

Climate Action for Health, Equity, & Community Resilience



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California Department of Public Health

UC Davis Climate Adaptation

Research Center Webinar Series

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Climate Change & Health Equity Section
California Department of Public Health



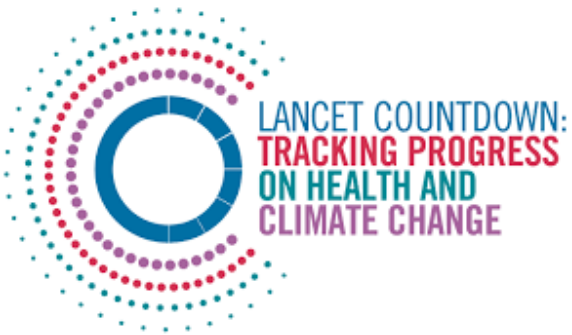
Climate Change Is The Greatest Threat To Public Health, Top Medical Journals Warn

September 7, 2021 · 5:01 AM ET

The Washington Post October 20, 2021 | Updated October 21, 2021 at 11:25 a.m. EDT

Inaction on climate change imperils millions of lives, doctors say

Top medical journal warns that rising temperatures will worsen heat and respiratory illness and spread infectious disease



The 2021 report of the *Lancet* Countdown on health and climate change: code red for a healthy future

<https://www.lancetcountdown.org/2021-report/>

IPCC report: 'now or never' if world is to stave off climate disaster

Mon 4 Apr 2022 11:00 EDT



<https://www.ipcc.ch/reports/>



THE CALIFORNIA BLUEPRINT

CALIFORNIA'S EXISTENTIAL THREATS

1. Fighting COVID with Science
2. Combating the Climate Crisis
3. Confronting Homelessness
4. Tackling the Cost of Living
5. Keeping our Streets Safe

The New York Times

Extreme heat begins pummeling California as crews battle wildfires.

Sept. 1, 2022

Thousands of Californians under evacuation orders as flood threats continue and death toll of recent storms climbs to 17

By Nouran Salahieh, Jason Hanna, Joe Sutton and Christina Maxouris, CNN
Updated 9:16 PM EST, Tue January 10, 2023



Angel Martinez pours ice water on her head in an attempt to stay cool in the scorching heat in Santa Rosa on Sept. 7, 2022. She has been homeless on and off for several years.

Source: Gabrielle Lurie/The San Francisco Chronicle



(AP Photo/Noah Berger)



Source: CBS News



Air Pollution & Increasing Allergens

Asthma, allergies, cardiovascular and respiratory diseases

Extreme Heat

Heat-related illness and death, cardiovascular failure

Drought

Water supply impacts, dust storms, Valley Fever

Environmental Degradation

Forced migration, civil conflict, loss of jobs and income

Wildfires & Wildfire Smoke

Injuries, fatalities, loss of homes, cardiovascular and respiratory diseases

Degraded Living Conditions & Social Inequities

Exacerbation of racial and health inequities and vulnerabilities, loss of employment

Changes In Vector Ecology

Lyme disease, West Nile Virus, hantavirus, malaria, encephalitis

Food System Impacts

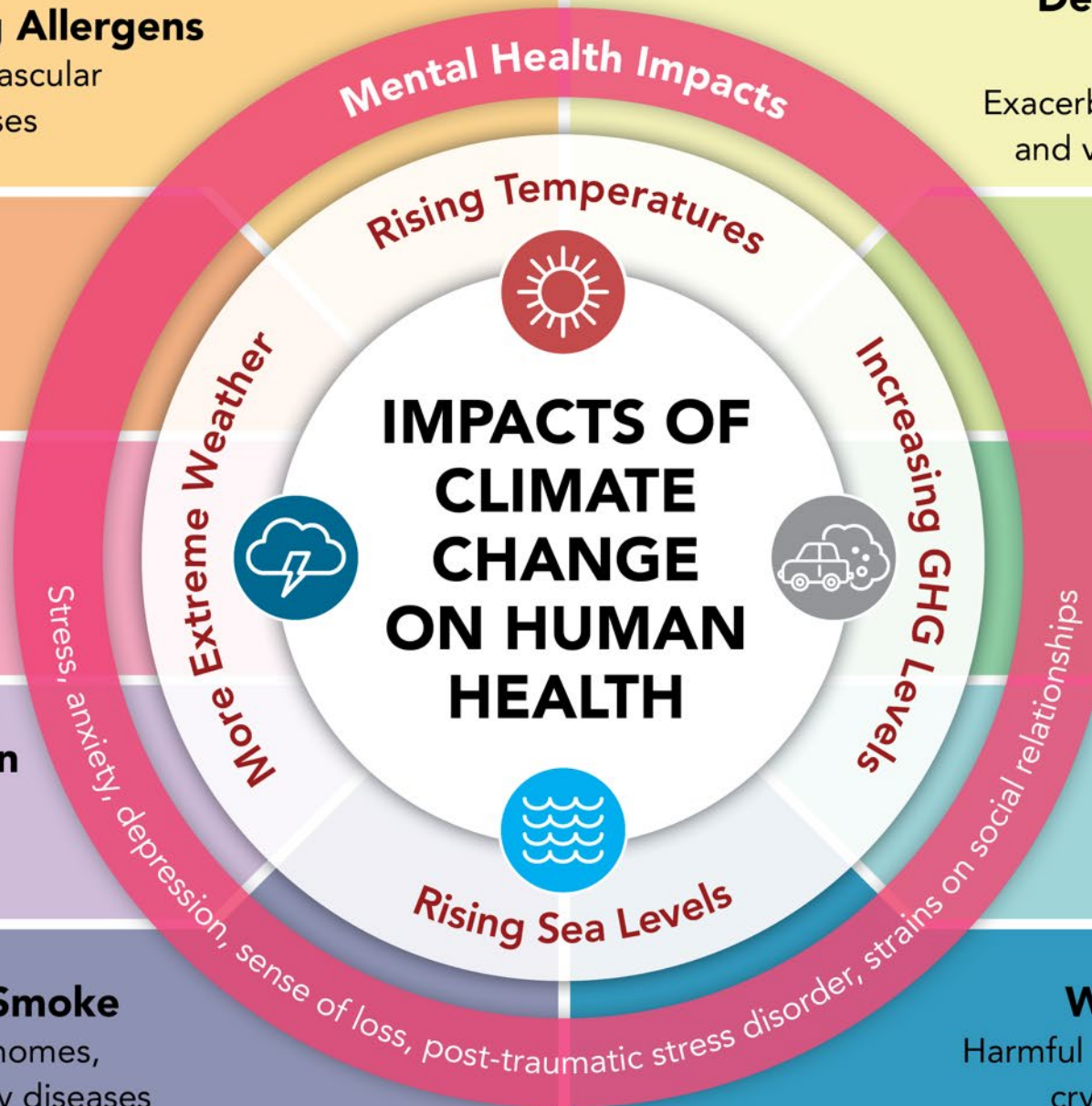
Malnutrition, food insecurity, higher food prices, foodborne illness

Severe Weather & Floods

Injuries, fatalities, loss of homes, indoor fungi and mold

Water Quality Impacts

Harmful algal blooms, campylobacteriosis, cryptosporidiosis, leptospirosis



**CLIMATE CHANGE IS
ALREADY HARMING
HUMAN HEALTH.**

**PEOPLE FACING
INEQUITIES HURT
FIRST AND WORST.**

Image: Public News Service



Image: UC Davis



Image: CBS SF/Local



Image: US News



©Depositphotos.com/zenpi

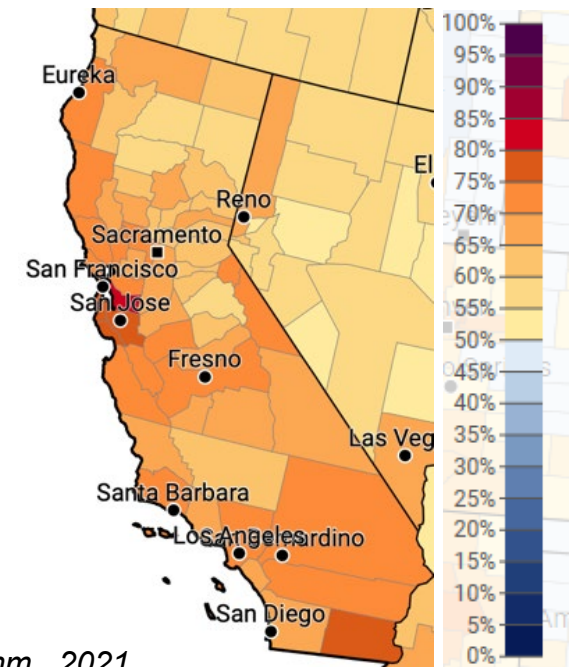
More Americans Are Concerned About Climate Change Than You Think

75% of Americans are concerned about climate change but only 51% think those around them are concerned

Source: *ecoAmerica / American Climate Perspectives Survey 2022, Vol. I* <https://ecoamerica.org/wp-content/uploads/2022/01/acps-2022-vol-i.pdf>

- **> 50% of the population in every CA county worried about global warming**
- **74% of Californians support local gov to change land use & transportation planning to reduce reliance on driving.**
- **79% of CA voters of color** said global warming is a serious problem facing California today.
- **85% of CA voters of color** want state and local elected officials to enact stronger policies to help their community prepare for climate impacts.

“73% worried about global warming”



Sources: *Public Policy Institute of CA, 2019 & 2021; EMC Research and Resources Legacy Fund, 2017, Yale Program on Climate Comm., 2021*

A Health Frame Motivates Climate Action

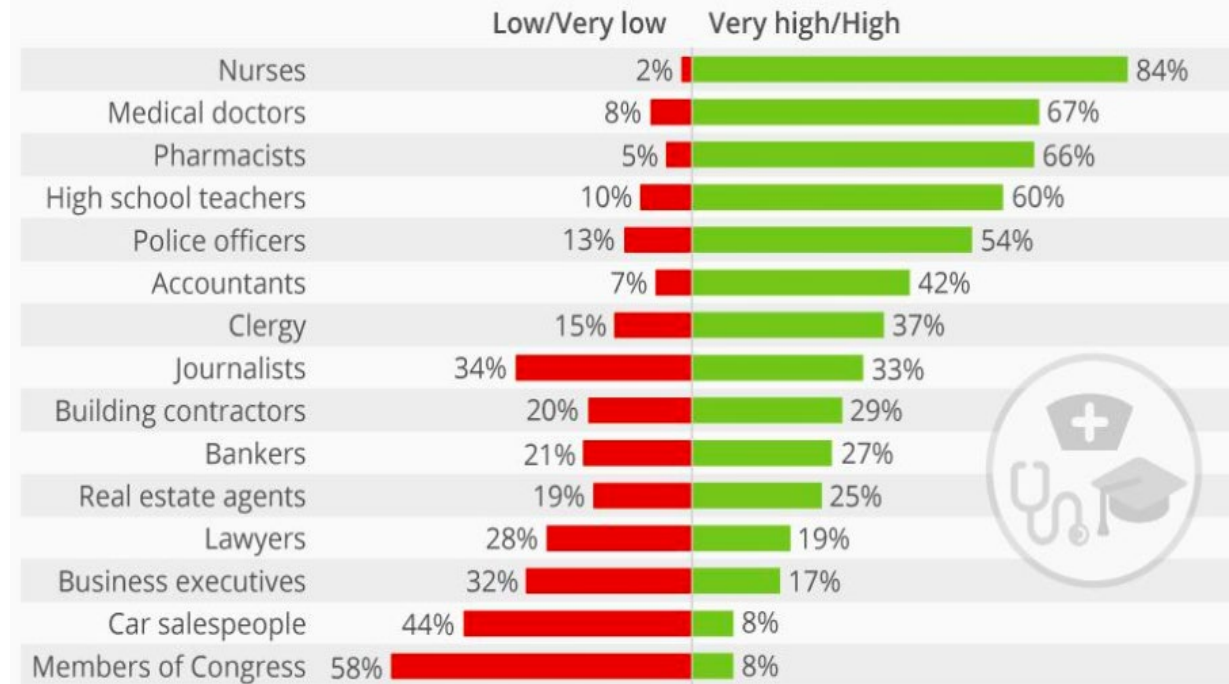
Protecting health is the top reason Americans select for supporting climate solutions (ecoAmerica):

- **76%** motivated by health
- 71% motivated by good paying jobs

68% of Americans trust health professionals for information on climate change

America's Most & Least Trusted Professions

Rating of selected U.S. professions in terms of honesty and ethical standards in 2018



CC BY ND n=1,025 U.S. adults
@StatistaCharts Source: Gallup

Forbes statista

CDPH Office of Health Equity

Equality



Equity



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Climate, Health & Equity in All Policies

Embedding health and equity in California climate action

Mission: Assure that **California's actions to prevent and prepare for climate change improve health and racial equity.**

CCHES helps to implement California's climate change policies, contributing health and racial equity guidance, research approaches, and tools, to **improve living conditions and health outcomes with and for people facing inequities.**

<http://bit.ly/cchep>

Strategies:

- **Embed health and racial equity into climate change programs and policies** so that implementation improves living conditions for communities facing inequities.
- **Guide State investment and resource distribution** to prioritize health and racial equity.
- **Provide data, research, and tools** to reduce and prepare for the health effects of climate change and maximize the health equity benefits of climate action.
- **Increase the capacity of public health departments and tribes** to work on climate change and health equity through consultation and technical assistance.
- **Engage with climate justice and health equity stakeholders** to increase their decision-making power.

California Department of Public Health



Climate Change & Health Equity Section

A Low-Carbon, Climate-Resilient Community is...

Healthy, energy efficient, & affordable housing!



Clean air, green spaces for recreation!



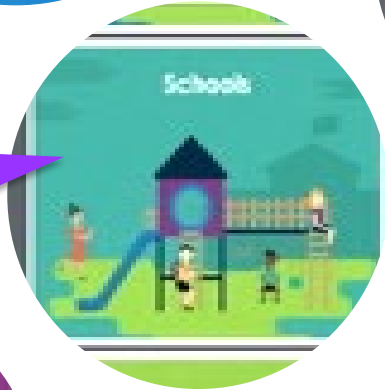
Urban and community greening to keep cities cool.



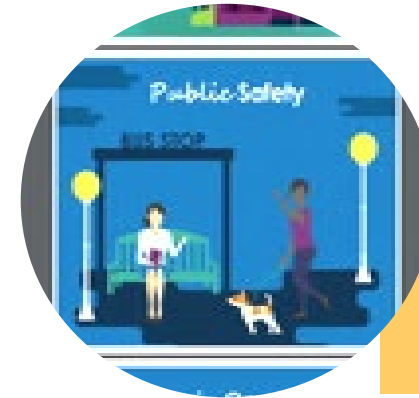
Where there are good jobs, and safe neighborhoods.



Kids have safe places to play and learn.



Healthy built environment including walkable & bikeable communities!



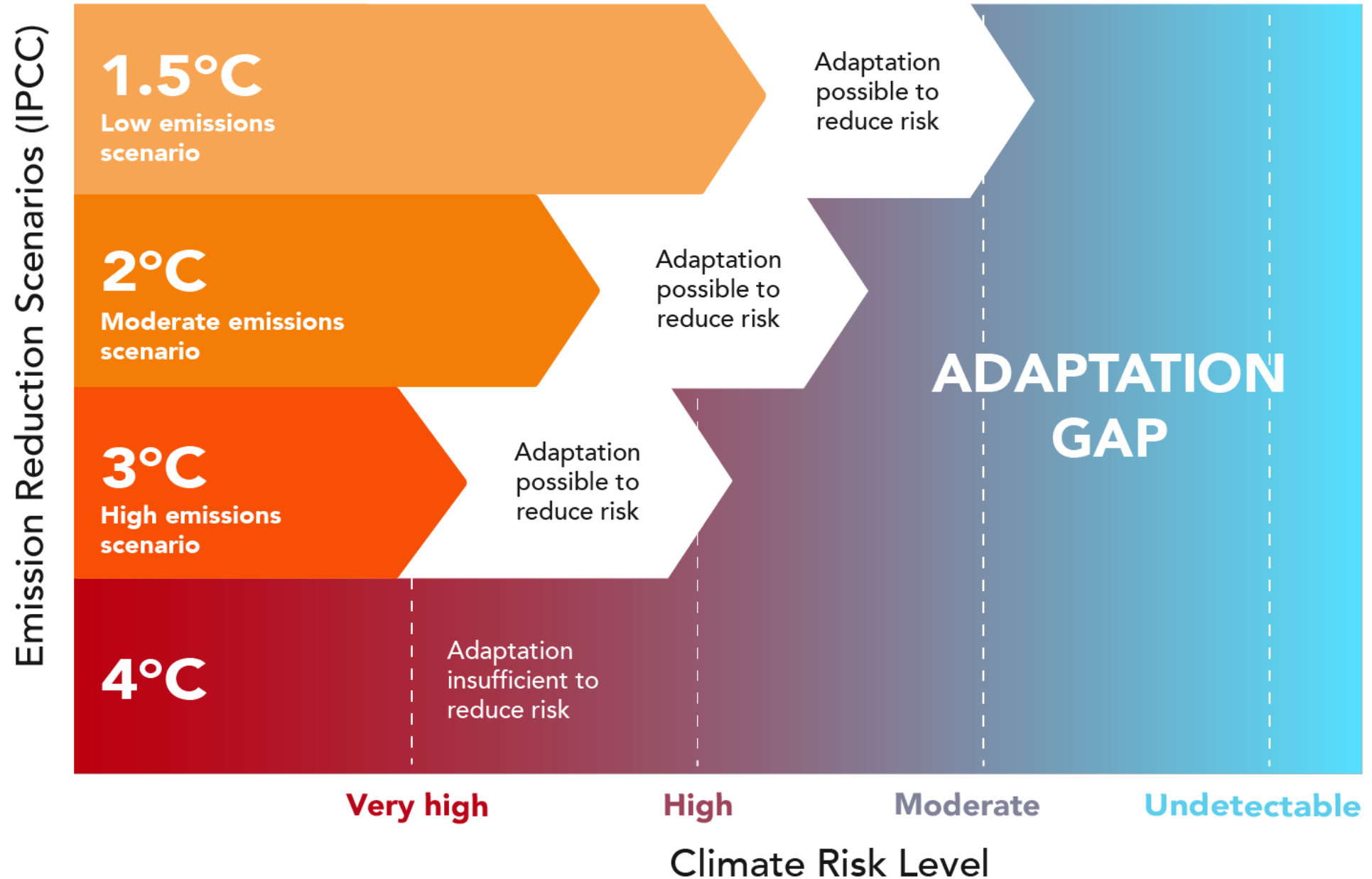
Where people know and care for one another.



Access to affordable, healthy foods.

A Healthy, Equitable Community

LINKING EMISSIONS REDUCTIONS & CLIMATE ADAPTATION



California For All: Racial Equity Lens, Operationalizing Equity

Equity mechanisms:

- Prioritized financial incentives, investments, or resources
- Higher levels of service
- Facilities
- Capacity building or training
- Jobs
- Decision-making power

Photo: Istock JuanMorino



“Cash, capacity, control”

Provide Health Equity Tools, Indicators, and Language to Partner Agencies



Preventing the worst impacts of climate change:

- Health analysis & EJ content for AB 32 **Scoping Plan** (CARB)
- **Low-Income Weatherization Program (LIWP)** / AB 1232 implementation – improving health through energy efficiency & weatherization of homes (CalHHS Community Services & Development Dept)
- **Access to clean transportation & energy** for low-income Californians (SB 350, CARB, CEC)
- Health benefits of reduced driving for **CA Mobile Source Strategy** (CARB)
- Progress Report on **CA's Sustainable Communities & Climate Protection Act** (SB 375, mandated by SB 150, CARB)

Planning for the unavoidable climate impacts:

- **State Adaptation Strategy** and **Extreme Heat Action Plan** (CNRA, OPR)
- **State Hazard Mitigation Plan** and **Adaptation Planning Guide** (CalOES)
- R2 Vulnerability Assessment / 45 Day Community **Wildfire Prevention & Mitigation Report** (CAL FIRE)
- **Planning & Investing for a Resilient CA** – equity components (OPR)

Informing Policy: Health Analysis of Active Transportation

Healthy Mobility Options Tool / ITHIM CA: <https://skylab.cdph.ca.gov/HealthyMobilityOptionTool-ITHIM>

4x Increase in Walking & Transit; 9x Increase in Cycling:



Typical CA resident replaces short car trips by increasing current levels of weekly walking and cycling from **41** to **181** minutes.



Annual increase of **790** fatal injuries to pedestrians and cyclists – underscoring continued need for active travel safety measures



11,307 fewer chronic disease deaths and **157,958** “disability-adjusted” years of life gained annually



Projected annual health benefits valued between **\$8 billion** and **\$108 billion**



Less car driving would improve air quality and prevent **19** additional deaths annually



Replacing short car trips with walking, cycling, and transit would also **decrease annual car carbon emissions by 10 MMT**

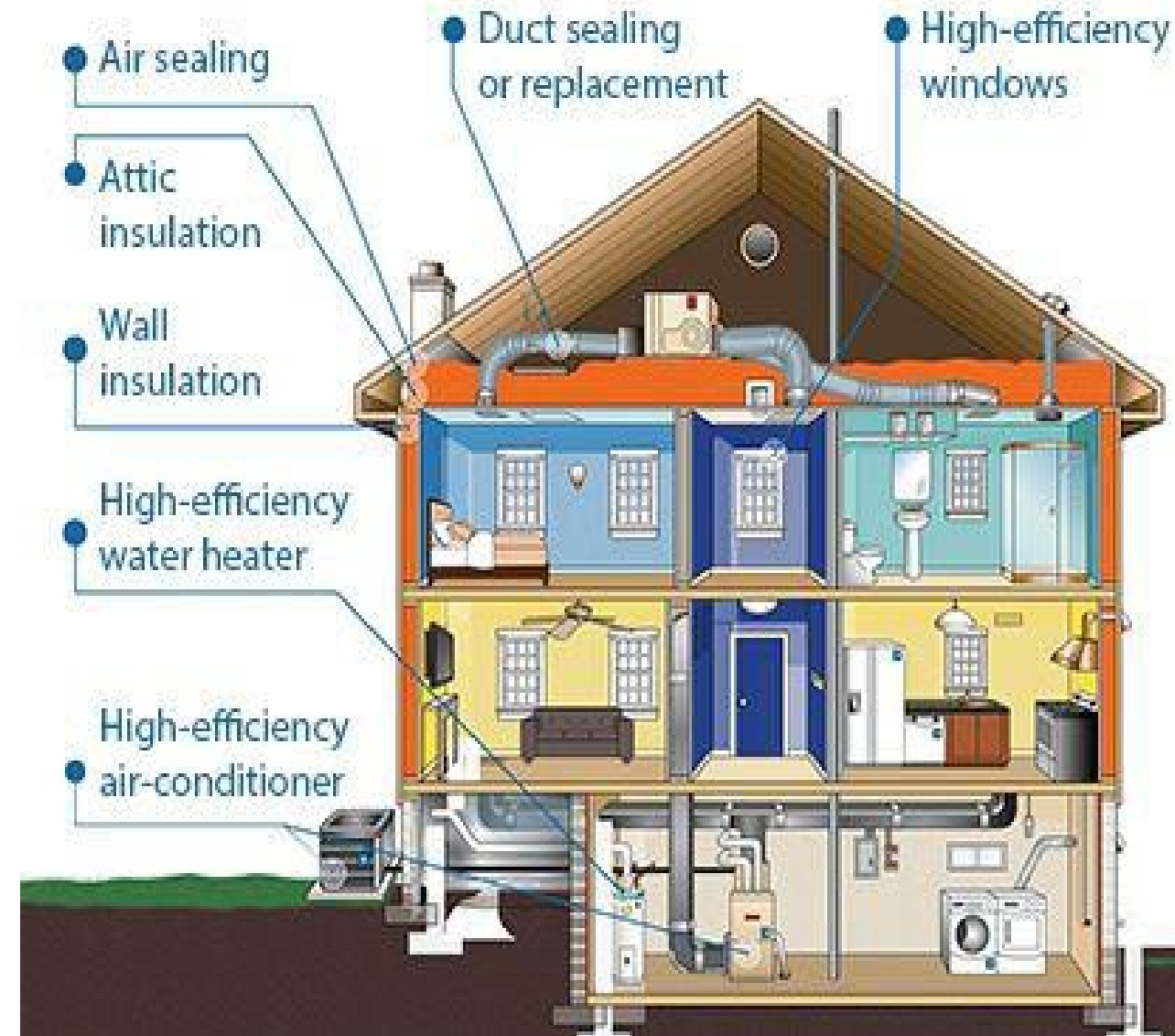
Weatherization Services and Energy Efficiency

Weatherization:

Weatherization is the practice of improving physical aspects of a building to reduce energy cost, optimize energy efficiency, and support health and safety measures

Measures can include:

- Insulation
- Air sealing
- Repair or replacement of windows
- AC installation
- Solar panels
- Repair or Replace Cooking Appliances



Benefits of Weatherization

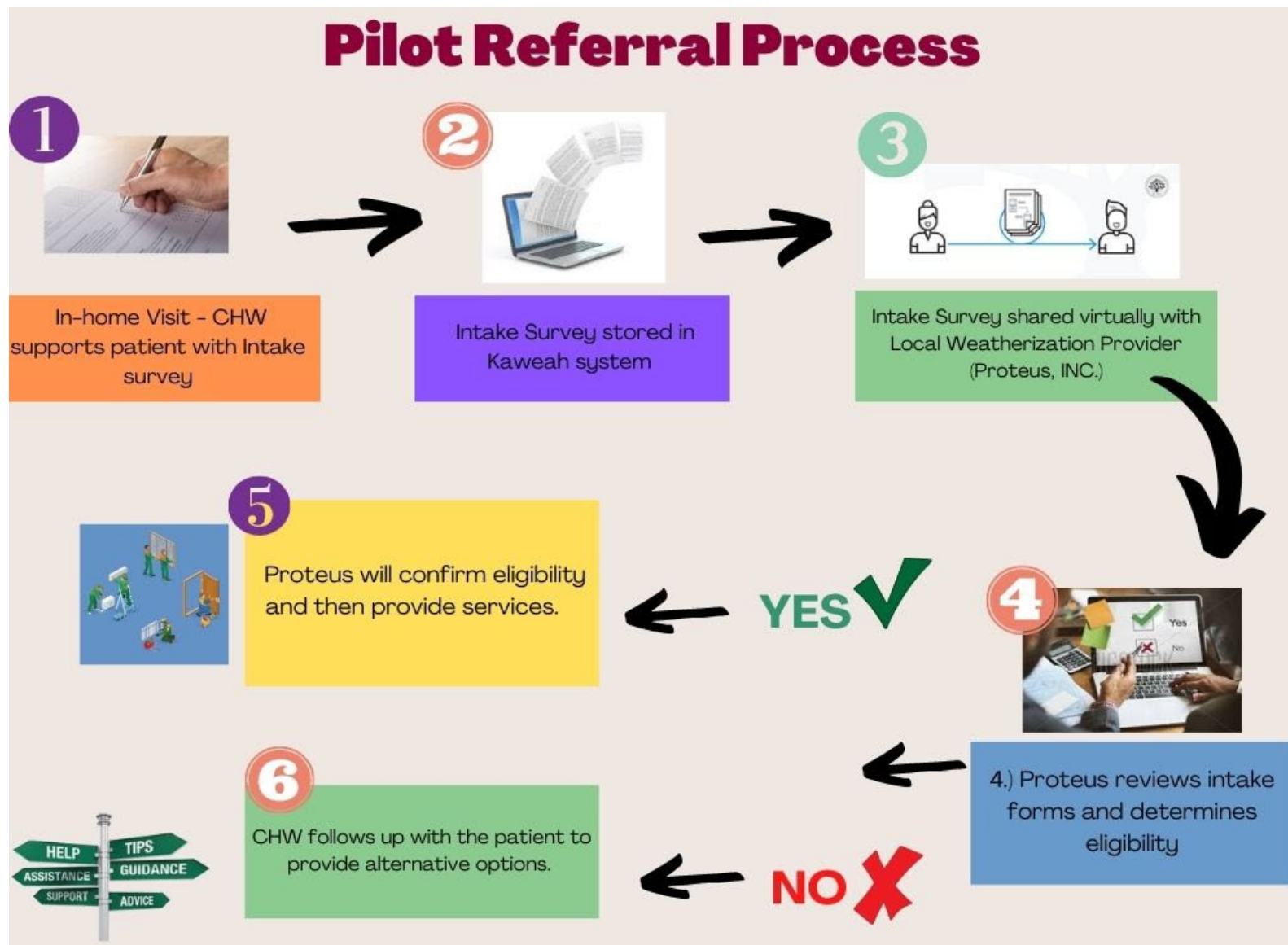
- Improved health, safety, and quality of life of residents.
- Reduce energy costs and high energy burden for low-income families.
- Improvements in thermal comfort.
- Decrease energy consumption- reduction in air pollution and greenhouse gas emissions associated with energy production.
- Improvements in housing stability, affordability, and quality.
- Healthcare cost savings and reduced health care utilization.
- Reduction in mortality rates associated with asthma and thermal stress

Tulare County Weatherization Pilot Project

(CHWs, Healthy Homes, and Healthy Families)

Program Goal:

Connect farmworkers and low-income Tulare residents with energy-efficiency and weatherization services to reduce health risks and improve resilience to heat, wildfire smoke, and air pollution.



Guide State Investment & Resource Distribution to Prioritize Health Equity



Provide Health Equity Input to State Grants to CA Communities

- Affordable Housing & Sustainable Communities Program (SGC)
- Transformative Climate Communities (SGC)
- Regional Climate Collaboratives Program (SGC)
- Community Resilience Centers Program (SGC)
- Climate Change Research Grant Program (SGC)
- Triennial Strategic Research Plan and Annual Research Plans (SGC)
- SB 1 Adaptation Planning Grants (Caltrans)
- SB 1 Sustainable Communities Grants Program (Caltrans)
- Active Transportation Program (Caltrans)
- Urban Greening Grant Program (CNRA)
- And more...

Features Incorporated:

- Equity framework
- Prioritizing based on HPI, CCHVIs
- Community engagement & capacity building
- Reducing VMT & facilitating active transport
- Local hiring, jobs creation & training
- Preventing displacement
- Partnering with health departments

Climate Action Team – Public Health Workgroup



- Address **cross-cutting issues** related to climate change and health equity
- **Public forum** for communication, coordination, and education across agencies and with stakeholders
- **Past meeting topics:**
 - Tribal Health
 - Wildfire / Smoke
 - Drought Response
 - Health Analysis of State Climate Programs
 - Extreme Heat
 - Mental Health
 - Oil & Gas Production
 - Worker Health
 - Climate Action Plan for Transport. Infrastructure
 - Mobilizing Public Health Sector
 - Active Transportation
 - Healthy Soils
 - Urban forestry, and more

<https://ww2.arb.ca.gov/resources/documents/climate-action-team-public-health-workgroup-meetings>
Email climatechange@cdph.ca.gov to be notified of future CAT-PHWG meetings

Increase Capacity of Local Health Depts & Tribal Organizations

- Support **CDPH** programs, **local health departments**, and **tribal organizations** to engage on climate change & equity
- **CaIBRACE** (California Building Resilience Against Climate Effects) Project of CCHES provides **technical assistance and tools** for climate change and health planning
- **Climate Change & Health Profile Report** for each CA county
- **CaIBRACE Adaptation Toolkit**
- Help local health jurisdictions partner or receive **California Climate Investment funds** to further public health objectives

The image displays a screenshot of the CaIBRACE Adaptation Toolkit website and two report covers. The website screenshot shows the 'Project Disease Burden' section, which includes a navigation menu with 'Toolkit Overview', 'Before You Start', 'Impacts and Vulnerabilities', 'Project Disease Burden', 'Assess Interventions', and 'Adaptation Plan and Action'. The main content area features a large photograph of an elderly man wearing a cap and a green shirt, looking towards the camera. Below the photo, there is text explaining the 'Project Disease Burden' step and a list of climate exposures: Heat, Air Pollution, Wildfire and Wildfire Smoke, Drought, Inland Flooding, and Sea Level Rise. The report covers are for Sacramento County and the 2015 CaIBRACE Public Health Planning for Climate Change Adaptation in California Vulnerability Assessment. The Sacramento County report cover includes logos for CDPH, UC Davis, and the California Department of Public Health Office of Health Equity, and is dated April 2015. The 2015 CaIBRACE report cover features a map of California with circular callouts showing a family on a beach, a map of the San Francisco Bay Area, and a woman holding a baby. Logos for CDPH and UC Davis are also present on this cover.

Climate Change & Health Vulnerability Indicators for California

Environmental Exposures:

Heat

Air Quality

Drought

Wildfires

Sea Level Rise

Adaptive Capacity:

Air Conditioning Ownership

Tree Canopy

Impervious Surfaces

Public Transit Access

Population Sensitivity:

Children and Elderly

Poverty

Education

Race and Ethnicity

Outdoor Workers

Vehicle Ownership

Linguistic Isolation

Disability

Health Insurance

Violent Crime Rate

Yolo County

Select an Indicator

Projected number of extreme heat days 2080-2099

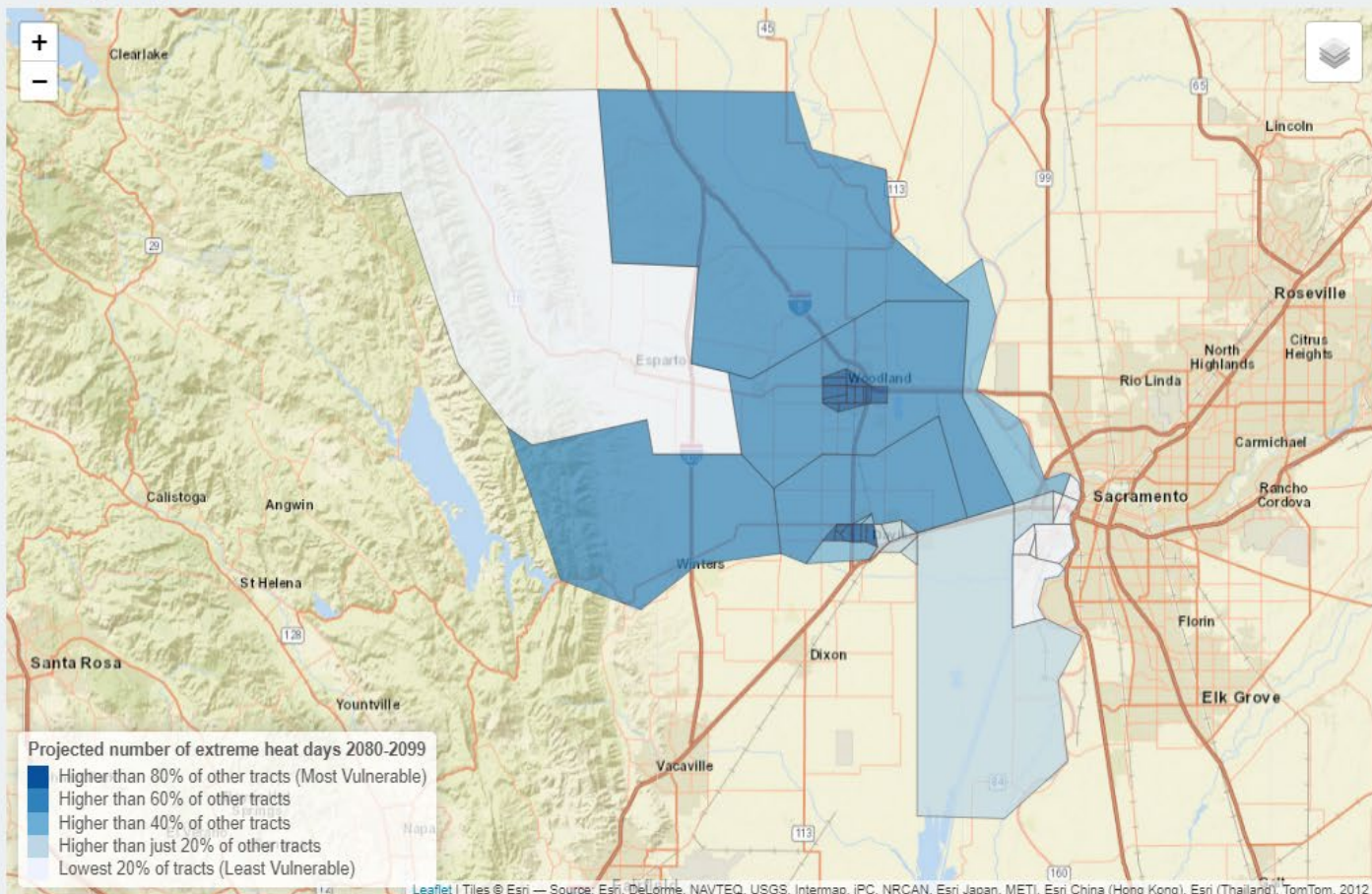
Strata

2080-2099

Heat waves are associated with increased hospital admissions for cardiovascular, kidney stones, mental health, diabetes, and respiratory disorders.

[Download the Narrative for this Indicator](#)

County Map



[Download the data in this Map](#)

What is the climate change challenge?

Periods of warmer temperatures and heat waves are expected to increase in frequency, intensity, and duration throughout the 21st century. Warmer temperatures increase the heat inside buildings and the need for cooling in urban areas and intensify existing urban heat islands (a phenomenon in which urban areas are warmer than the surrounding non-urban areas) in areas that are most heavily populated. There will be increases in annual average temperature of up to 5°F by 2030 and up to 10°F by the end of the century or sooner, although not every day will be hotter than current averages. Minimum nighttime temperatures are also projected to increase. For example, the 2006 California heat wave brought higher temperatures combined with increased humidity, particularly at nighttime. Increased daytime temperatures, reduced nighttime cooling, and higher air pollution levels associated with urban heat islands can affect human health and exacerbate the impact of heat waves.

Why is this climate change impact important to health?

Sustained high heat days and heat waves directly affect human health through heat-related illnesses such as heat stroke, heat exhaustion, and dehydration, as well as other illnesses and premature deaths from cardiovascular or respiratory diseases. Heat waves are associated with increased hospital admissions for cardiovascular, kidney (including kidney stones), mental health, diabetes, and respiratory disorders. Extremely stressful climate exposures such as heat waves may lead to adverse birth outcomes including pre-term birth, low-birth weight, stillbirth, and maternal complications. In California, two separate examinations of a statewide heat wave in 2006 showed excess deaths ranging from 6% to 9% daily for each 10°F increase in temperature.

Who is most impacted?

Populations with the greatest risk of health impacts from extreme heat, due to physical vulnerability and/or lack of resources to prepare or respond to heat, may include:

- Elderly, particularly elderly over 65 years of age and elderly living alone
- children, women, infants, and pregnant women
- People with pre-existing chronic health conditions (e.g., respiratory disease, cardiovascular disease, diabetes, cerebrovascular diseases, respiratory diseases, and acute allergies)
- People who engage in vigorous physical activity including agricultural and outdoor workers, indoor workers, athletes (especially young athletes), military personnel, and outdoor recreationists
- Populations with low socioeconomic status
- Socially or geographically isolated populations
- People with mental or physical disability
- People in cooler areas less acclimatized to heat, with less awareness of ways to reduce exposure, and with housing not designed for warmer conditions
- Residents of urban areas, of the highest floors of apartment buildings, and without air-conditioning
- Some race/ethnic groups, particularly African Americans
- People taking certain medications related to specific heart or mental health conditions

Vulnerability

Visualize California Counties based on levels of both an exposure variable and a population sensitivity variable.

The plot illustrates the intersection of hazard (from an aspect of climate change) and sensitivity (from circumstances of the population or place that tend to increase susceptibility to the hazards of climate change). Counties are assigned to the bottom (least), middle, or top (most) third for both exposure and sensitivity. The most vulnerable counties appear in top and right-most portions of the figure. Points are sized according to the population living in that county. Hover over points for the county name, population, and indicator values.

Some examples of important combinations to consider are

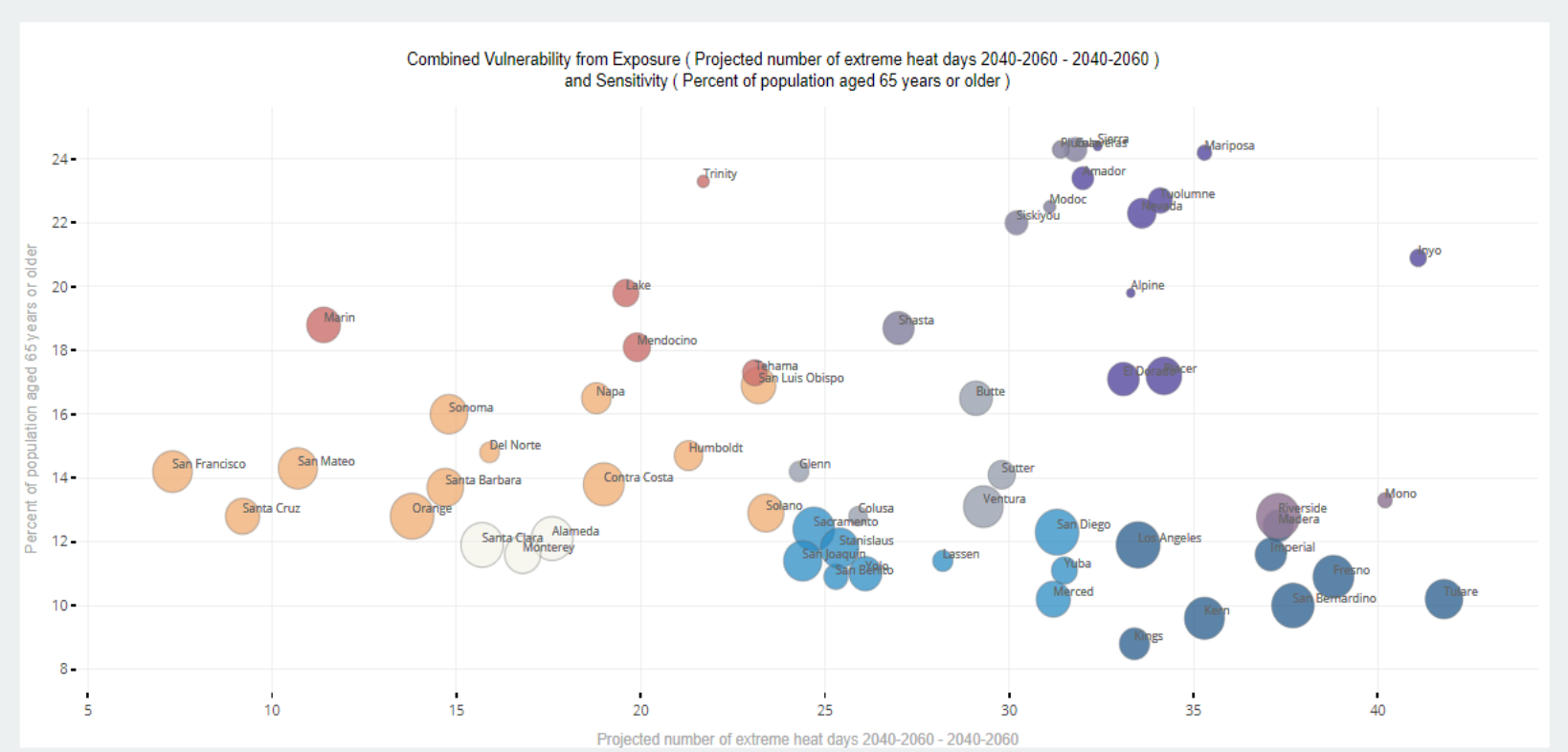
- Heat + elderly / outdoor workers / health insurance / air conditioning / tree canopy / impervious surfaces
- Ozone + children
- PM2.5 + children
- Wildfire + elderly / disability

Exposure Indicator

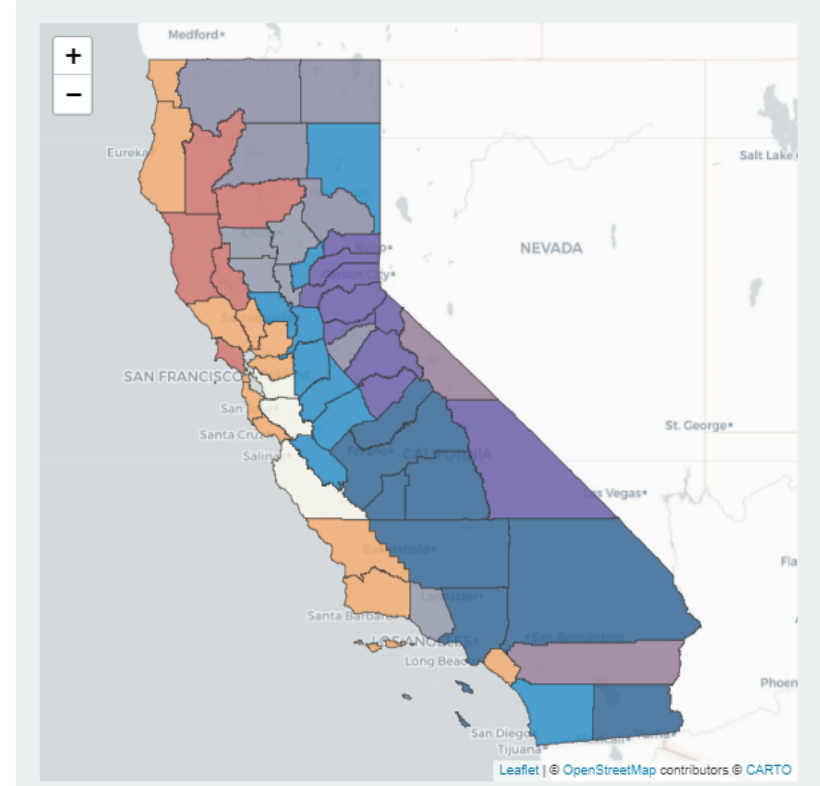
Projected number of extreme heat days 2040-2060

Sensitivity Indicator

Percent of population aged 65 years or older



[Download the data in this figure](#)



[Download the data in this map](#)

Protecting Californians From Extreme Heat:

A State Action Plan to Build Community Resilience

April 2022



Action Track A: Build Public Awareness and Notification

Track A - Goal 1: Build public awareness about extreme heat through targeted communications campaigns

Track A - Goal 2: Support actionable climate science and research to inform risk assessments and decision-making

Track A - Goal 3: Improve accuracy and accessibility of heat modeling and data to inform decision-makers

Action Track B: Strengthen Community Services and Response

Track B - Goal 1: Invest in social resilience

Track B - Goal 2: Protect California's workers and economy from the impacts of extreme heat

Track B - Goal 3: Support local planning and response measures to extreme heat events

Action Track C: Increase Resilience of our Built Environment

Track C - Goal 1: Protect critical infrastructure

Track C - Goal 2: Support heat resilient and cooler communities through relevant regulations and codes

Track C - Goal 3: Invest in cool buildings and surfaces

Track C - Goal 4: Utilize science-based frameworks and tools

Action Track D: Utilize Nature-based Solutions

Track D - Goal 1: Promote nature-based solutions to reduce extreme heat risks

Track D - Goal 2: Support nature's ability to withstand and adapt to increasing temperatures

Track D - Goal 3: Reduce heat risk to water supply and systems

<https://resources.ca.gov/-/media/CNRA-Website/Files/Initiatives/Climate-Resilience/2022-Final-Extreme-Heat-Action-Plan.pdf>

As Record Heat Wave Continues, Governor Newsom Signs Legislation to Protect Californians from Extreme Heat

Published: Sep 09, 2022

California becomes first US state to begin ranking extreme heat wave events

Published 6:32 p.m. ET Sept. 12, 2022 | Updated 2:36 p.m. ET Sept. 13, 2022



AB 1643 (R. Rivas) – Heat Advisory Committee to inform a study on the effects of extreme heat on California’s workers, businesses and economy

AB 2238 (L. Rivas) – Creates nation's first extreme heat advance warning and ranking system

AB 2420 (J. Arambula) – Directs CDPH to review research on the impacts of extreme heat on perinatal health and develop guidance for safe outdoor conditions to protect pregnant workers

Establishing a **statewide Climate and Health Surveillance Program** at CDPH

Key Take-Aways

- Remember the **humans** – **prioritize those facing inequities**
- Use a **policy, systems, and environmental (PSE)** approach that champions climate, health and equity (**CHE**) in all policies
- **Primary prevention** – address **root causes**
- **Build resiliency through racial and health equity**

Tools to Apply an Equity Frame

- **Climate Change & Health Vulnerability Indicators for California (CCHViz)** *by CDPH / Climate Change & Health Equity Section*
<https://skylab.cdph.ca.gov/CCHViz/>
- **California Healthy Places Index** *by the Public Health Alliance of Southern CA*
<https://www.healthyplacesindex.org/>
- **CalEnviroScreen 4.0** *by CalEPA*
<https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>
- **California Emissions Estimator Module (CalEEMod)** *by the California Air Pollution Control Officers Association (CAPCOA)* <https://www.caleemod.com/>
- **Toxic Tides** *by UC Berkeley Sustainability and Health Equity Laboratory, UCLA, Asian Pacific Environmental Network, CAUSE, PSR-LA, PHI, and other partners*
<https://sites.google.com/berkeley.edu/toxictides/>

Resources: Climate, Health, & Equity

- **CDPH Climate Change & Health Equity Section (CCHES)**
<https://www.cdph.ca.gov/Programs/OHE/Pages/CCHEP.aspx>
- **CDPH CalBRACE Adaptation Toolkit**
<https://cdphdata.maps.arcgis.com/apps/MapSeries/index.html?appid=4093397556b4450ea563f23fcf353c64>
- **APHA and PHI “Climate Change, Health, and Equity: A Guide for Local Health Departments”** <https://www.apha.org/topics-and-issues/climate-change/guide>
- **CA Environmental Justice Alliance SB 1000 Toolkit**
<https://caleja.org/2017/09/sb-1000-toolkit-release/#form>

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Thank You!



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<http://bit.ly/cchep>



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