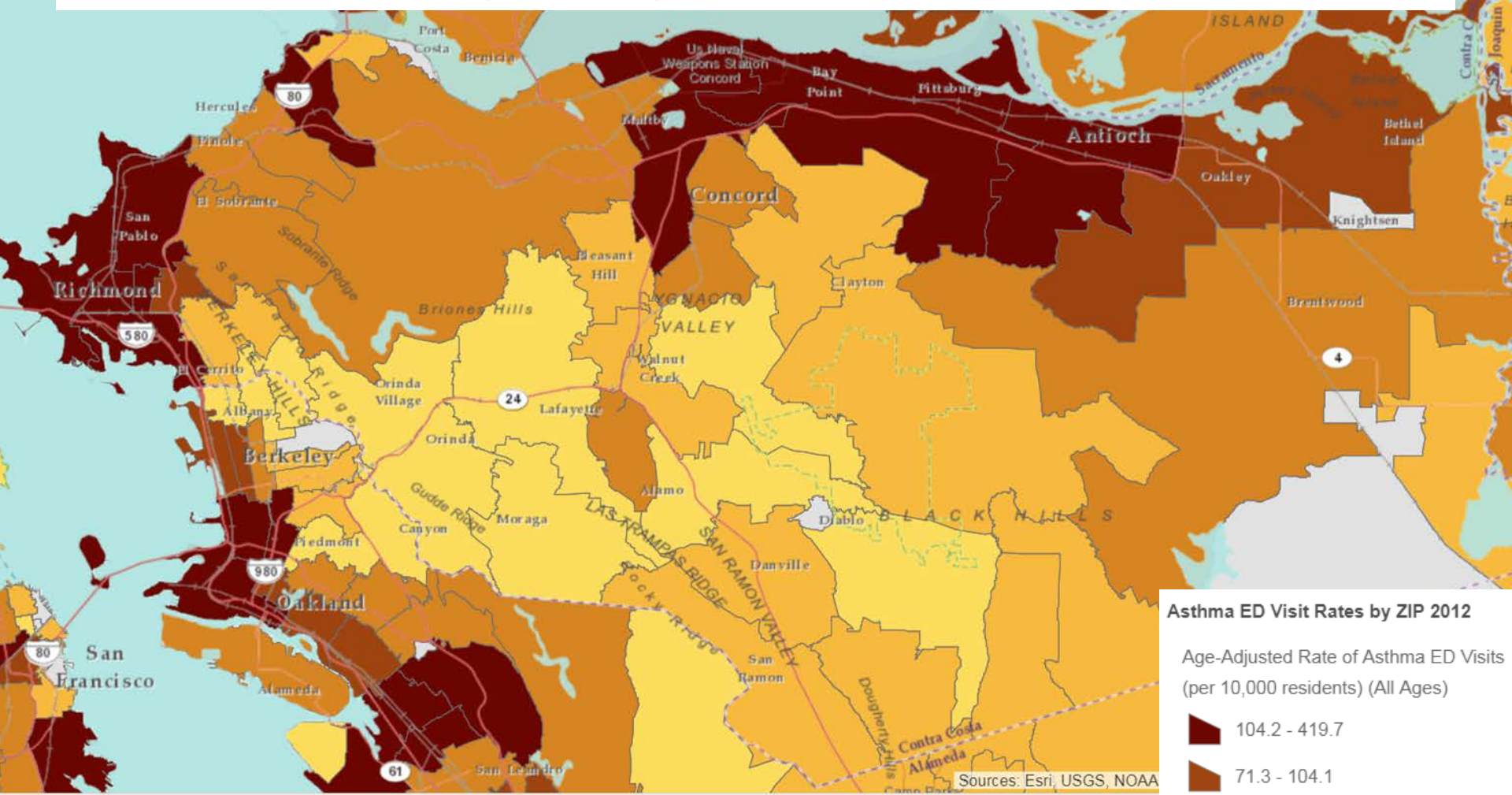
Source: California Healthy Breathing; Office of Statewide Health Planning and Development



Asthma Disparities in California

- Asthma prevalence higher in:
 - Adult females than adult males for current asthma (2014)
 - Gay/lesbian and bisexual men and women than straight men and women for lifetime asthma (2013 + 2014)
 - People born in the US than born outside of the US for current and lifetime asthma (2013+2014)

Age-adjusted Asthma Emergency Department Visit Rates Among All Ages by Zip Code, 2012



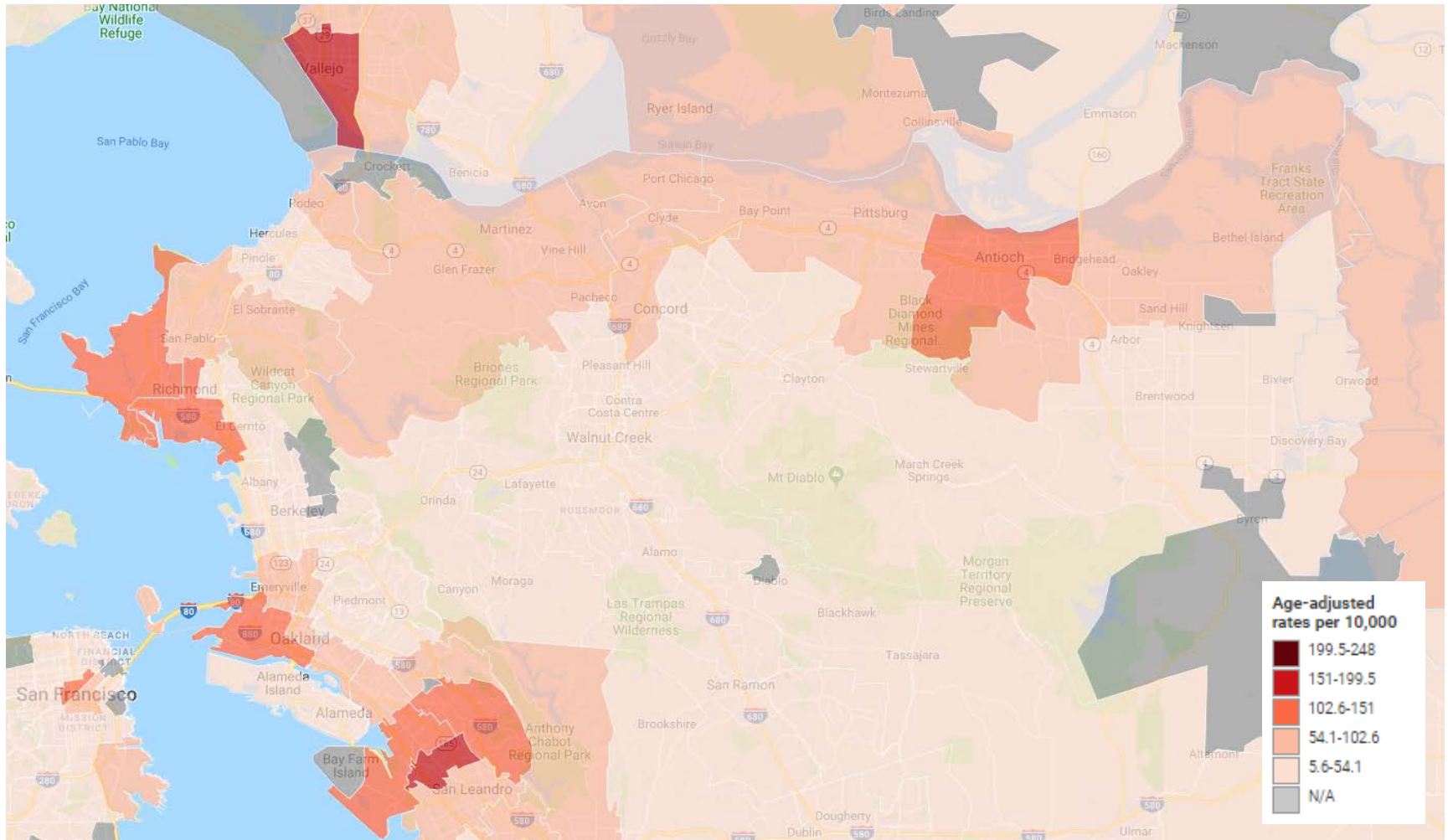
Asthma ED Visit Rates by ZIP 2012

Age-Adjusted Rate of Asthma ED Visits (per 10,000 residents) (All Ages)

- 104.2 - 419.7
- 71.3 - 104.1
- 48.3 - 71.2
- 26.7 - 48.2
- 0.1 - 26.6
- No data

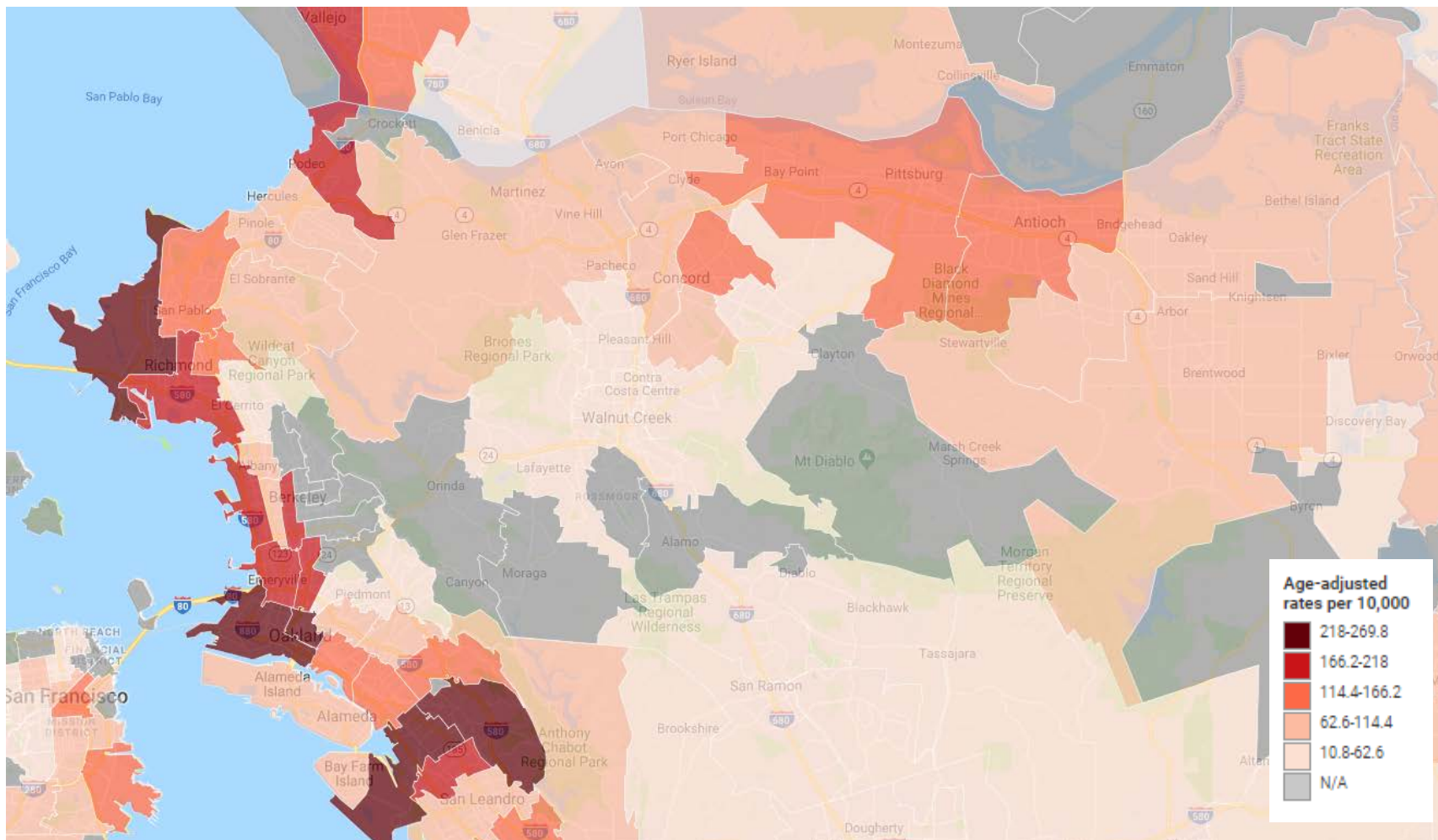
Source: California Health and Human Services Open Data Portal
<https://data.chhs.ca.gov/dataset/asthma-emergency-department-visit-rates-by-zip-code>

Age-adjusted Asthma Emergency Department Visit Rates Among **Adults** by Zip Code, 2014



Source: California Environmental Health Tracking Program <http://www.cehtp.org/page/asthma/query>; Office of Statewide Health Planning and Development

Age-adjusted Asthma Emergency Department Visit Rates Among Children by Zip Code, 2014

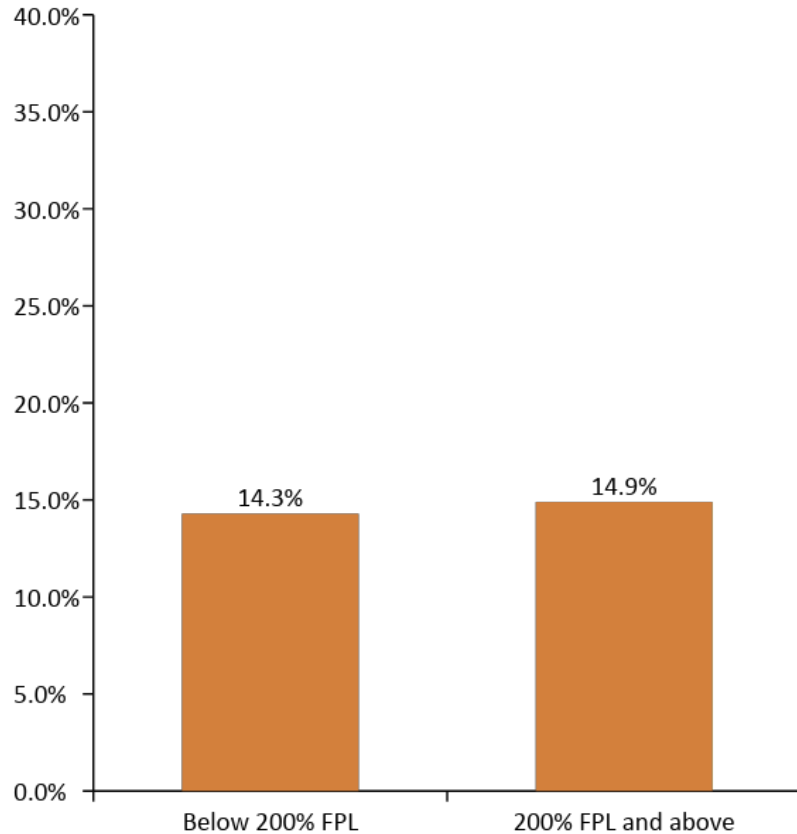


Source: California Environmental Health Tracking Program <http://www.cehtp.org/page/asthma/query>; Office of Statewide Health Planning and Development

Asthma when diagnosed is more severe among the poor

Ever Diagnosed and Recent Episode California by Poverty, 2013-2016

Ever diagnosed with asthma



Had asthma episode/attack in past 12 months - among all diagnosed

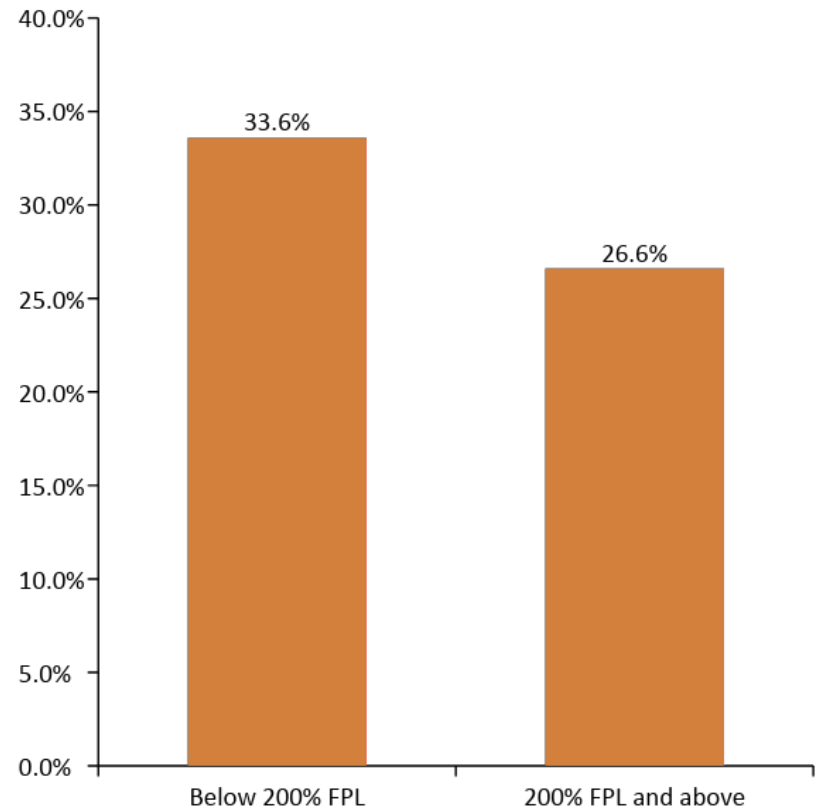
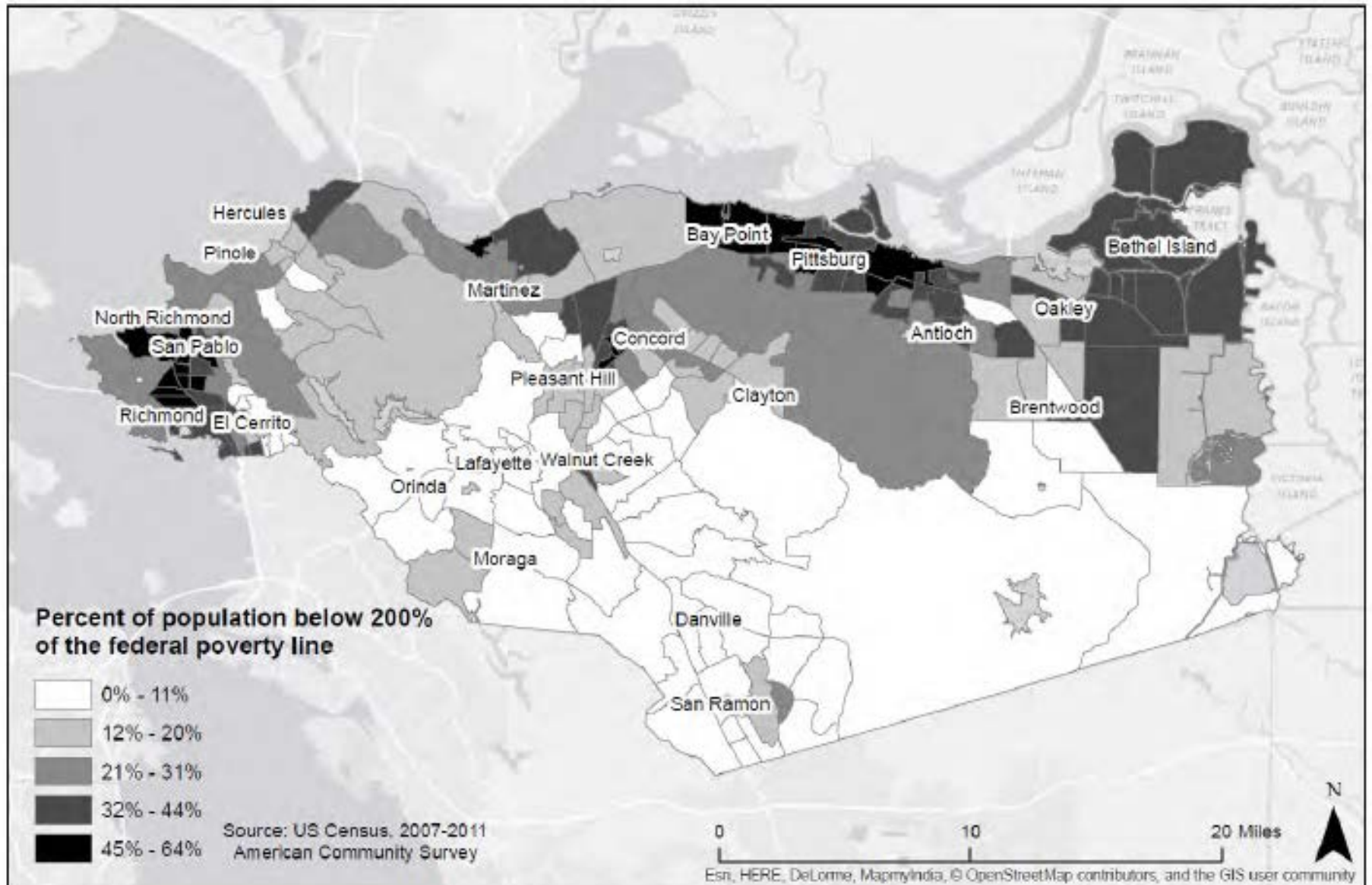


Figure 10: Percentage Of Population Below 200% Of The Federal Poverty Level, 2007–2011

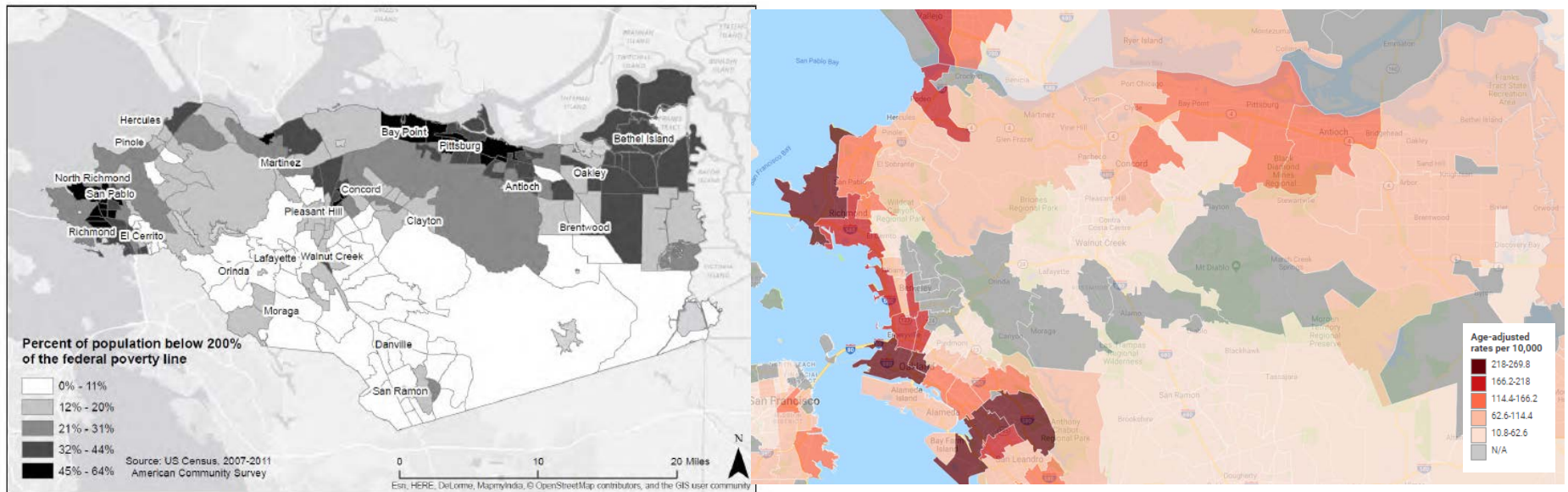


Asthma Disproportionately Affects the Poor

Percentage of Population Below 200% of the Federal Poverty Level, 2007-2011

Age-adjusted Asthma Emergency Department Visit Rates Among **Children** by Zip Code, 2014

Figure 10: Percentage Of Population Below 200% Of The Federal Poverty Level, 2007-2011



Asthma Disparities

African American children in Contra Costa County are hospitalized for asthma at a rate almost **four times** that of White, Asian and Latino children, and almost three times that of the county's children overall

Children living in **San Pablo and Richmond** have significantly higher asthma hospitalization rates than do children in other communities in the county. The rate of childhood hospitalization for asthma in San Pablo (41.2 per 10,000) is more than **double** that of the overall county rate (17.0 per 10,000). Richmond's rate (30.5 per 10,000) is nearly **double** the county.

How does the local environment affect asthma?

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Outdoor Air Pollution & Asthma

Like all particulate air pollution, including smoking, wild fires and point source or motor vehicle exhaust, exposure to this pollution leads to impairment of arterial endothelial function in humans as measured by flow-mediated dilation, an effect that occurs in a few minutes. Respiratory conditions including asthma are worsened by the triggering of an inflammatory cascade within the lungs.

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Outdoor Air Pollution and Asthma

- Proximity to roads with heavy traffic may contribute to:
 - New onset (in children and adults)
 - Exacerbation (in children and adults)
 - Increased risk of ED visits and hospitalizations due to asthma (in children)
 - Black carbon (particulates), organic compounds and heavy metals from traffic pollution all contribute to asthma risk and severity



Outdoor Air Pollution and Asthma

- Proximity to point sources of pollution may contribute to asthma severity:
 - Risk of asthma attack is associated with residing near a grain mill (odds ratio (OR) = 1.35), petroleum refinery (OR = 1.44), asphalt plant (OR = 1.23), or power plant (OR = 1.28) (all p's < 0.05).
 - Residence near major air emissions sources (>100 tons/year) increased asthma attack risk by 108% (p < 0.05).



Indoor Air Quality and Asthma

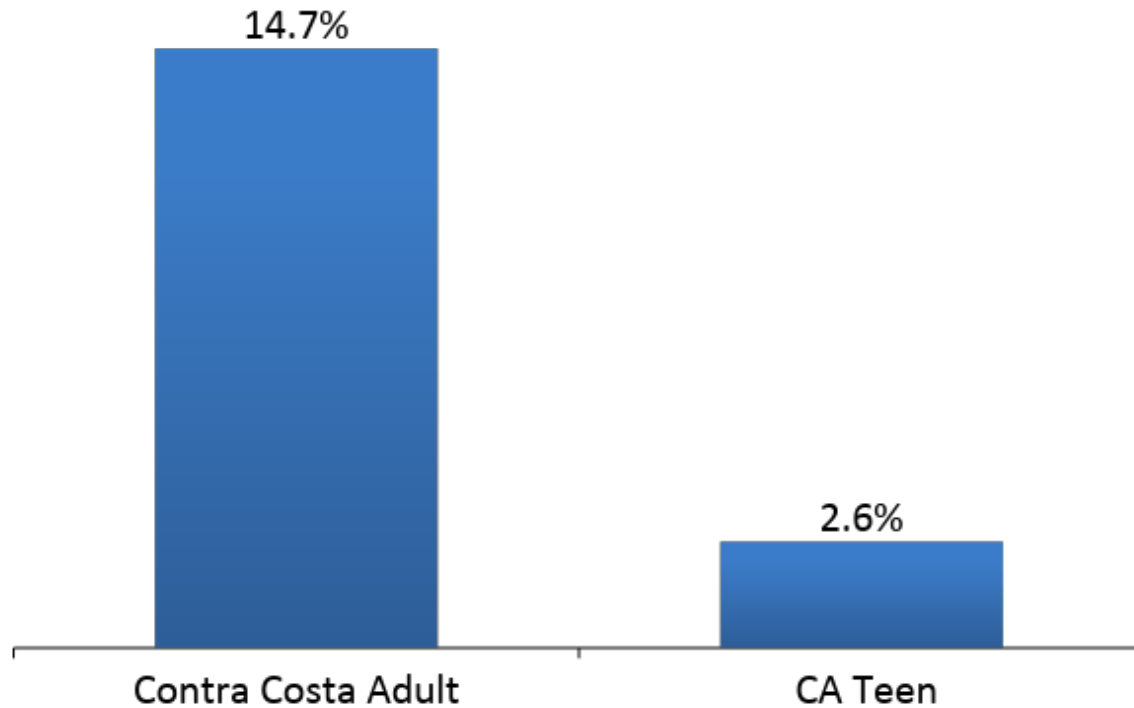
- Allergens may exacerbate or contribute
 - Mold and excess moisture
 - Dust and dust mites
 - Cockroaches and rodents
 - Cats and dogs (dander)
- Indoor air pollution may exacerbate or contribute
 - Tobacco smoke
 - Gas stoves/space heaters
 - Volatile organic compounds

Indoor air quality

Housing conditions play a significant role in health.

- Inadequate ventilation increases exposure to indoor and outdoor air pollution and increases moisture and mold
- Pests, such as cockroaches, can worsen asthma symptoms;
- Improper heating and cooling combine with temperature extremes from climate change that can worsen asthma symptoms

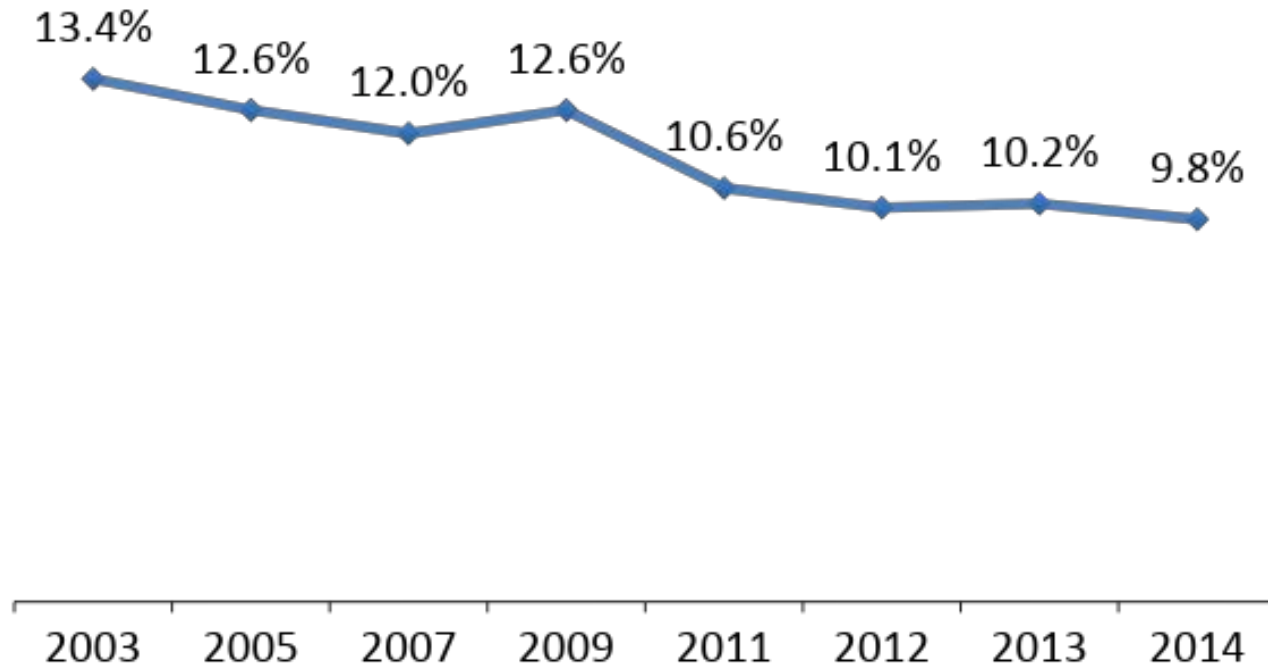
Current smoking prevalence



Source: 2014 California Health Interview Survey

Bay Area smoking rates are declining

Current Smoker, Bay Area



Source: California Health Interview Survey

What are some of the current efforts around Asthma prevention and control?

- Policy
- Community and Environmental Interventions
- Clinical interventions

Policy

Policy yields big impact!

- Smoking & Tobacco (now to include Cannabis) Laws and Taxes
- Air quality regulations
- Refinery Flare Monitoring Rule
- Changes to the North Richmond Truck Route to reduce exposure of community residents to diesel air pollution

County Smoking Ordinances

Extended to include the use of a hookah pipe, medical marijuana or electronic smoking device (such as an e-cigarette).

Smoking prohibited in:

- Public trails and in public parks;
- Public event venues (such as stadiums, fairs, pavilions, farmers markets); and
- Campuses of all County-owned or leased properties.
- **In Multi-Unit Housing Residences**
 - starting July 1, 2018 for new and renewing leases.
 - All units by July 1, 2019.

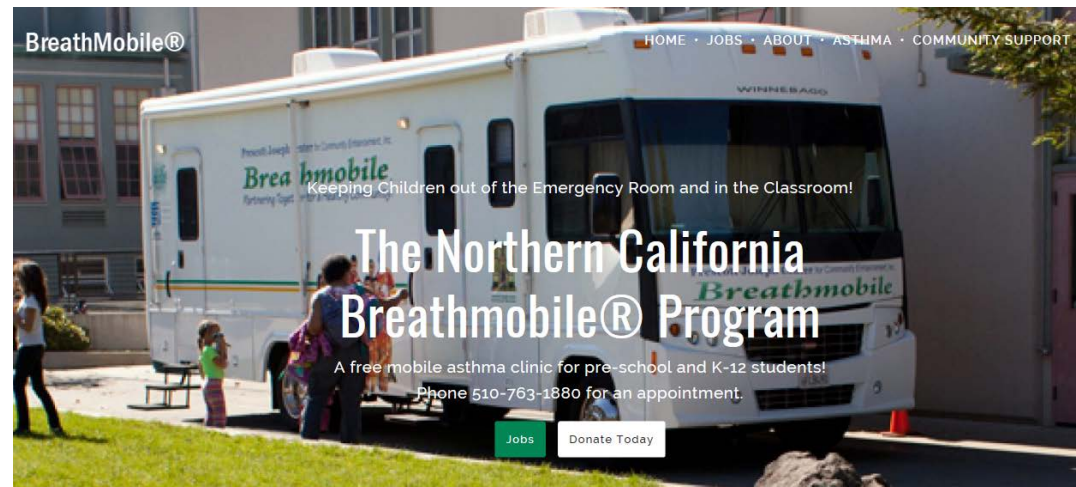
Community Interventions

Addressing Indoor and outdoor environments where we live:

- Breathmobile
- Weatherization Programs
- Community Education
- Healthy Home Programs

Breathmobile

- Staffed by asthma specialists, the BreathMobile® visits pre-schools and K-12 schools every 4-6 weeks seeing children with asthma.
- The program provides a full-service asthma evaluation, treatment and education for asthma.
- Every patient leaves with an asthma action plan, medication, or means to obtain medication; all at no charge to the patient.
- Education about their disease, asthma triggers, as well as medication for families without a healthcare plan, which is provided at no charge



BreathMobile®

HOME • JOBS • ABOUT • ASTHMA • COMMUNITY SUPPORT

Keeping Children out of the Emergency Room and in the Classroom!

The Northern California Breathmobile® Program

A free mobile asthma clinic for pre-school and K-12 students!

Phone 510-763-1880 for an appointment.

Jobs

Donate Today

Breathmobile

The BreathMobile has worked in West Contra Costa County for five years

Starting this fall will also be at Pittsburg Unified School District sites and the Monument Crisis Center



BreathMobile®

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[Jobs](#)

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Indoor air quality

Energy Efficiency programs in the Department of Conservation and Development

Housing conditions play a significant role in health.

Indoor moisture and mold contribute to asthma;

- Inadequate ventilation increases exposure to indoor and outdoor air pollution and increases moisture and mold
- Pests, such as cockroaches, can worsen asthma symptoms;
- Improper heating and cooling combine with temperature extremes from climate change that can worsen asthma symptoms

Indoor air quality

California Department of Community Services and Development (CSD) administers several programs with different state and federal funding sources:

- The Low-Income Weatherization Program (LIWP)
- Low-Income Home Energy Assistance Program (LIHEAP) Weatherization Program
- Weatherization Assistance Program (WAP)

Contra Costa Health Services launched a pilot project in 2016 to help public health nurses connect patient to these weatherization programs.

Other jurisdictions (Baltimore, Marin) have initiated “healthy homes” (whole house) programs.

Community warnings/education around wildfire smoke



View of Mt. Diablo: August 4, 2018 (Mendocino complex fire)



View of Mt. Diablo: September 29, 2013 (Morgan fire)



Community messaging during unhealthy air days (wildfire smoke, ozone, etc.)

AIR QUALITY IN THE BAY AREA IS UNHEALTHY FOR PEOPLE WITH RESPIRATORY CONDITIONS

- People with pre-existing respiratory illnesses like asthma should reduce outdoor activities
- Everyone, especially children, should reduce physical exertion



For current air quality in your area visit airnow.gov or sparetheair.org

Aligning our messaging with that from the Bay Area Air Quality Management District



Air Quality Index

The Air Quality Index, or AQI, much like an air quality "thermometer", translates daily air pollution concentrations into a number on a scale between 0 and 500. The numbers in this scale are divided into six color-coded ranges, with numbers 0-300 as seen below.

(0-50)

Good

No health impacts are expected when air quality is in this range.

(51-100)

Moderate

Unusually sensitive people should consider limiting prolonged outdoor exertion.

(101-150)

Unhealthy for Sensitive Groups

Active children and adults, and people with respiratory disease, such as asthma, should limit outdoor exertion.

(151-200)

Unhealthy

Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.

(201-300)

Very Unhealthy

Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.

The AQI numbers refer to specific amounts of pollution in the air. It's based on the [federal air quality standards](#) for six major pollutants - ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and two sizes of particulate matter.

Community messaging during unhealthy air days (wildfire smoke, ozone, etc.)

Air Quality Index per BAAQMD

The Air Quality Index, or AQI, much like an air quality "thermometer", translates daily air pollution concentrations into a number on a scale between 0 and 500. The numbers in this scale are divided into six color-coded ranges, with numbers 0-300 as seen below.

AQI	Health Impacts	Messaging	Audiences
Good 0-50	No expected health impacts	None	None
Moderate 51-100	Unusually sensitive people may be affected	Visit airnow.gov for current air quality information in your zip code. A regional, two-day forecast is also available at sparetheair.org . Unusually sensitive people should reduce prolonged or heavy exertion.	County staff, public employers Office of Education, school districts, daycares
Unhealthy for Sensitive Groups 101-150	Active children and adults and people with respiratory disease such as asthma may be affected. People who work or live outdoors may be affected.	Active children and adults, and people with respiratory disease such as asthma, should reduce outdoor activity. Visit airnow.gov for current air quality information in your zip code. A regional, two-day forecast is also available at sparetheair.org .	County staff, public employers Office of Education, school districts, daycares Health clinics, hospitals, SNFs, healthcare providers Disabilities Council, AFN community 211, CCHP Advice Nurses
Unhealthy	Active children and adults, and people with respiratory disease such as asthma will likely be affected. People who work or live outdoors will likely be affected. People in general may be affected.	Active children and adults, and people with respiratory disease should reduce prolonged outdoor activity. Everyone, especially children, should avoid prolonged outdoor activity. Masks are not a substitute for staying indoors. Masks such as the N-95 are not effective for untrained users and may be dangerous for people with lung or heart conditions. N-95 masks may be helpful for people who must work outdoors if properly fitted. Employees should work with their employers for direction on when/how to use N-95 masks.	General public County staff, public employers Office of Education, school districts, daycares Health clinics, hospitals, SNFs, healthcare providers Disabilities Council, AFN community 211, CCHP Advice Nurses
Very Unhealthy	Active children and people with respiratory disease, such as asthma, should stay indoors. Respiratory disease may worsen if possible. People who must work outdoors talk to your healthcare provider before wearing a mask. Masks are not a substitute for staying indoors. Masks such as the N-95 are not effective for untrained users and may be dangerous for people with lung or heart conditions N-95 masks may be helpful for people who must work outdoors if properly fitted. Employees should work with their employers for direction on when/how to use N-95 masks. Seek medical attention if ...	Active children and people with respiratory disease, such as asthma, should stay indoors. Respiratory disease may worsen if possible. People who must work outdoors talk to your healthcare provider before wearing a mask. Masks are not a substitute for staying indoors. Masks such as the N-95 are not effective for untrained users and may be dangerous for people with lung or heart conditions N-95 masks may be helpful for people who must work outdoors if properly fitted. Employees should work with their employers for direction on when/how to use N-95 masks. Seek medical attention if ...	General public County staff, cities and special districts Office of Education, school districts, daycares Health clinics, hospitals, SNFs, healthcare providers Disabilities Council, AFN community 211

DRAFT

Clinical Interventions

Focusing on known asthma patients

- PerformRx Medication Management for Asthma
- Pediatric Asthma Home Visiting Program - West County Pilot
- The Quality Incentive Program (QIP)
- The Richmond Environment and Asthma Community Health (REACH) Study

CCHP's Population Health Management (PHM) Programs for Asthma

- **PerformRx Medication Management for Asthma**
- Launched July 2, 2018
- PerformRx pharmacists review member profiles and conduct telephonic outreaches
- The pharmacist addresses adherence issues, gaps in care, patient medication regimens
- PerformRx pharmacists will make referrals via the Case Management department to country resources including the weatherization program to address in-home environmental triggers
- Health plan outreach to patients who have an unfavorable ratio of medication fills for rescue meds versus controlling meds (HEDIS measure) leveraging Pharmacy Benefits Manager (PBM) data

CCHP's Population Health Management (PHM) Programs for Asthma

- **Pediatric Asthma Home Visiting Program - West County Pilot**
- A small pilot (20 members), launched in late July 2018.
- Targets Medi-Cal children with uncontrolled asthma (based on ED and inpatient admissions for asthma in the previous 12 months).
- During the pilot a CCHP nurse will provide the following:
 - Asthma education to families
 - In-home inspections for asthma triggers (i.e. mold, pests, dust, etc.)
 - Referrals to the weatherization program, housing, employment, etc.
 - Linkage and coordination with primary care physician and pharmacist
 - Provision of tools to address indoor triggers (i.e. HEPA vacuums, green cleaning kits, allergen-proof bedding covers, food-storage containers)
- If the program is found to be successful it is hoped that this intervention will be made available to all pediatric members with uncontrolled asthma.

Quality Incentive Program (QIP)

What is QIP?

- In April of 2016, the federal Centers for Medicare & Medicaid Services (CMS) published the Medicaid and CHIP Managed Care Final Rule.
- The managed care rule limits the ability of states to direct payments to health care providers, unless certain conditions are met. Among the allowable exceptions are payments tied to performance.
- The Quality Incentive Program (QIP) is intended to replace at least the levels of certain supplemental funding public health care systems received in managed care prior the implementation of the managed care rule.
- 2017-2018 was the first year of QIP, pay for reporting only on all measures

Asthma QIP Metric

- Uses an Asthma Medication Ratio, precise metric specs undergoing changes
- Currently pay for reporting, in the future will be pay for performance
- Goal to have asthma patients filling “controller” medications regularly as opposed to only using “rescue”

Asthma QIP Metric

- Interventions in process/planned/proposed:
 - Provider education on prescribing practices
 - Patient education about the difference between different types of asthma medication
 - Behavioral coaching to encourage use of controller medications even though they don't cause the same immediate physical sensation that a rescue medication can provide.
 - Electronic Health Record tools within ccLink:
 - Standardized tools for proper classification of asthma and well as effective monitoring: Childhood Asthma Control Test, Asthma Control Questionnaire, Pediatric Quality of Life Questionnaire
 - Asthma Action Plan
 - Asthma SmartSet

Collaboration Opportunity: The Richmond Environment and Asthma Community Health (REACH) Study

- Current study in Richmond with asthma as the primary outcome headed by Dr. Neeta Thakur from UCSF
- Dr. Thakur's research focuses on:
 - 1) Determining the social and environmental stressors that contribute to poor asthma outcomes and defining the mechanism by which they contribute to disease;
 - 2) Identifying health inequalities in the management of patients with asthma; and
 - 3) Designing and evaluating interventions aimed at reducing asthma exacerbations rates in under-represented populations.
- Partnering with Lifelong Medical Clinic in Richmond

Past Asthma Efforts

- Community Action to Fight Asthma (CAFA)
- 2002-2009
- Funded by a grant from The California Endowment
- Trained community residents from West Contra Costa County who conducted workshops on asthma triggers in the community.
- Asthma Advocates conducted asthma trigger check-ups in the homes of residents in West County
- Supported a Contra Costa Asthma Coalition composed of parents, child-care providers, school officials, health care providers, environmental groups, and residents concerned with addressing the environmental aspects of childhood asthma.



What more can we do in the future? (that will be effective and sustainable)

- Must be comprehensive and coordinated
- Should partner with the community, schools and community groups
- Should focus on the upstream social determinates of asthma prevention and asthma control
- Use proven, evidence-based interventions
- Involve education, policy, interventions
- Track measurable outcomes: decreased ER visits and hospital admissions, increase in school and work attendance, improved self reported health status
- Develop a financing model that sustains interventions

What more can we do in the future? (possible interventions)

- In home assessments
- Explore “healthy homes” programs that combine energy efficiency, weatherization, social services, etc.
- Targeted in home remediation
- School based education and clinical services
- Pre-school age education, remediation of triggers, asthma action plans
- Workplace environment trigger remediation
- Community education
- Targeted outreach and case management
- Policy advocacy

