Wildfire Health Community Advisory Board

INTRODUCTORY MEETING: HEALTH IMPACTS OF WILDFIRES

5.13.25

Led by Dr. Katherine McNamara, Dr. Savanna Carson, and Dr. Arleen Brown

Please request before sharing slides.

Community!

LA FIRE HEALTH STUDY

Spiegel Family Fund

UCLA CTSI

UCLA Health

Community Engagement & Research Program

UCLA Fielding School of Public Health

County of Los Angeles Public Health

Acknowledgment

We know there has been a tremendous loss in the Eaton and Palisades fires, many of which you or clients you work with have faced.

This includes loss of loved ones, homes, communities, jobs, normalcy, and many other traumas.

Agenda

1. Introductions
2. Group goals – Why are we here?
3. LA Fire HEALTH Study in Los Angeles
4. Overview of Wildfires and Health Impacts
5. Discussion
6. Wrap up and Next steps

Short Introductions (2 minutes per person)

Please share:

1. **Your name**
2. **Communities or organizations you represent**
3. **One of the following:**
   - *What have you heard about wildfires and health impacts?*
   - *Questions you have about wildfire health!*
   - *What are you hoping to learn?*

Ground rules

Stay present

Respect & Accept

No right answers.
No wrong questions.

All valuable perspectives.

Step Up and Step Back

Let everyone have a chance to speak.
Everyone is an expert in different ways.

Contribute to meeting goals

Stay on topic ☺

Open participation is encouraged!

Speak up, zoom chat, share!

Group support is key!

Please respect privacy and don't share outside of the meeting, unless all have agreed to it.

Our Goals!

Short term:
Help ensure wildfire health information is accessible to diverse at-risk individuals across LA County.

Ensure the LA Health Wildfire Study supports community-relevant research questions, addresses community concerns, and is responsive to community preferences.

Long term:
Determine health communication best practices for diverse populations for *future* wildfires and disasters.

Community Expertise: Why YOU are here!

To ensure that health information **is accessible to everyone who needs it**, we must have strong community representation in developing easy-to-understand, practical, helpful wildfire communications.

- Understand cultural factors and community norms
- Bring up community-relevant questions and concerns, including any misinformation
- Promote framing, messaging, and communication strategies that resonate with the community
- Ideas for partnerships, connections, networking, and outreach

What our scope entails as a group!

What this study and advisory board is **NOT:**

We are not the public health department or your doctor (we can't give you, or the community *personal* health advice)

We are not supporting rebuilding/ recovery efforts (i.e., not FEMA)

We are not an enforcement agency (i.e., not EPA, debris cleanup, testing, etc.)

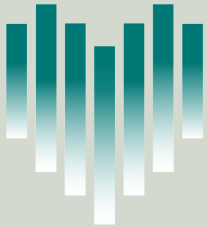
What this study and advisory board is **MAY DO:**

Provide clear communication about wildfire health

Elevate community health concerns and answer questions

Clarify what we don't know (gaps) about the science of wildfire health, and be transparent about what research may NOT be able to answer

Reduce myths and misinformation



LA FIRE HEALTH STUDY

LA FIRE HEALTH STUDY

The Los Angeles Fire Human Exposure and Long-Term Health (LA FIRE Health) Study collaborates with experts in environmental exposure assessment, health outcomes analysis, wildfire risk assessment and management, and data science.

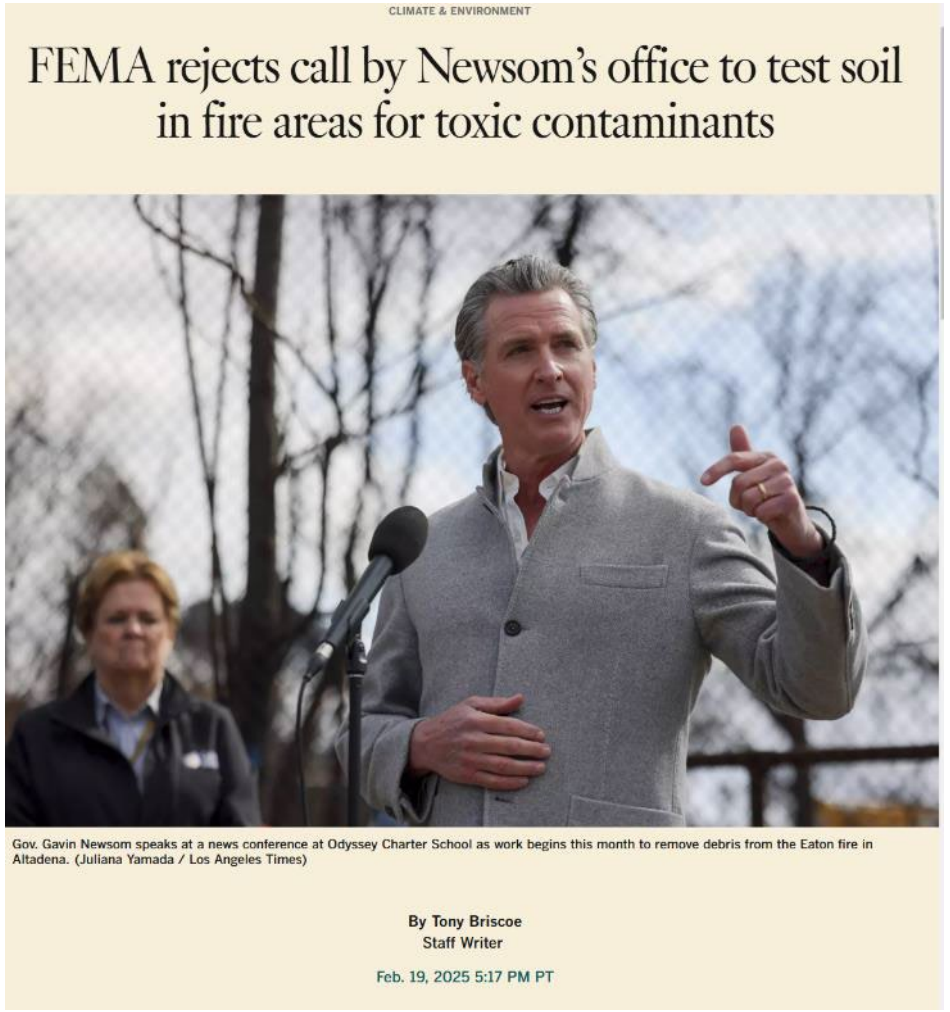
The research aims to evaluate the presence of pollutants, their levels, and locations, as concentrations diminish over time, and to assess the health impacts of wildfire emissions.

Goals include:

1. **Is it safe?** Which pollutants are present, at what levels, where, and how do they change over time?
2. **What are the health impacts?** Are the L.A. fires and their aftermath linked to short-term and long-term health issues?

Why is this study important?

- Although the Eaton and Palisades fires haven't burned the largest areas in California, they are some of the biggest fires to hit infrastructure, like buildings and utilities. This gives us new insight into how these fires might affect people's health.
- Localized measurements can clarify potential air, ash, water, and soil testing exposure.
- Adding more evidence supports any testing gaps from government or community efforts.



CLIMATE & ENVIRONMENT

FEMA rejects call by Newsom's office to test soil in fire areas for toxic contaminants

Gov. Gavin Newsom speaks at a news conference at Odyssey Charter School as work begins this month to remove debris from the Eaton fire in Altadena. (Juliana Yamada / Los Angeles Times)

By Tony Briscoe
Staff Writer

Feb. 19, 2025 5:17 PM PT

Overview:
Wildfires & Health Impacts

Learning Objectives

1. Increasing wildfires and the resulting smoke impact our air quality, which can, in turn, affect our health.
2. Wildfire smoke carries a complex mix of harmful contaminants.
3. Most people encounter wildfire smoke in the air, but exposure can also happen through dust, water, and other sources.
4. Harmful contaminants from wildfires have been linked to health effects on large groups of people.
5. We still need to do more to understand all wildfire health impacts, which may vary depending on the specific fire and the individual's circumstances.

Case stories

1. **Grace**: You are 10 years old, have asthma, live directly across from the fire zone, and walk to school.

2. **Clara**: You are 60 years old, have high blood pressure, and work in housekeeping in the fire zones. It's hard for you to do housekeeping in a mask, and you don't think you need to wear one if indoors. Plus, you don't want your clients to believe you are sick.

3. **Michael**: You evacuated from your home during the strongest smoke days. Strong winds and dust are common, along with ongoing clean-up efforts and construction. You have been concerned about the fire smoke and bought high-quality air purifiers you run daily.

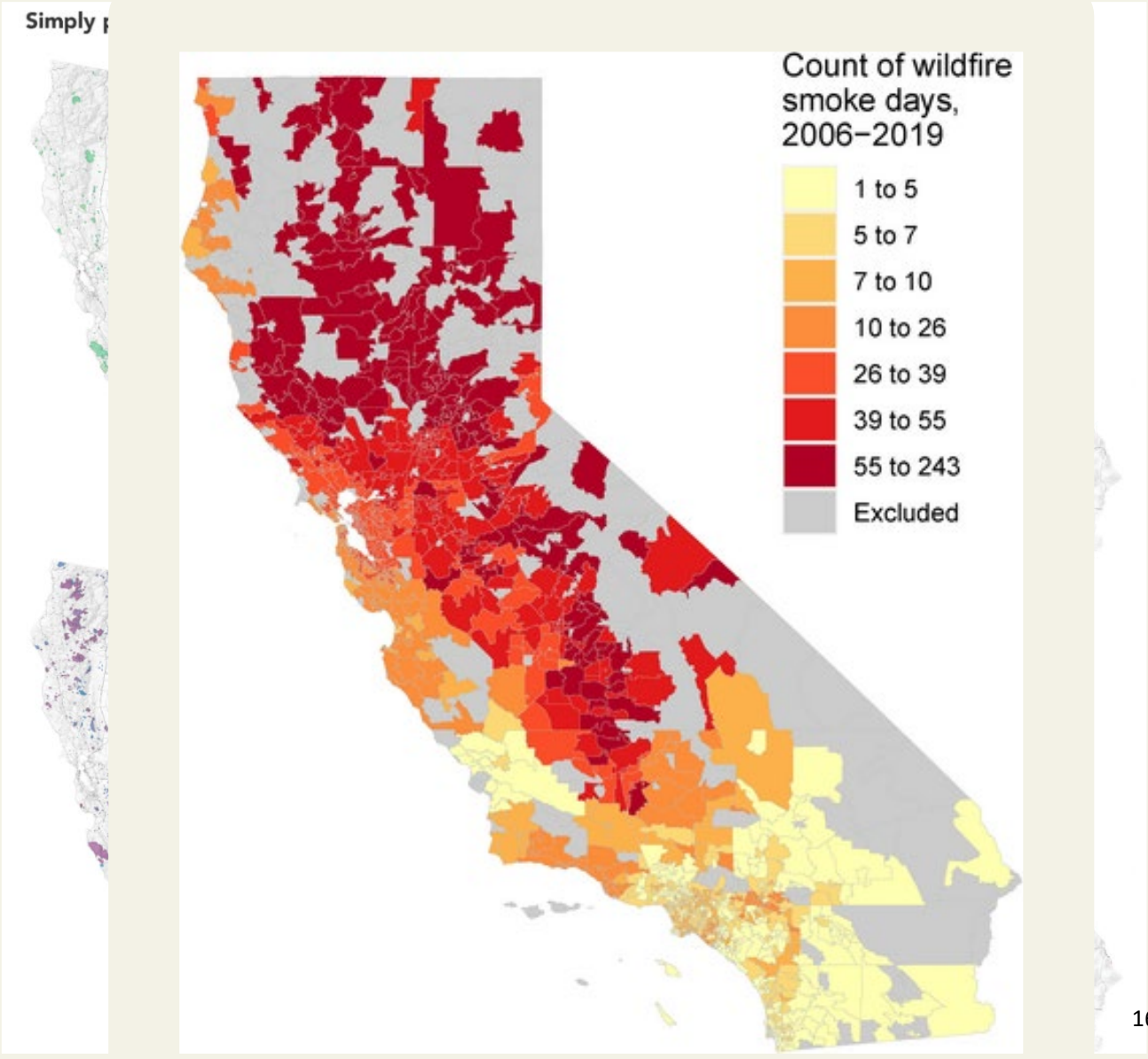
Key point:

Ideally, we all want to avoid wildfire smoke and dust that has settled after the fire. But there are people who may have more risk or higher exposures than others, whom we may worry more about, or who have less protection.

Wildfires and wildfire smoke are now more common than ever.

Key point:

Increasing wildfires and wildfire smoke affect our air quality and, as a result, can affect our health.



What is in wildfire smoke?

Wildfires can burn many things in their path, creating smoke that contains gases and tiny particles known as particulate matter.

- **Solids**, called **particulate matter (PM)** can float in the air as ash or dust and contain metals, dirt, and other chemicals. These can be very small, and we can't often see them, but breathing too much PM can affect our health.
- **Gases**, which dissolve quickly and can contain chemicals (benzene, toluene, aka volatile organic compounds).

These compounds can cause damage to human health.

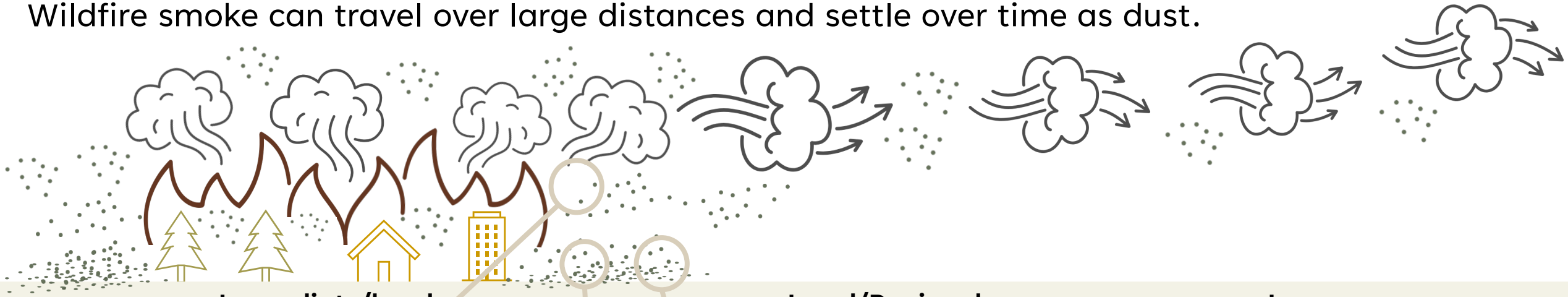
Key point:

Wildfire smoke can carry a mixture of harmful contaminants, many of which are small, impossible to see, and travel deep into our lungs.

"Clean the air" comic from Migrant Clinicians Network

How can you be exposed to wildfire contaminants?

Wildfire smoke can travel over large distances and settle over time as dust.



Immediate/local
0-6 miles

Local/Regional
7-600 miles

Larger areas
600+ miles

Breathing in active smoke and dust, or dust/ash disturbance (i.e., wind, dusting/cleaning, or construction).

Drinking or eating settled dust from hand-to-mouth, or dust disturbance activities.

Touch or eye contact with settled dust, ash, or bathing (if the water supply is affected).

Key point:

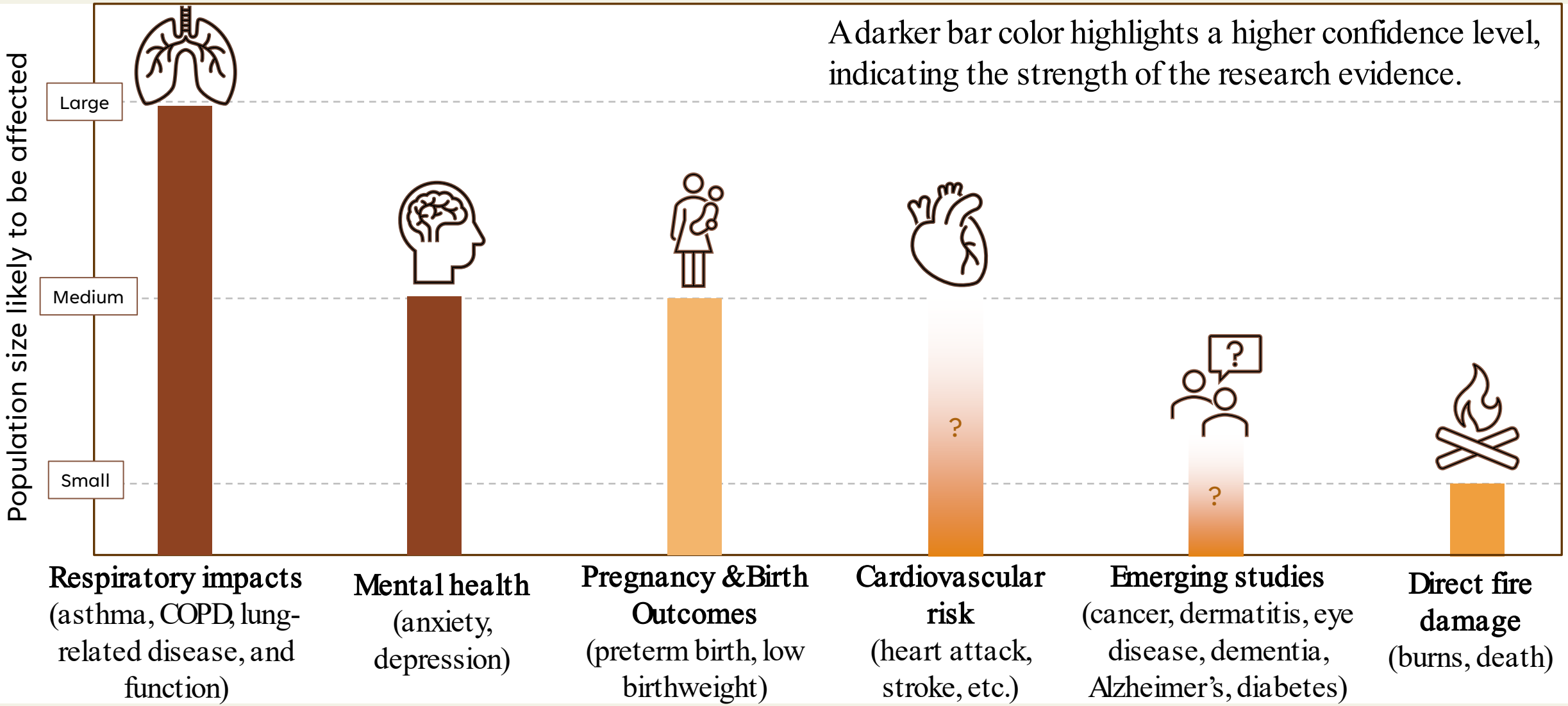
Breathing in polluted wildfire smoke is the *most likely* exposure for most people. Other exposures may be relevant for some populations, jobs, locations, health conditions, or specific cases, i.e., kids playing in dirt.

***People with *higher* exposures or who are *more vulnerable* may include:** cleanup or outdoor workers, including firefighters/emergency workers, those with developing lungs, without air purifiers, and with chronic conditions.

Figure adapted from (1) National Academies of Sciences, Engineering, and Medicine 2022. The Chemistry of Fires at the Wildland-Urban Interface. Washington, DC: The National Academies Press, and (2) TECHNICAL BRIEF When the Dust Settles: Reducing Chemical and Particle Health Risks Following a Large-Scale Urban Fire, UL Research Institutes, 2023.

Wildfire Smoke and Resulting Health Impacts

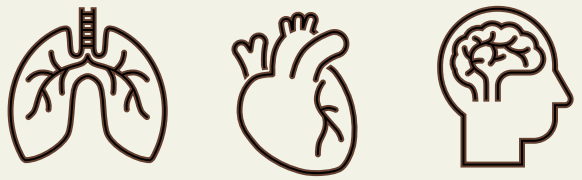
What we know (...so far)



Modified from: Gould CF, Heft-Neal S, Johnson M, Aguilera J, Burke M, Nadeau K. Health effects of wildfire smoke exposure. Annual Review of Medicine. 2024 Jan 29;75(1):277-92. https://doi.org/10.1146/annurev-med-052422-020909
With data from: Ma Y, Zang E, Liu Y, et al. Long-term exposure to wildland fire smoke $PM_{2.5}$ and mortality in the contiguous United States. *Proc Natl Acad Sci USA* 2024;121:e2403960121. doi:10.1073/pnas.2403960121.
And: Lei Y, Lei TH, Lu C, Zhang X, Wang F. Wildfire Smoke: Health Effects, Mechanisms, and Mitigation. Environmental Science & Technology. 2024 Nov 8;58(48):21097-119.

Lessons from *some* other fires

Health impacts vary for many reasons!



Dates	Fire	Smoke	Size	# People	Health Impacts found measuring particulate matter (PM2.5)
July-Aug 2018	Mendocino Complex Fire	26-51 smoke days	459,123 acres	Analysis of 3.2M adults (Kaiser)[1]	High PM2.5 levels linked to a **23.1% increase in heart health events (like a heart attack or stroke)** and a 35.8% rise in death. *Largest CA infrastructure/building fire!*
Nov 2018	Camp / Paradise Fire	11-15 smoke days	153,336 acres	Analysis of 3.2M adults (Kaiser)[1]	Despite high PM2.5 levels, researchers found **no increase in heart health events**.
2007-2020	All US Wildfires	Average PM2.5 from **all wildfires** over 4 years		Nationwide study of weather, PM2.5 and death records[2]	High PM2.5 **linked to increased deaths** from heart diseases, diabetes, kidney disease, and mental disorders. **Older adults and racial minorities faced greater risk**, especially Black/Latino populations (not due to genetics). **Extreme heat + wildfire smoke** increase mortality risk for cardiovascular and mental health issues.
Aug [illegible]	Maui	1-2 smoke days	1,081 acres	Survey + health, 679 adults in Feb '24	Up to 74% showing potential lung health impacts ~Over half of the participants had depressive symptoms

Key point:

Helpful to learn from past fires, though we need more studies on specific populations, including children. Fire differences may lead to different health impacts.

1. Alexeeff SE, Van Den Eeden SK,. Wildfire air pollution and rates of cardiovascular events and mortality in northern california in 2018. *JAm Heart Assoc*. 2025;Feb 5: 2025:e036264. doi:10.1161/JAHA.124.036264.
2. Ma Y, Zang E, Liu Y, et al. Long-term exposure to wildland fire smoke $PM_{2.5}$ and mortality in the contiguous United States. *Proc Natl Acad Sci U S A* 2024;121:e2403960121. doi:10.1073/pnas.2403960121.
3. https://uhero.hawaii.edu/wp-content/uploads/2024/05/MauiExposureStudy.pdf

The data we often see may not show the full public health impact of wildfires…

EASY TO GET:

Examples of public data we may be able to get after the wildfires

- Emergency department visits and hospitalizations
- Mortality (death certificates)
- School absences

HARDER TO OBTAIN:

Examples of data you'd have to actively collect or study further ($, time, etc.)

- Changes in lung function or capacity (not a routine test conducted in health visits)
- Increased use of inhalers, medicines, or other respiratory symptoms (coughing, COPD)
- Health risks of specific populations, or job/occupations (i.e., clean-up or outdoor workers)

Key point:

We may not be able to measure all health impacts from wildfires and urban fires with data we have. New research is needed to understand all impacts.

Modified from: Cascio WE. Wildland fire smoke and human health. Science of the total environment. 2018 May 15;624:586-95.

Challenges in knowing the health risks of wild/urban fires

Depends on the fire

1. What is in the smoke varies! Difficult to know what's in smoke because it changes based on what is being burned.

2. Size and length of active fire. Each fire is different in size, burn length, and smoke days. Smoke severity can also fluctuate and change with distance from fire.

3. Weather conditions. Wind can make smoke travel far distances, fog can keep smoke from dispersing, rain may help clear smoke, and high heat can increase body stress during smoke days.

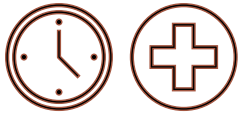
4. In what ways was one exposed? Exposure to fire contaminants may occur in different ways, through the air we breathe, the water we drink, and the soil we may interact with.

Depends on the person

5. Dose. Difficulty in knowing exactly how much a person or an entire population was exposed. Exposure differences can be large (i.e., outdoor vs. indoor workers).

6. A person's age and health conditions. Populations whose health is affected in different ways may include pregnant women, children and infants with developing lungs, adults, seniors, and those with chronic disease.

7. Protective or unprotective factors. Knowing how much protective factors may impact health, such as changed behaviors, access to air purifiers, or health insurance.

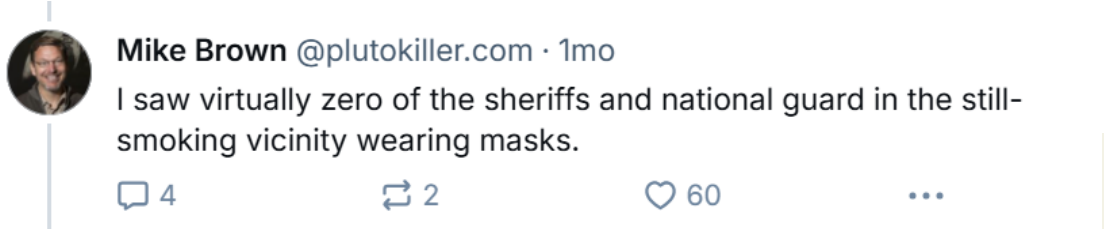


8. Lag time between exposure and health impacts: Long-term effects are unknown, understudied, and become more difficult to attribute to exposure with time.

Vulnerable Populations

Who is vulnerable to wildfire smoke?

- Infants, children, and youth with **developing lungs**
- **Pregnant** persons
- Persons with **chronic disease or health issues** (asthma, heart conditions, lung conditions)
- **Aging** populations (more likely to have health conditions)
- Persons with **more exposure** (outdoor workers, or clean up crews)
- Persons with **limited resources** (unhoused, can't temporarily relocate, reliant on public transportation, no internet, no air filtration, prefer a language other than English, etc.)



NATION, WORLD + SOCIETY

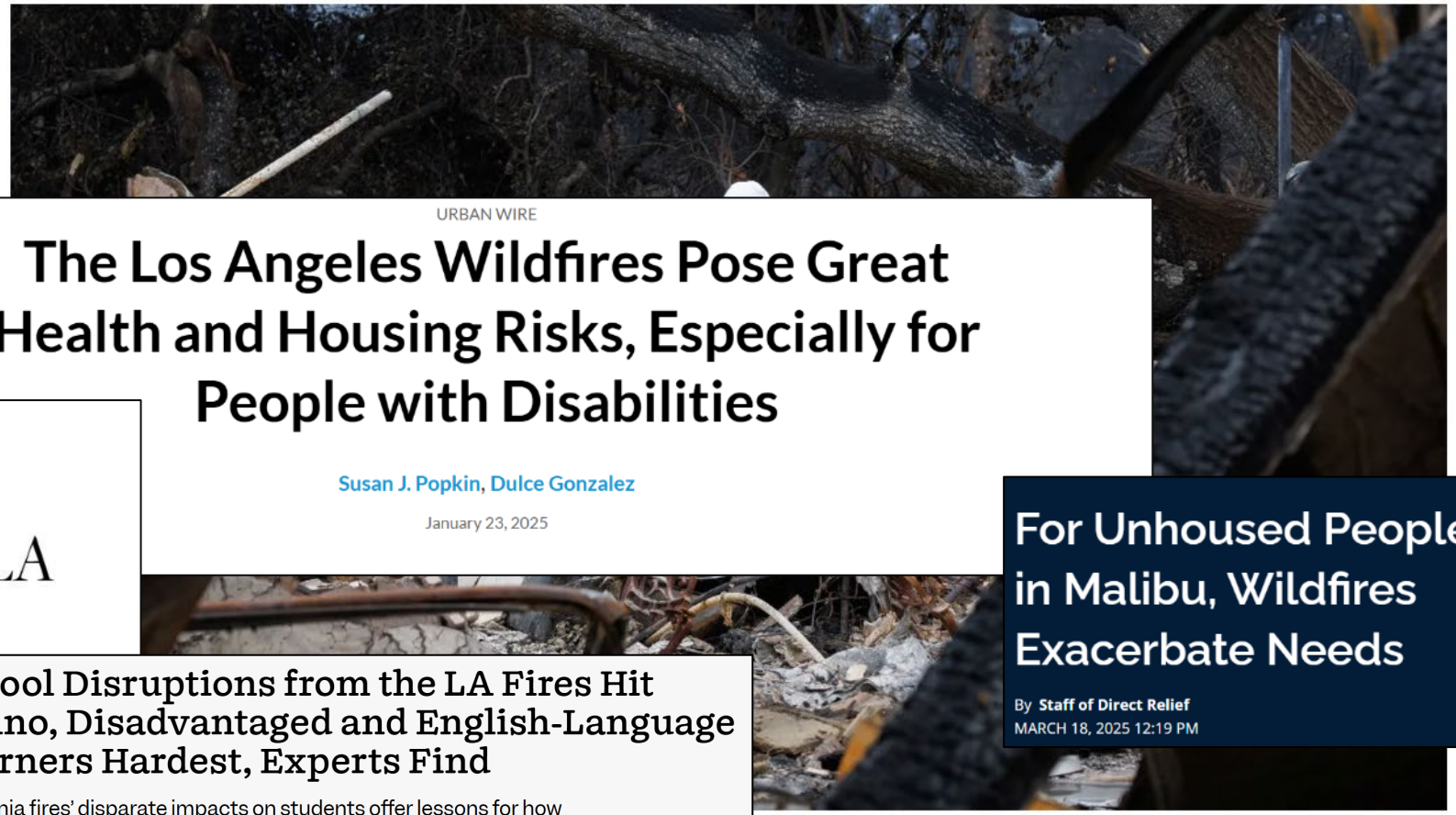
Altadena's Black community disproportionately affected by Eaton Fire, report shows

UCLA study shows systemic inequalities and redlining practices contributed to fire vulnerability and impacts

KCRW FEATURES

Immigrant day laborers learn how to do risky fire cleanup

By Megan Jamerson • Mar. 05, 2025 WILDFIRES



URBAN WIRE

The Los Angeles Wildfires Pose Great Health and Housing Risks, Especially for People with Disabilities

Susan J. Popkin, Dulce Gonzalez

January 23, 2025

For Unhoused People in Malibu, Wildfires Exacerbate Needs

By **Staff of Direct Relief**
MARCH 18, 2025 12:19 PM

) work to remove toxic and hazardous debris from a
ia, U.S. January 30, 2025.

: REUTERS/Mike Blake.

CALIFORNIA

Asian communities faced language barriers during L.A. wildfires, UCLA study says

School Disruptions from the LA Fires Hit Latino, Disadvantaged and English-Language Learners Hardest, Experts Find

California fires' disparate impacts on students offer lessons for how schools should prepare for climate disasters across the nation.

By Liza Gross
March 14, 2025

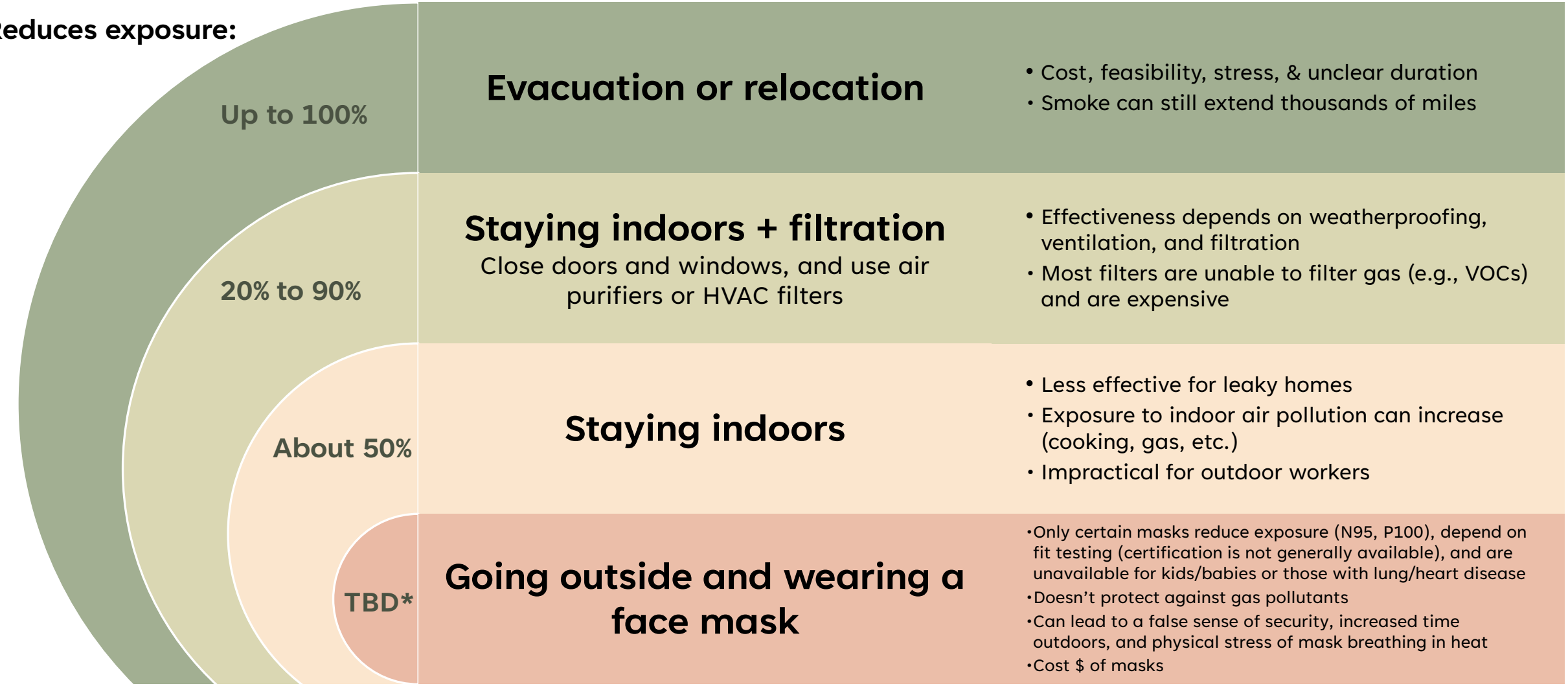
Brief recap: Wildfire Health Risks

1. Health risks from fires and long-term exposures afterwards are not fully understood.
2. We know that wildfires can have health impacts on lung function, mental health, pregnancy outcomes, and heart health.
3. Exposure may vary by fire, including what burned, the length, size of the fire, and other factors.
4. Health impacts may vary by personal characteristics, exposure length, and severity.
5. Community and personal exposures are often hard to measure (knowing what toxins, how much, and for how long).

Wildfire Protection

Reducing Exposure to Smoke + Health Risks

Levels of protection



*Up to 90% if a well-fitted mask, but nearly 0% if a poorly fitted mask

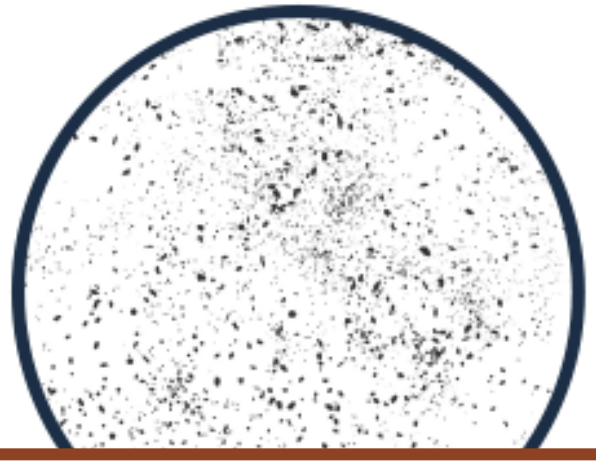
Modified from: Xu R, Yu P, Abramson MJ, Johnston FH, Samet JM, Bell ML, Haines A, Ebi KL, Li S, Guo Y. Wildfires, global climate change, and human health. New England Journal of Medicine. 2020 Nov 26;383(22):2173-81.

DURING WILDFIRES
WHEN TO TAKE PRECAUTIONS

High AQI

Smell Smoke

Visible Ash



Smoke or visible ash may mean other contaminants are in the air that AQI cannot measure.

*Wearing a mask is especially important for working outdoors in active wildfires, and ideally, a P100 mask if available and you have fit testing clearance!

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Health
ion

Wear a N95 mask

Stay indoors and keep windows and doors closed

Run HVAC and/or air purifiers

Avoid vigorous physical activity

What we'll hope to cover in meetings to come

Eaton/Palisades fire research results from:

Air Quality

(Particulate matter, VOCs)

Metals

(Air, soil, etc)

Tests from Soil, Water, Ash

Mental health

Some of this depends on what we hear from you!
Including pressing questions, time, and preferences!

Future meetings and CAB administration

Focused Discussion, Q&A

- Any questions about what we've covered so far?
- What health concerns currently exist, and how can communities address health issues during/after wildfires?
- What knowledge gaps remain, and how can science be communicated better?
- How do we better disseminate what we discussed today, if it was helpful to you?

Payment

$800 total for participation over FOUR 2-hour meetings

- Attendance at meetings and/or providing input
- 250$ for first meeting (extra 50$ for time in scheduling, surveys, etc.)
- E-link for VISA cards

Note: If we can secure additional funds after four meetings, we will determine if you are willing to continue, and schedule…

Scheduling, questions, etc.

We appreciate your time and are incredibly grateful for your participation!

If we didn't have time to answer all the questions today, we will have opportunities at future meetings

If you have questions, please email. We will try to respond with answers via e-mail or at the next meeting

Savanna Carson:

- Email: scarson@mednet.ucla.edu

Please request before sharing slides.

Homework?

Review a data brief before the next meeting! Will send out by email!

Thank you!!