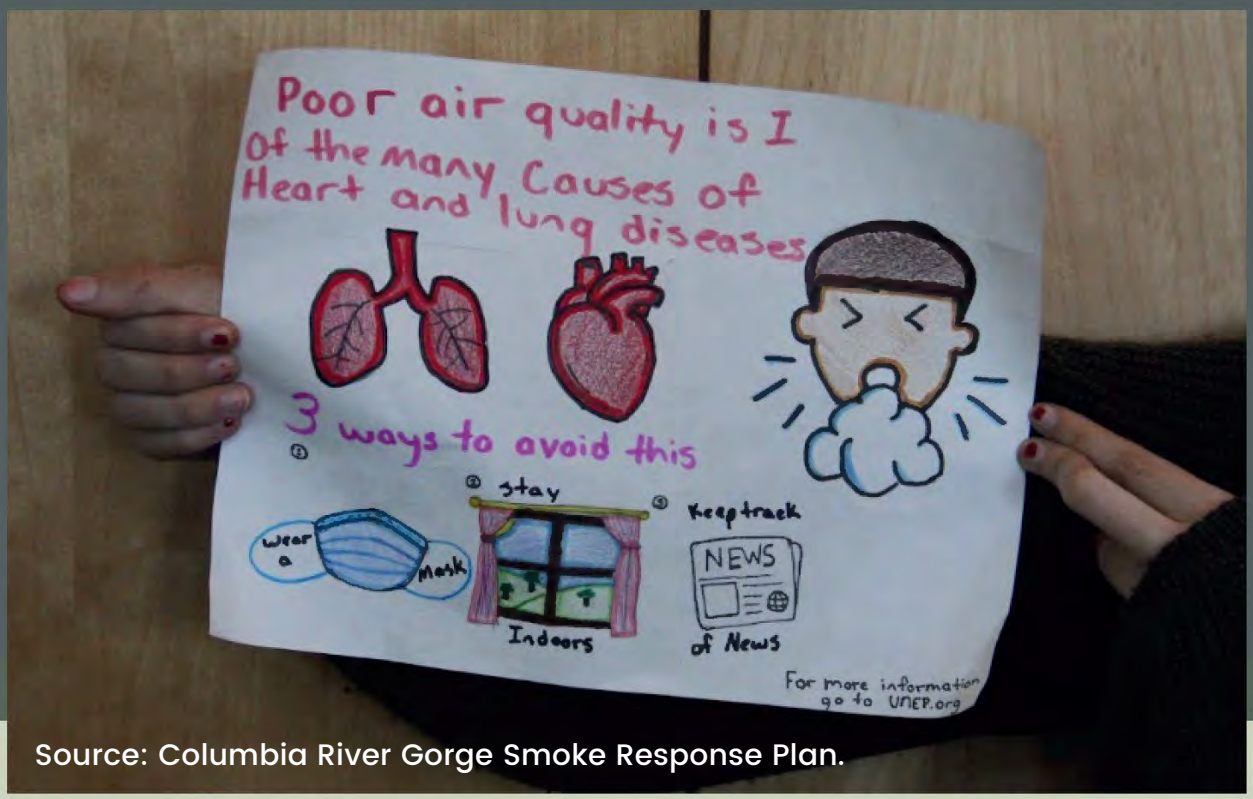
EQUITY & ENVIRONMENTAL JUSTICE IN WILDLAND FIRE WORKSHOP SERIES

DAY 2
Whole Community Approach to Being Smoke Ready



Source: Columbia River Gorge Smoke Response Plan.

Post-Workshop Materials: Day 2

December 2024

UNIVERSITY OF OREGON

The Smoke Center
CENTER FOR WILDFIRE SMOKE RESEARCH & PRACTICE
University of Oregon

Ecosystem Workforce Program

NORTHWEST FIRE SCIENCE CONSORTIUM

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Listening Guide for Workshop Day 2

Updated Resources Guide

Summary of Communication Audience(s) Analysis: Canva Whiteboard

Speaker Presentations

Photo Credit: Heidi Huber-Stearns.

Healthy People 2030, U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Retrieved Oct. 18, 2024, from https://odphp.health.gov/healthypeople/priority-areas/social-determinants-health

Photo Credit: Oakridge Air.

Listening Guide

Whole Community Approach to Being Smoke Ready

Refer to the next page for a two-page Resource Guide for working towards a whole community approach. The resource guide includes info from state and federal agencies across PNW Region that you can use in your communications & outreach, so please share with PIOs, Air Resource Advisors, burn team / those who answer questions in the field at trails, and others involved in smoke and air quality communications.

Framing & Overview of Day's Content (Listen here 8:00)

- Heidi Huber-Stearns, Associate Research Professor, Center for Wildfire Smoke Research and Practice, University of Oregon

West Bend: The Role of Land Management and Public Health Partnerships (Listen here 18:35)

- Ryan Gordon, USDA Forest Service, PNW Region

Environmental Justice, Smoke Exposure, and Resources (Listen here 57:55)

- Annie Doubleday, Ambient Air Quality Epidemiologist, Washington State DOH
- Matt Dehr, Wildland Fire Meteorologist, Washington State DNR
- Erin McTigue, Smoke Management Coordinator & Indoor Air Specialist, US EPA

Whole Community Approach to Being Smoke Ready (Listen here 1:33:40)

- Jamie Bash, Crisis & Emergency Risk Communications
- Click here for a downloadable exercise of how to think through your communication process / audiences.

Community Voices Panel Discussion (Listen here 2:11:55)

- Sara Jones, Smokewise Ashland. Contact: sara.jones@ashland.or.us.
- Sarah Altemus-Pope, Executive Director, Oakridge Air. Contact: sarah@swfcollaborative.org.
- Liz Walker, Advisor, Clean Air Methow. Contact: liz@mvcitizens.org.
- Lauren Kraemer, Associate Professor of Practice, College of Health, Oregon State University Extension Service in Hood River and Wasco Counties, Smoke Ready Gorge. Contact: lauren.kraemer@oregonstate.edu.

RESOURCES FOR WORKING TOWARDS A WHOLE COMMUNITY APPROACH TO BEING SMOKE READY

Toolkits

OHA Crisis & Emergency Risk Communication Toolkits (link). Includes:

- Tailoring Communications for a Whole Community Approach.
- * Extreme Heat (link). *Includes translation in Spanish, Arabic, Simplified & Traditional Chinese, Chuukese, Korean, Marshallese, Russian, Somali, and Vietnamese.*
- * Wildfires and Smoke (link) – *Includes community wildfire resources and air quality resources translated in Spanish, Arabic, Simplified & Traditional Chinese, Chuukese, Hmong, Korean, Marshallese, Russian, Somali, and Vietnamese.*
- Social Media for Crisis Communications.

OHA Air Quality & Outdoor Activity Guidance for Infants, Children, & Youth (link): UPDATED 2024.

WA DOH Smoke from Fires: Partner Toolkit (link) - Includes:

- * Air Quality Guide for Particle Pollution – *Includes translation in Spanish, Arabic, Simplified & Traditional Chinese, Korean, Punjabi, Russian, Somali, Tagalog, Ukranian, and Vietnamese.*
- * Children and Youth Activities Guide for Air Quality – *Includes translation in Spanish, Somali, and Russian.*
- * Portable Air Cleaner Selection Guide – *Includes translation in Spanish.*
- Improving Ventilation and Indoor Air Quality During Wildfire Smoke Events.

* **EPA Smoke Ready Toolbox for Wildfires** (link): *Includes full website translation in Spanish. EPA also has mobile phone apps: SmokeSense and AirNow.*

CDC guidance of people-first language (link): Word choices in communication can make all the difference for inclusivity. CDC has compiled preferred terms your organization can use when creating communication materials that engage people from different types of populations and communities.

Bay Area Regional Air Quality Messaging Toolkit, Section 4: Guidance for Communicating with the Whole Community (link): Includes a vulnerable populations task checklist (p.109-112), guidance on becoming familiar with and developing trusted partnerships with hard-to-reach populations and their service providers (p.113- 125), CDC's Principles of Community Engagement (p.125-126), Developing & testing messages for cultural and linguistic competence (p.126-128), Delivery Channel guidance (p. 129-131), and Digital and Print Communication guidance (p. 132-142).

***Notes*:**
* Indicates materials are translated in other languages
Indicates mobile app available.
All listed resources are mobile-friendly.

Websites

* **Oregon Smoke Blog** (link): Oregon's one-stop shop for smoke, air quality, and fire info. *Full website translation in 100+ languages, using Google Translate*. In the menu, you can also download the free, Oregon Air smartphone app (Includes info on OR DEQ air stagnation advisories that are non-wildfire).

Washington Smoke Blog (link): Washington State's one-stop shop for smoke, air quality, and fire info.

*** EPA AirNow Fire & Smoke Map–NEW Version 4.0** (link): Includes info about current fires, air quality index, precautions you can take to protect your health during poor air quality, and outlooks from air resource advisors assigned to fires. *Includes Spanish translation & ColorVision Assist feature in map settings.* Info comes from low-cost sensors (e.g., PurpleAir) and EPA's permanent and temporary monitors.

*** CDC Wildfire Smoke Page** (link): Includes who's at greatest risk from smoke, tips on how to reduce smoke exposure, and more. Includes Spanish translation on protecting yourself from wildfire smoke (link).

*** WA DOH FAQs on Smoke from Fires for general public** (link): *Includes FAQ translation in Spanish, Korean, Russian, Somali, Tagalog, Ukrainian, Vietnamese, and Chinese.*

EPA Fact Sheet – Protect Yourself from Smoke & Extreme Heat (link): EPA developed a wildfire smoke fact sheet that includes info on protecting yourself from smoke and heat. UPDATED 2024.

Keep Oregon Green (link): Includes wildfire prevention tips and current ODF fire restrictions / conditions.

*** OEM Oregon Wildfire Response and Recovery** (link): Sign up for emergency alerts, learn about current evacuations, view OEM's Fires dashboard, and learn about prevention, preparation, and recovery. *Includes full website translation in Spanish, Arabic, Afrikaans, Amharic, Simplified & Traditional Chinese, French, Hindi, Hmong, Japanese, Korean, Nepali, Russian, Somali, Swahili, Thai, Ukranian, and Vietnamese*.

*** OR DEQ Protect Yourself & Your Family – Clean-up after Wildfire** (link): *Includes Spanish translation.*

WA DNR Burn Portal (link): Learn about WA state burn restrictions with a clickable map, apply for burn permits, and more.

WA DNR Smoke Ventilation Index Map (link): Review a WA-state based 5-day forecast for smoke ventilation.

Air Resource Advisors (link): Learn more about the Interagency Wildland Fire Air Quality Response Program's Air Resource Advisors and deployments.

Improving Indoor Air Quality in Commercial / Public Buildings during Wildland Fire Smoke Events (link): Best practice guide.

Smoke ready community websites

*** Smoke Ready Gorge** (link). *Full website translation in Spanish.*

Smokewise Ashland (link)

Oakridge Air (link)

*** Central Oregon Fire Info** (link). *Full website translation in Spanish, Arabic, Simplified Chinese, Dutch, French, German, Portuguese, and Russian.*

Lakeview Air Quality (link)

*** Klamath County Public Health Air Quality** (link). *Full website translation in Spanish.*

Upcoming events

Governor's Occupational Safety & Health (GOSH) Biennial Conference (Mar 1-4, 2027): Learn more about the conference here.

Annual OHA & Oregon DEQ's Annual Smoke Protocol Update Call (mid-May or early June): For local public health authorities, Tribes, Emergency Managers, and others involved in smoke communication or coordination. To sign up, contact Jennifer Horton (DEQ) jennifer.horton@deq.oregon.gov or Jamie Bash (OHA) jamie.p.bash@oha.oregon.gov.

Recent events with resources

Annual OHA Summer Hazards Call: For Tribes, local public health authorities, and community-based organization grantees to get ready for wildfire, heat, and smoke. See 2024 agenda here and recording here. Contact Jamie Bash (OHA) jamie.p.bash@oha.oregon.gov to sign up.

Annual EPA Smoke Management in the Northwest Hybrid Conference (May or June): Provides an opportunity for air quality, land management, public health, academia, community-based organizations, and other professionals to collaborate on wildfire smoke and related issues. See 2024 high-level takeways and resources here. To learn more, contact Erin McTigue mctigue.erin@epa.gov and Jake Wolf at wolf.jacob@epa.gov.

2024 Enhancing Wildfire Smoke Preparedness in Oregon Schools & Childcare Center: Co-hosted by OSU ASPIRE Center, Smokewise Ashland, Oregon Health Authority, and the Center for Wildfire Smoke Research and Practice at the University of Oregon. See slide-decks here and recording here.

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University of Oregon

Ecosystem Workforce Program

NORTHWEST FIRE SCIENCE CONSORTIUM
A JFSP Fire Science Exchange

JOINT FIRE SCIENCE PROGRAM

Summary of Communication Audience(s) Analysis: Canva Whiteboard (View Link here)

Considering Public Health and Equity: Wildland Fire Air Quality

QUESTION 1: Who is your audience for communicating about smoke, air quality, fire, or land management decisions? (*Refer to Fig. 1)*

PUBLIC(S)

- Older adults, rural communities
  - Low-income aging population.
  - Older adults.
  - Older adults.
  - Rural populations.
  - Rural, Micropolitan communities.
- Spanish-speakers
  - Vulnerable communities, Hispanic, Spanish speaking communities, renters, elders.
  - Hispanic/Latinx communities in Clatsop, Tillamook, Columbia counties in Oregon, and Pacific county in Washington.
  - Migrant and seasonal farmworkers; folks with LEP.
  - Migrant workers.
- Families, Children, and Pregnant People
  - People who are pregnant and their partners.
  - Elementary school children and their caregivers.
  - New and expectant parents.
- Community orgs / centers
  - As an OSU Extension faculty, the public is the audience. However, given specific funding, partners, etc., the audience may be vulnerable communities, or networks that can mobilize and make the most difference (volunteers, partner orgs, etc.).
  - School districts, libraries, childcare centers
  - Young children's care givers (childcare, early learning/preschools).
- Landowners
  - Landowners that are directly affected.
  - All timber owners, private and industrial.

Fig. 1: Audience.

AGENCIES & LOCAL GOV'T DOER'S

- Other land management / health / air agencies.
- City planners, building code departments.

DECISION MAKERS

- Policy makers (congressional, legislature, county commissioners, city councils).
- Local, state, and federal elected officials and policy makers.
- Executive body for rural cities / municipalities.

OTHER

- Leadership figures, esp. those critical of prescribed fire.
- Mix of urban & rural populations.
- Communities impacted by wildfire and prescribed fire smoke.
- Renters: What resonates with renters who have less control over their HVAC systems? Identify and share low-cost solutions.
- Everyone is our audience but, we need to break out who receives various modalities of communication from service providers. Since this impacts everyone, including people with insurance and higher incomes, we need to consider the service levels for all audiences.

QUESTION 2: What is your level of engagement with this audience: outreach / inform, or consult, or involve, or collaborate? (*Refer to Fig. 2)*

OUTREACH / IN-PERSON / RELATIONAL

- Working group in our local CWPP.
- We are well known and trusted by the Hispanic/Latinx communities we serve. Community members engage with us by phone, in person, through our social media channels and at our community events.

COMMUNICATION CHANNELS

- Events, social media and partners' websites.
- Canvassing door to door, video messaging, radio, social media, meeting them where they are, community events, newsletter.
- Gathering data from surveys, door-to-door contact.
- Newsletters through email list serv.

PROJECT-LEVEL

- Schools and childcare centers - have a robust project built for helping support interventions for children where they spend significant time learning and playing.
- Currently have a pending EPA Community Change Grant proposal (Lane Co. Oregon) that will use a training curriculum developed by Univ. of Cal. Ag & Natural Resources called Climate Stewards. The project is in partnership with the United Way of Lane County, which is well networked with community partners, vulnerable communities, etc.

Fig. 2: Level of Engagement.

TRAINING / EDUCATION (includes "training the trainers")

- Educating Small Forestland Owners and facilitating defensible space training. I am also a wildland firefighter so I assist with suppression efforts.
- Sensor deployment, guidance on clean indoor air spaces, how to build partnerships, tools for communication.
- School districts, libraries, childcare centers - provide operational standards for smoke response that can reach all children.
- Working with state, tribal, local agencies who are engaging directly with community members and partners.

DECISION MAKERS

- It depends on their access points. My levels are Spanish and English. Rural, entrepreneur and executive bodies for a city.
- With a lot of interest in how to proactively use fire to reduce future wildfire severity (and associated smoke impacts), I think engaging lawmakers and policy-makers is especially important in developing equitable programs that advance planning and implementation of beneficial fire.

QUESTION 3: What are key interests and/or issues of this audience? (*Refer to Fig. 3)*

HOW DOES SMOKE AFFECT MY HEALTH? WHAT ACTIONS CAN I TAKE? WHAT SUPPORT IS AVAILABLE?

- How does smoke affect my own health during pregnancy, and that of my baby? How do I create a cleaner air space?
- Can/should I do activity? Are the people I love safe?
- Is there help for my utility bills if my bill increases due to use of my air filtration device and air conditioner (if smoke and heat are co-occurring).
- For renters / tenant's groups, and workers - policies that require landlords and employers to provide air filters. Also, building codes or other local planning level req's for air filters, etc. for renters / tenant's groups.
- Preparation and alerts.
- How will management actions impact me and those I care about?
- Resources/capacity of local health is sometimes limited - staffing, etc.
- Recent air quality news blurb….Cave Junction has also improved, but remains among the worst in the world. (Source: KGW8 Staff, published Aug 28, 2023).

WHO CAN I TRUST?

- There tends to be distrust of government and/or Federal agencies among the Hispanic/Latinx immigrant community due to immigration status and systemic racism/discrimination. Messaging coming from trusted community partners and word-of-mouth is more effective.

Fig. 3: Audience(s) Key Interests.

SCHOOLS, LIBRARIES, CHILDCARE CENTERS – HOW DO WE USE THE AQI & DECIDE TO CLOSE OR STAY OPEN? HOW DO WE ADAPT?

- School districts, libraries, childcare centers - understanding the air quality index and process for decision making that is most beneficial for student health, having spaces for recreation during smoke events, safe transportation of students to and from school, having more equitable built infrastructure that is already prepared for heat, smoke and infectious disease control, shared networks of resources.

HOW CAN I LEARN MORE ABOUT WHY THIS IS HAPPENING? WHAT CAN I DO?

- Educating about fire-adapted landscapes and about the WUI.
- For older youth: Why is this happening? Climate change / science interest.
- Adopting/adapting a holistic climate change curriculum (Climate Stewards) that engages at the whole community level to work toward public awareness and knowledge about climate change and build networks (communities of practice) to work toward community and individual resilience. Works with community partner to co-design a locally relevant climate resilience training.

OTHER

- Interest it depends on who you ask. Wealthy = land protection. middle class poor = affordability to survive fires or prevent them.

QUESTION 4: What channels of communication do you use? Or could you use? (*Refer to Fig. 4)*

OVERALL

"It depends. Affluent communities = Emails, newspapers, surveys. Hard to reach communities = in person, radio, personal invites with their natural leader, flyers." - Participant

TRADITIONAL MEDIA (PRINT, FLYERS, RADIO)

- Printed materials.
- Radio.
- Newspaper.
- Reader boards.

ONLINE (WEBSITE, SOCIAL MEDIA)

- Text messages, WhatsApp broadcast lists, Facebook.
- Website.
- Social media/website.
- Online newsletters.
- Email.
- Social forums (e.g., NextDoor, parent facilitated school groups on Facebook, Instagram).

YOUTH SOCIAL CLUBS & ACTIVITY/EVENT ORGANIZERS

Fig. 4: Communication Channels.

- Youth clubs (e.g.) scouting-Boy Scouts America (BSA) has an Emergency Prep Badge...good opportunity. They have to discuss risks of different hazards, join a community exercise or drill. They also have badges on forestry, public health and sustainability. They also need badge counselors who can teach these badges (with background check requirement of course).
- Businesses who serve children including: Play-gyms and play cafes, private sports clubs (OSAA doesn't have jurisdiction over these).
- Private sector partners who employ youth or have youth volunteers, via OR-OSHA occupational standards, education.
- Summer/outdoor camp organizations/ facilities (non-school based).
- Event organizers: e.g. fun run, marathons, cycle cross, outdoor community fairs.
- Student newspaper collaboration (print and digital).

TRUSTED MESSENGERS

- Health Care Providers
    - Clinicians: OB/GYN, Midwives, Pediatricians, Primary care clinicians.
    - Coordinated care organizations (to low income, Medicaid enrollees).
- Schools
    - Distribution through schools.
- Most of the time, owners in my area are older and prefer in-person meetings and printed resources. I make it a point to maintain community presence and involvement to educate this group that is disconnected from social media and technology.

CONNECTING WITH PARTNERS WHO ENGAGE IN OUTREACH

- Stakeholder outreach.
- In-person interactions.
- Direct networking with partners.
- Proposed EPA grant calls for roundtables, community listening sessions, focus groups. This is designed to gather needs, information, etc. so that we can co-design a training that is relevant to the audience(s).
- Partnership with higher ed.
- Support capacity for direct outreach through one-one conversations and community classes that support protective actions.

QUESTION 5: What are the enabling factors for this audience? How do your channels of communication support these? (*Refer to Fig. 5)*

CLEAR, SIMPLE COMMUNICATION

- Translating agency language to plain language for the public - must have both the trust of the agency and the public audience.
- Learning how to speak across disciplines and at different levels of complexity.
- Simplify the message into clear and easy-to-understand information that people can understand and implement. This requires culturally informed and culturally appropriate messaging, translation and transcreation. We sometimes record audio messages in WhatsApp for community members with limited literacy.

TRUSTED MESSENGERS

- Clinicians can enable communication as they are among the most trusted messengers for health messaging. They are also in touch with patients at opportune moments to provide education (asthma diagnosis, pregnancy, newborn care). Clinicians help create access to commodities by

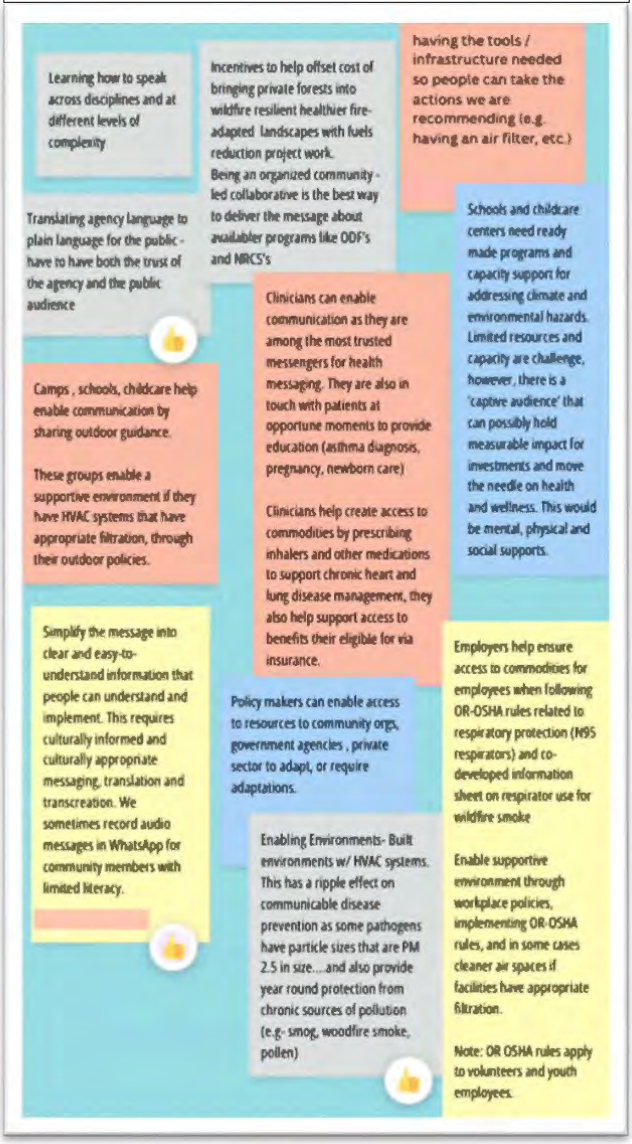
prescribing inhalers and other medications to support chronic heart and lung disease management, they also help support access to benefits their eligible for via insurance.

- Camps, schools, childcare help enable communication by sharing outdoor guidance. These groups enable a supportive environment if they have HVAC systems that have appropriate filtration, through their outdoor policies.

NEEDS

- Policy makers can enable access to resources to community orgs, government agencies, private sector to adapt, or require adaptations.
- Having the tools / infrastructure needed so people can take the actions we are recommending (e.g. having an air filter, etc.).
- Enabling Environments- Built environments w/ HVAC systems. This has a ripple effect on communicable disease prevention as some pathogens have particle sizes that are PM 2.5 in size….and also provide year-round protection from chronic sources of pollution (e.g., smog, woodfire smoke, pollen).
- Schools and childcare centers need ready-made programs and capacity support for addressing climate and environmental hazards. Limited resources and capacity are challenge, however, there is a 'captive audience' that can possibly hold measurable impact for investments and move the needle on health and wellness. This would be mental, physical and social supports.
- Employers help ensure access to commodities for employees when following OR-OSHA rules related to respiratory protection (N95 respirators) and co-developed information sheet on respirator use for wildfire smoke. Enable supportive environment through workplace policies, implementing OR-OSHA rules, and in some cases cleaner air spaces if facilities have appropriate filtration. Note: OR OSHA rules apply to volunteers and youth employees.
- Incentives to help offset cost of bringing private forests into wildfire resilient healthier fire-adapted landscapes with fuels reduction project work. Being an organized, community-led collaborative is the best way to deliver the message about available programs like ODF's and NRCS's.

Fig. 5: Enabling Factors for Audience.



QUESTION 6: What is your frequency of engagement? Or what could it be? (*Refer to Fig.6)*

OVERALL

- There should be support through the community response plans for smoke that help with year-round adaptations that are delivered to communities across Oregon. Smoke is seasonal by concentration, increasing and year-round and our communication should reflect this need.

SOCIAL MEDIA

- We average 5 to 10 weekly posts on our WhatsApp broadcast lists and Facebook page.
- Content driven, with regular weekly or monthly, but emergent during incidents.

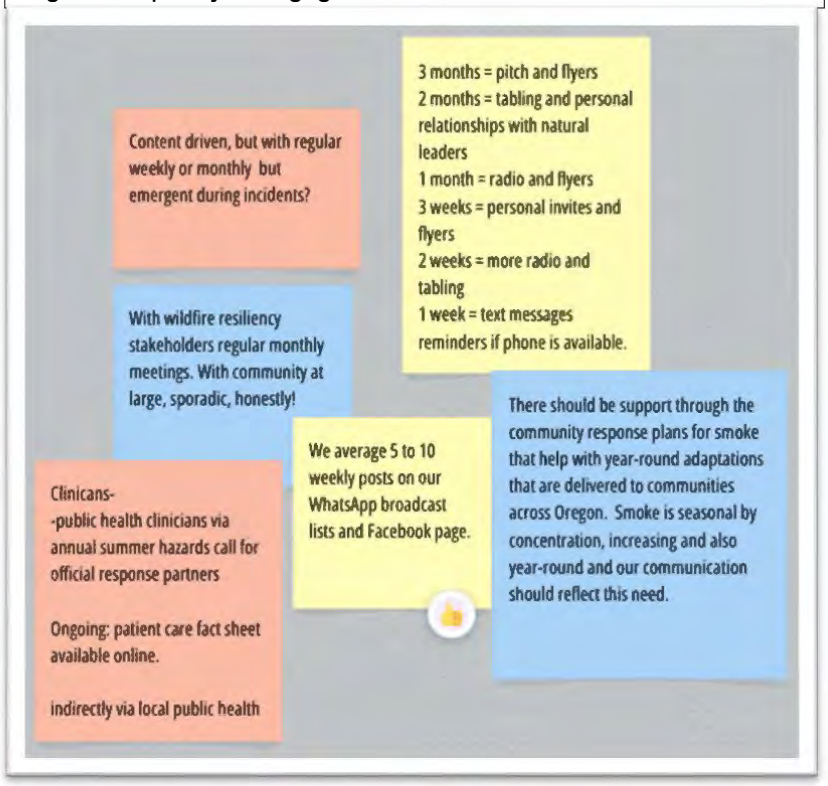
RELATIONAL

- 3 months = pitch and flyers; 2 months = tabling and personal relationships with natural leaders; 1 month = radio and flyers; 3 weeks = personal invites and flyers; 2 weeks = more radio and tabling; 1 week = text messages reminders if phone is available.

PARTNER MEETINGS

- With wildfire resiliency stakeholders' regular monthly meetings. With community at large, sporadic, honestly!

Fig. 6: Frequency of Engagement.



CLINICIANS

- Clinicians: public health clinicians via annual summer hazards call for official response partners. Ongoing: patient care factsheet available online. Indirectly via local public health.

Internal and External Communication / Engagement Plan Brainstorm

INTERNAL AND EXTERNAL COMMUNICATION/ ENGAGEMENT					
AUDIENCE/ PARTNER	LEVEL OF ENGAGEMENT	KEY INTEREST & ISSUES, ENABLING FACTORS	CHANNEL(S) OF COMMUNICATION	FREQUENCY OF ENGAGEMENT/ COMMUNICATION	COMMENTS

Whole Community Approach to Being Smoke Ready

Nov 13, 2024

Jess Downey & Heidi Huber-Stearns

FOR MORE INFORMATION

https://resilient.uoregon.edu/wildfire-smoke-center

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OREGON HOUSEHOLDS' EXPERIENCES WITH SMOKE

How are households in Oregon experiencing wildfire smoke, seeking information, and preparing for smoke?

SMOKE COMMUNICATIONS

What communication strategies are being used by organizations and agencies for smoke preparation and response?

COMMUNITY SMOKE PREPARATION RESPONSE

How effective are community-level preparation and response strategies in Oregon communities during smoke events?

Community Initiated Project through EPA Grant #: EM840540

Session Agenda

Workshop Day 2 of NWFSC's Equity & Environmental Justice in Wildland Fire series

9:10am Framing the Conversation

9:20am West Bend: The Role of Land Management & Public Health Partnerships

10:00am Environmental Justice, Smoke Exposure, & Resources

10:30am Whole Community Approach to Being Smoke Ready **audience exercise**

11:00am Break

11:10am Community Voices **panel discussion**

12:30pm End of workshop Day 2

FRAMING THE CONVERSATION

Guiding Questions for Today's Discussion:

- How can public health, land management, & other agencies / organizations increase coordination for wildfire & prescribed fire air quality concerns?

- What is a whole community approach to being smoke ready? How do we connect across the whole system of smoke preparedness and response?

RX FIRE LIT REVIEW:
PROMSING PRACTICES

Recent Learnings from Prescribed Fire Literature Review

RX FIRE LIT REVIEW:
PROMSING PRACTICES

Educational campaigns

↑ knowledge & support

- Mail-out brochures, news, radio, TV, social media
- Conduct pre- and post- Rx burn AND year-round

RX FIRE LIT REVIEW:
PROMSING PRACTICES

Foster confidence in agency capability to conduct Rx fire

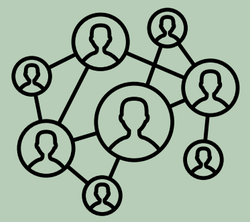
Early & frequent engagement

Providing evidence of past successes

Communicating potential health risks of smoke and ways to reduce exposure

RX FIRE LIT REVIEW:
PROMSING PRACTICES

Leverage local trusted messengers

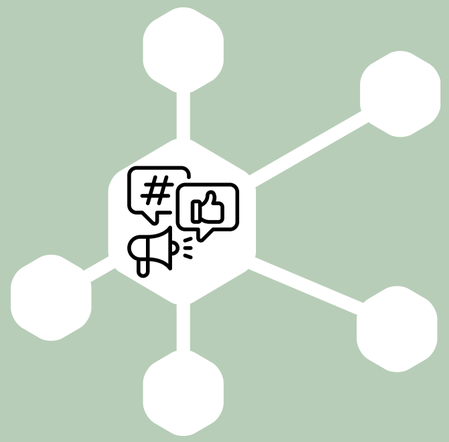


Identify messengers through deep involvement with local communities (focus groups, survey research)

Coordinate between local groups when communicating about fire and smoke

RX FIRE LIT REVIEW:
PROMSING PRACTICES

Communicate through the most effective channels



Social media <u>THROUGH</u> a trusted local messenger

Radio is often a more effective form of communication in rural areas AND with Spanish speaking populations

RX FIRE LIT REVIEW:
PROMSING PRACTICES

Provide actionable solutions for dealing with smoke & poor air quality year-round

- ALL communication about Rx fire need to include specific info on actions to take to reduce smoke exposure

- Conduct pre- and post- Rx burn AND year-round

WEST BEND:
SHARING LESSONS
LEARNED

Recent Learning from Practice

GAO report: Wildfire Smoke: Opportunities to Strengthen Federal Efforts to Manage Growing Risks”

MARCH ‘23

APRIL ‘23

EPA Smoke Management in the Northwest Conference

Wildfire Commission Reccomendations

SEPT ‘23

Oregon Tabletop Exercise

NOV ‘23

Federal MOU & Workplan Signed

Local work was already underway in Bend

- Local entities were already working on burning, collective work, etc.
- Relationships already established between public, environmental health and land management.
- Bend’s existing Smoke Community Response Plan.

PNW Regional Joint Statement of Intent Signed

(1) Act with urgency.

(2) Protect public health, safety, & property.

(3) Identify and overcome the most limiting factors to achieving implementation of prescribed fire as a management tool at scale.

(4) Be innovative & comprehensive in our approach & apply best practices.

(5) Try new approaches, learn, & adapt based on experience.

FEB '24

- IMT and subgroups created

MAY '24

- West Bend Prescribed Burn
- Data collection analysis & results

SUMMER - FALL '24

- Leadership Task Force meeting
- After Action Review
- Connecting learning to implementation in Central WA

WEST BEND:
SHARING LESSONS
LEARNED

Key Lessons Learned: West Bend After Action Review

Focused on experiences of individuals and organizations involved in the planning, preparation, and execution of the project.

Based on participant observation, survey (n = 35), interviews (n= 8), and multiple working sessions

WEST BEND:
SHARING LESSONS
LEARNED

Successes: West Bend After Action Review

- Urgent action on larger burns
- Strong communication and coordination for project participants
- More reach and consistency in public health messaging
- Set a strong foundation to learn from and build on for future related efforts

WEST BEND:
SHARING LESSONS
LEARNED

Areas of Learning: West Bend After Action Review

Redefining how this work “protects public health, safety and property’

Accessing overlooked or unaware portions of communities

Pivoting to whole community preparedness (with resources), year-round

WEST BEND:
SHARING LESSONS
LEARNED

Integrated planning and areas of learning

Cross functional collaboration

Alignment

Collaborative governance

Planning linked to resource allocation **and** metrics

Balancing aspiration with pragmatism

Questions?

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Scan QR code to learn more about related work at the Smoke Center

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USDA Forest Service
U.S. DEPARTMENT OF AGRICULTURE

West Bend: Sharing Lessons Learned

The Role of Land Management and Public Health Partnerships

Ryan Gordon
Assistant Director, Natural Resources
USDA Forest Service, Region 6

The Wildfire Crisis is a Public Health Crisis

Prescribed fire is no longer solely a natural resource conversation - it is a public health priority and a climate adaptation strategy that mitigates the catastrophic impacts of wildfire.

Doug Grafe
Wildfire and Military Advisor
Office of Governor Tina Kotek

West Bend Pilot Project: Proof Of Concept

- Increase the pace and scale of prescribed fire
- Protect public health and build community awareness
- Explore the boundaries of current regulatory framework
- Develop a new way of doing business (learn and replicate)

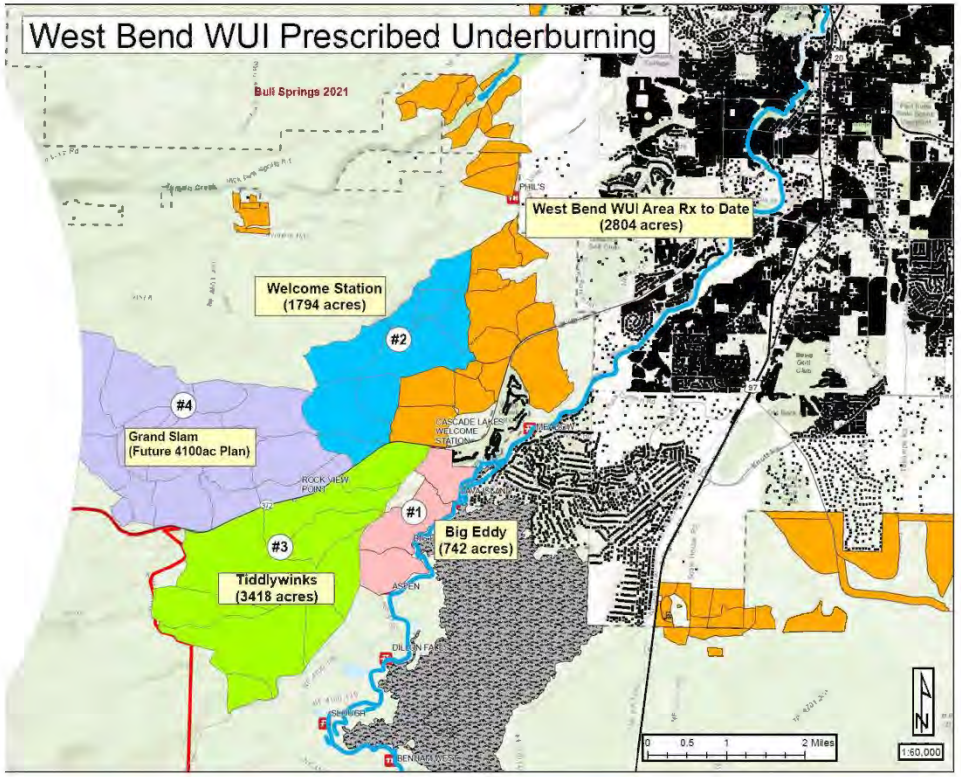
West Bend Pilot Project: Opportunities

- Strong leadership support among all partners
- Recognition of the challenges and opportunities
- Existing, planned project with record of success
- Community capacity
  - Strong local relationships, especially with public health
  - Existing community protection plan
  - High level of community awareness (regionally)
- Commitment to learning

West Bend Pilot Project: Challenges

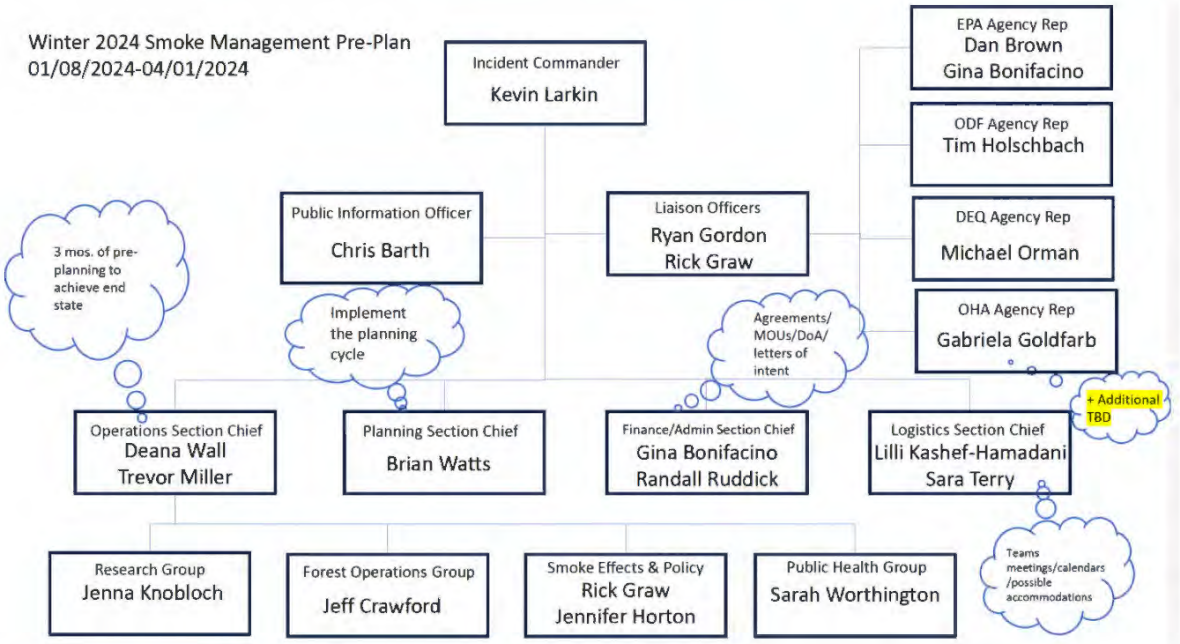
- Multiple values at risk
- Smoke-impacted community
- History of limited burn windows
  - ~230 acres/year over last decade
- Short timeline / limited capacity
- Emphasis to go big
- New relationships, outside pressure

- How do we plan?

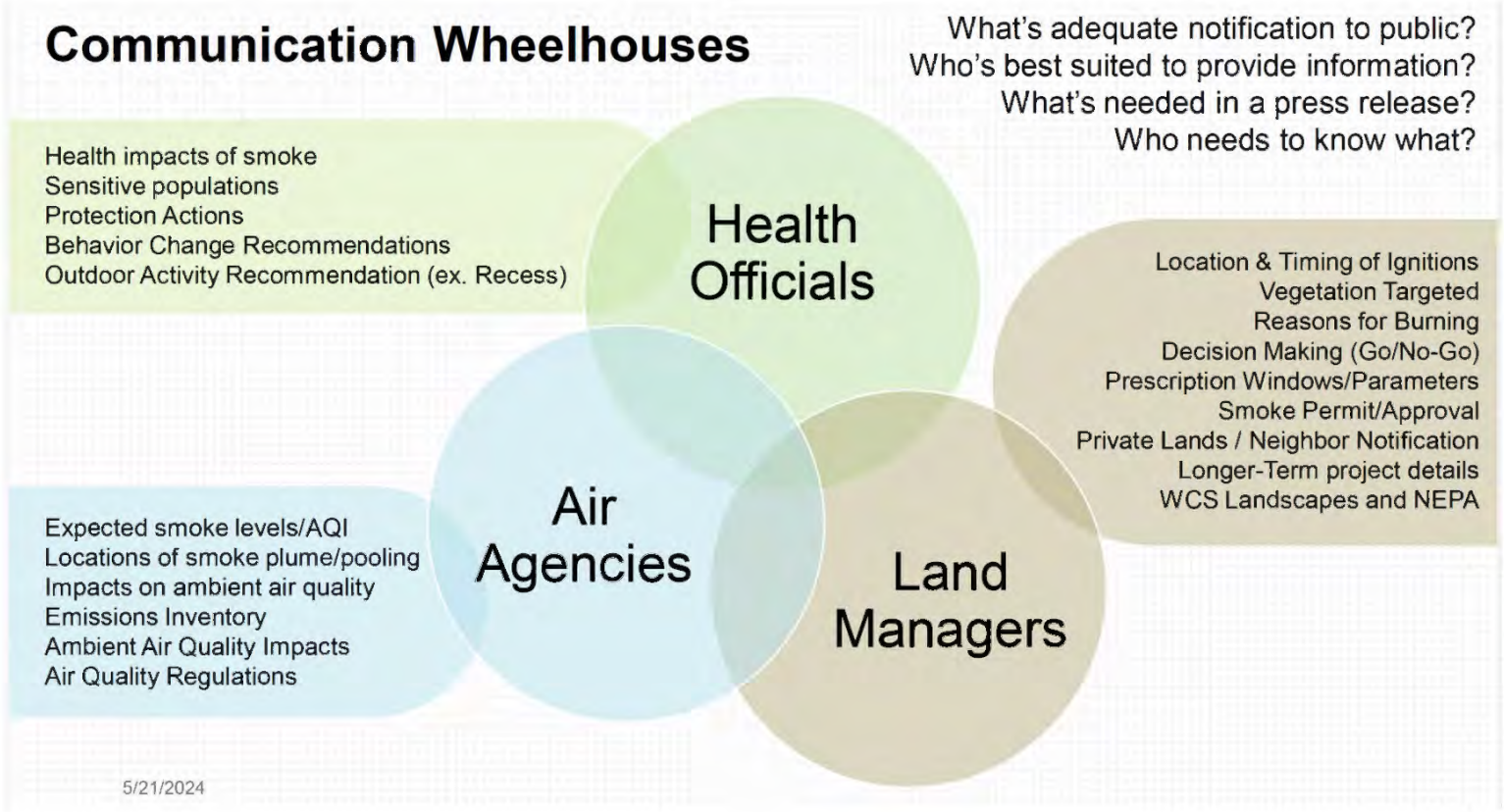


West Bend Pilot Project: Planning

- Modified IMT Structure
- Focused on…
  - Planning, not implementation
  - Organization, not command
  - Roles & responsibilities
  - Sharing information
  - Learning



West Bend Pilot Project: Communications



West Bend Pilot Project: Outcomes

- 1864 Acres Burned – 7X Increase
- Robust joint information team
- Weekly meetings for Agency Representatives
- Science
  - Indoor AQ – 79 Air Monitors
  - Outdoor AQ – Monitoring & Modeling
  - Social – 4250 surveys, response 800+
- Commitment to learning

Forest Service
U.S. DEPARTMENT OF AGRICULTURE

Ryan Gordon
Assistant Director, Natural Resources
USDA Forest Service, Region 6

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West Bend Pilot Project: The Baseline

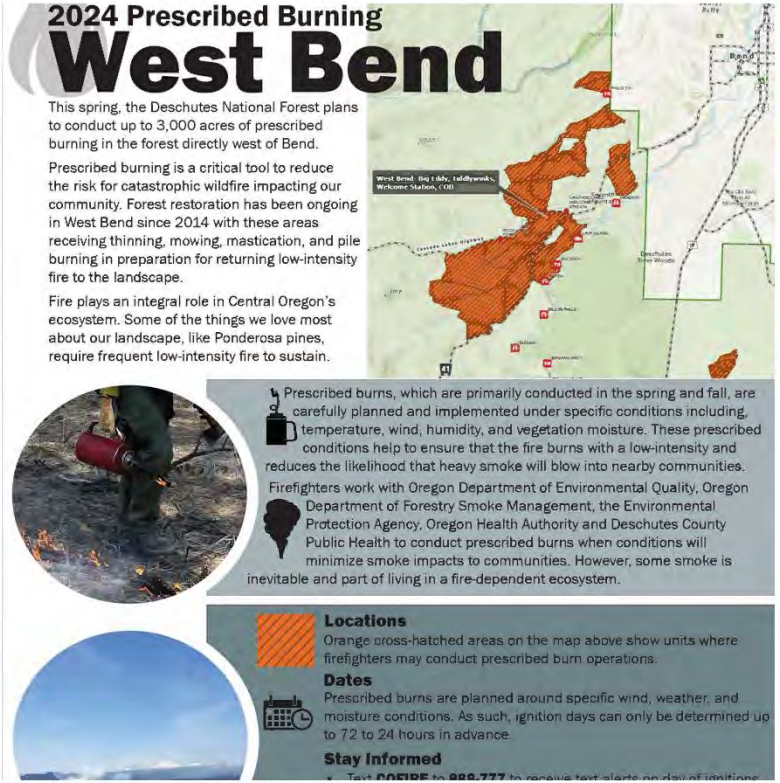
- Act with Urgency
- Protect Public Health, Safety, and Property
- Identify and Overcome Limiting Factors
- Be Innovative and Comprehensive
- Try New Things. Learn. Adapt.

What lessons did we learn?
How do we use them?
Implications for policy?
Are they replicable?

How does each pilot advance execution?

West Bend Pilot Project: Successful?

- Proof of concept? Yes.
  - Coordination, Messaging, Implementation
- Protect public health? Science to come.
- Shared learning? Yes.
- Replicability? More to come.



Begin with the end in mind.

- Repeatable, flexible methodology needed to study the efficacy of this work.
- Impact v. Benefit – tradeoff of now versus later
- Complex planning scenarios: Where's the smoke coming from?

Create opportunities for shared learning.

- Understand each others' jobs – challenges, opportunities, and innovative solutions.
- Ensure integration between forecasting, public health, and real-time communications.
- Seat multi-agency representation on the command and general staff (leadership team).
- Avoid siloing (potential pitfall of IMT structure)

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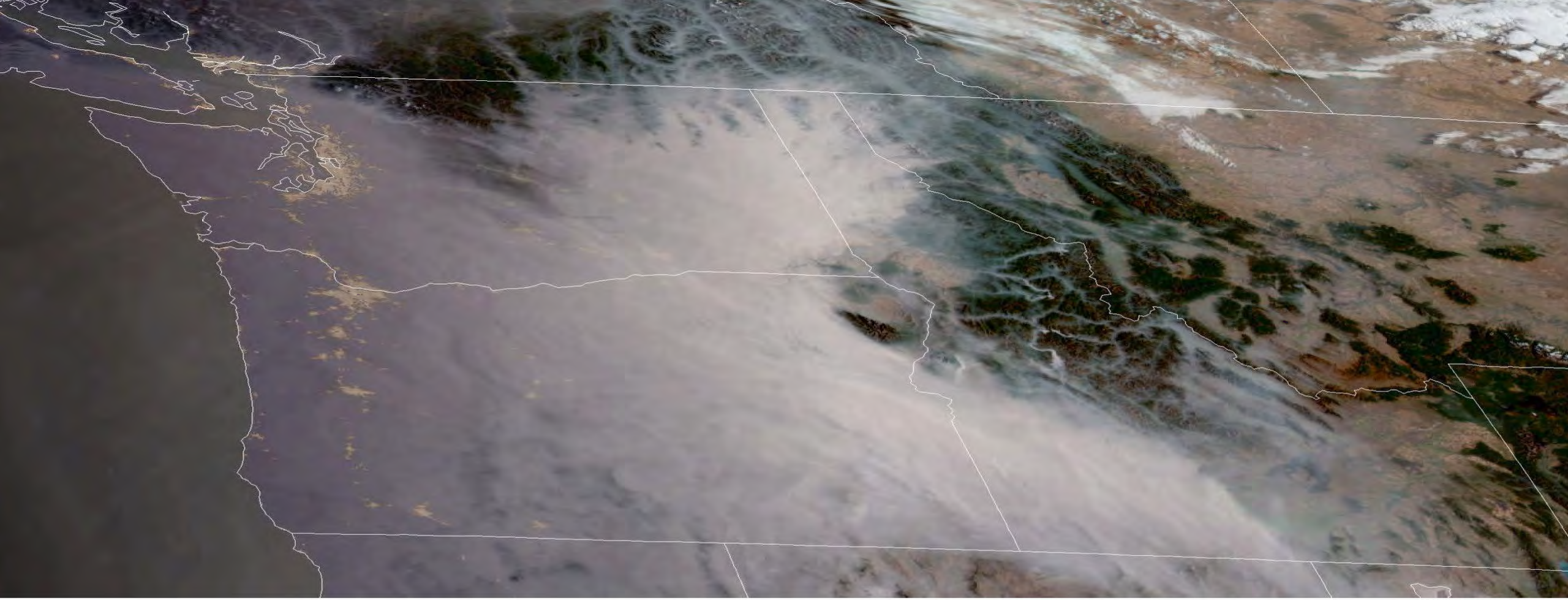


Washington State Department of HEALTH

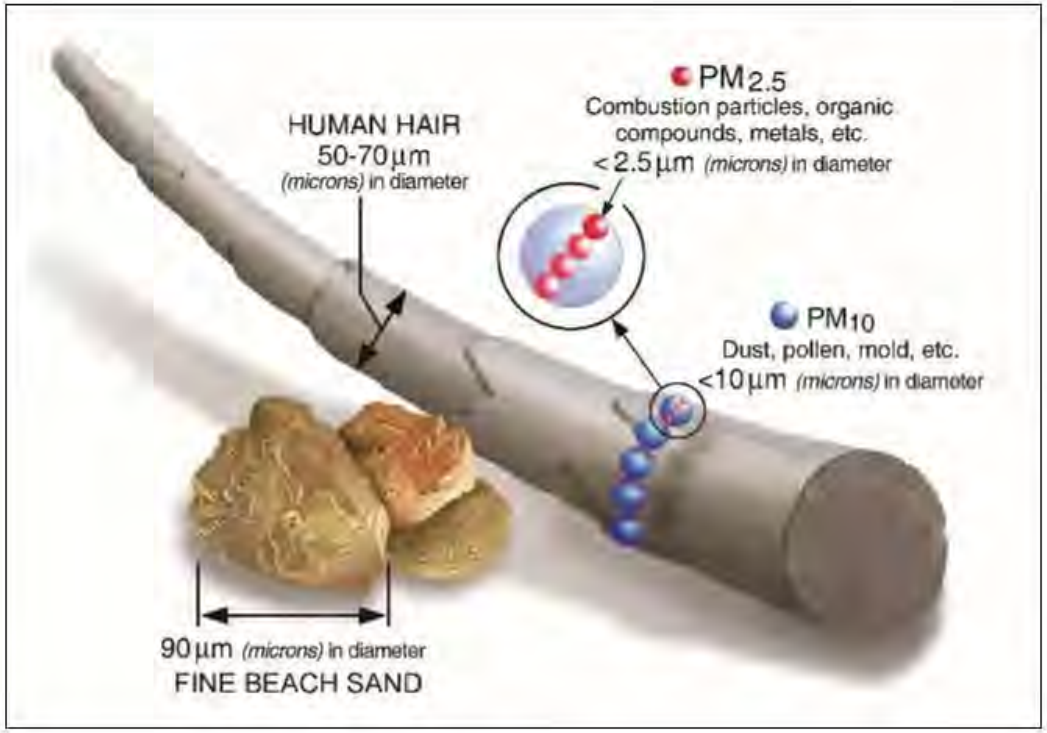
WA STATE WILDFIRE SMOKE GUIDANCE

Annie Doubleday
Ambient Air Quality Epidemiologist

Wildfire smoke is a mixture of pollutants

$PM_{2.5}$ is 90% of the particle mass emitted from wildfires

- **Particulate Matter ($PM_{2.5}$ and PM_{10})**
- Ozone
- Carbon Monoxide
- Carbon Dioxide
- Hazardous Air Pollutants (HAPs)
- Volatile Organic Compounds (VOCs)
- Nitrogen Dioxide



Source: US EPA

Minor to deadly responses to wildfire smoke

- Eye, nose, and throat irritation
- Cough, wheeze, shortness of breath
- Headaches
- Fatigue
- Irregular heartbeat, chest pain
- Exacerbations of chronic lung and heart conditions
- Overall increase in hospitalizations & deaths

Sensitive Groups with Increased Risk

- People with health conditions
  - Lung & heart diseases
  - Respiratory illness
  - Diabetes
- People 18 and younger
- People 65 years and older
- Pregnant people
- Outdoor workers
- People of color
- Tribal and indigenous people
- People with low income

Steps to reduce exposure to smoke

1. Stay updated on current and forecast air quality

- Check the air quality index (AQI)

2. Reduce exposure

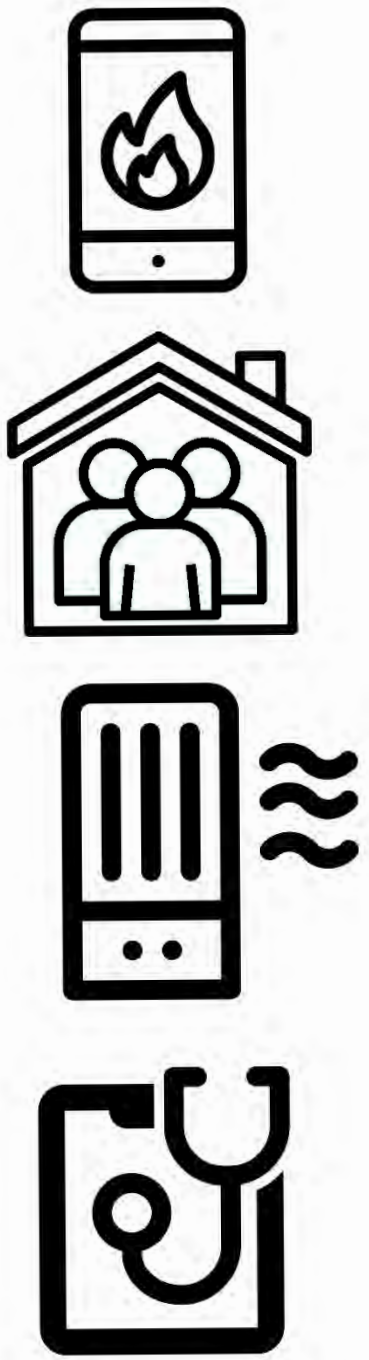
- Avoid strenuous outdoor physical activity
- Limit time outdoors

3. Stay inside with cleaner indoor air

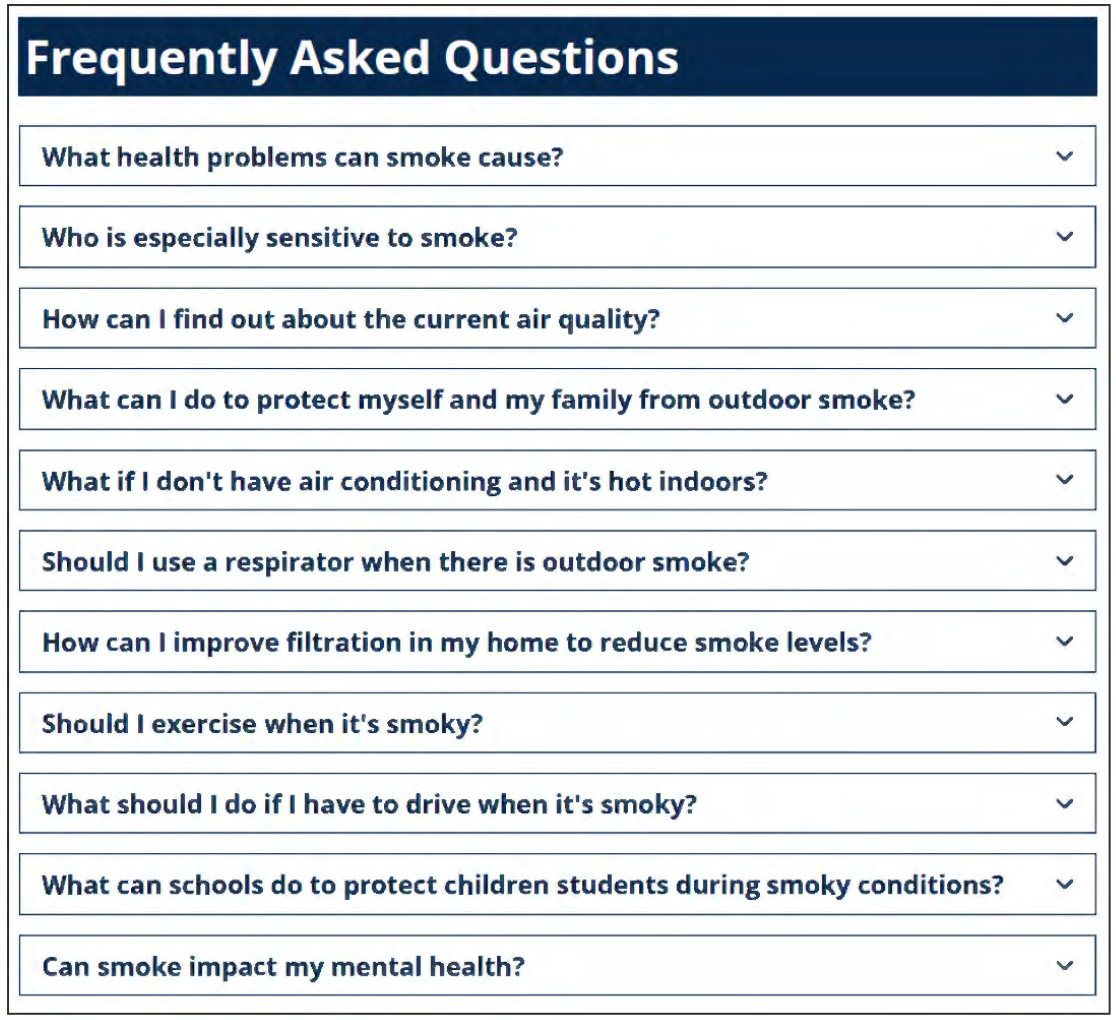
- Close windows and doors, unless its too hot to maintain safe temperatures
- Don’t add to indoor air pollution
- Filter indoor air
  - HVAC system with a MERV 13 filter
  - Portable air cleaner with a HEPA filter
  - DIY box fan filter
- If unable to maintain clean air at home, go elsewhere for cleaner air, such as a friend’s or public space

4. Pay attention to symptoms

- Seek medical help if needed



Smoke from Fires Webpage



www.doh.wa.gov/smokefromfires

Available in 9 languages

Smoke from Fires Toolkit

https://doh.wa.gov/community-and-environment/air-quality/smoke-fires/smoke-wildfires-toolkit

Health Resources

Washington Air Quality Guide for Particle Pollution: English / Spanish / Arabic / Chinese Simplified / Chinese Traditional / Korean / Punjabi / Russian / Somali / Tagalog / Ukrainian / Vietnamese

Washington Children and Youth Activities Guide for Air Quality: English / Spanish / Somali / Russian

- Youth Activities Guide FAQs: English / Spanish / Somali / Russian

Washington Guide for Public Health Actions for Wildfire Smoke: English

Wildfire Smoke Guidance for Canceling Outdoor Events or Activities and Closing Schools: English

- Summary Wildfire Smoke Guidance for Cancelling Outdoor Public Events or Activities: English
- Summary Wildfire Smoke Guidance for Closing Schools: English

Portable Air Cleaner Selection Guide

Improving Ventilation and Indoor Air Quality During Wildfire Smoke Events (PDF)

DOH Recommendations for Wildfire Smoke and Respiratory Viruses: English

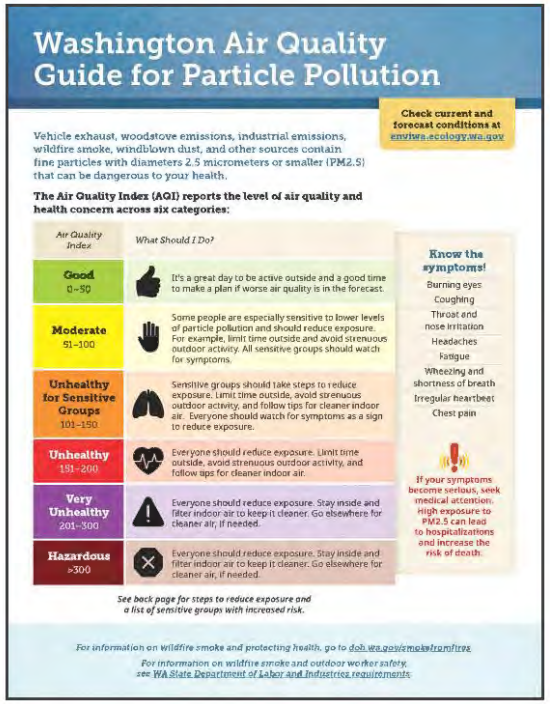
Washington State CEMP ESF 8 Attachment 1 to Appendix 5 – Wildfire Response – Severe Smoke Episodes: English

Wildfire Smoke: A Guide for Public Health Officials: English

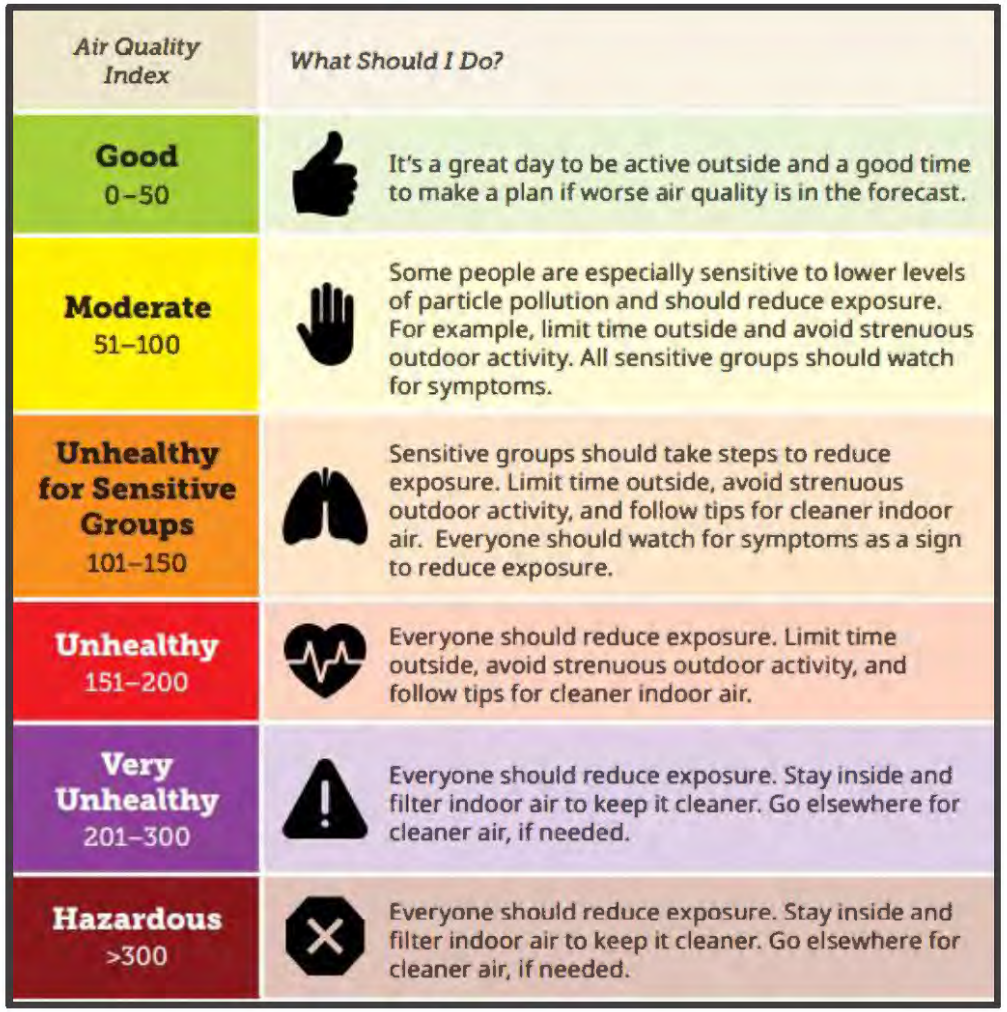
Smoke from fires can be dangerous flyers:

For everyone:
English / Spanish / Arabic / Chinese / Korean / Punjabi / Russian / Somali / Tagalog / Ukrainian / Vietnamese

Washington Air Quality Guide for Particle Pollution



WA Air Quality Guide for Particle Pollution



Available in 12 languages on https://doh.wa.gov/community-and-environment/air-quality/smoke-fires/smoke-wildfires-toolkit

Washington Children and Youth Activities Guide for Air Quality

HEALTH

Check current and forecast air quality at AirNow.gov or during wildfire smoke at wasmoke.blogspot.com

(See Appendix A)

The following public health recommendations are to protect children and youth (18 years and younger) from fine particle air pollution (PM2.5). Apply this guide to school, child care, athletic practices and games, before and after school programs, camps, field trips, and other outdoor programming and activities.

Outside Air Quality Index (AQI): PM2.5

Activity Duration	Good (0-50 AQI)	Moderate (51-100 AQI)	Unhealthy for Sensitive Groups (101-150 AQI)	Unhealthy, Very Unhealthy, or Hazardous (≥151 AQI)
15 mins to 1 hour (e.g., recess, PE, classes typically held outside)	No restrictions.	Allow children and youth with health conditions to opt out or stay indoors. Limit intensity of activities for these children and youth if needed.	Limit to moderate intensity activities outside. For children and youth with health conditions, further limit intensity or move to an area with safer air quality if needed.	Cancel outdoor activity or move to an area with safer air quality, either indoors with filtered air or to a different location. Limit to light intensity activities indoors if indoor PM2.5 levels are elevated.
1-4 hours (e.g., athletic events and practices)	No restrictions.	Allow children and youth with health conditions to opt out or stay indoors. Limit intensity of activities for these children & youth if needed.	Limit to light intensity activities or to a 1-hour total duration with moderate intensity activities. If intensity level and time cannot be modified, consider canceling outdoor activity or move to an area with safer air quality, either indoors or to a different location. For children & youth with health conditions, further limit time or intensity if needed.	Cancel outdoor activity or move to an area with safer air quality, either indoors with filtered air or to a different location. Limit to light intensity activities indoors if indoor PM2.5 levels are elevated.
> 4 hours (e.g., outdoor school or programming, day camp, overnight camp)	No restrictions.	Move children and youth with health conditions to an area with safer air quality, either indoors or to a different location if needed. Allow children and youth without health conditions to opt out or stay indoors and limit intensity of activities.	Limit to light intensity activities and under 4-hr total duration. If intensity level and time cannot be modified, cancel outdoor activity, or move it to an area with safer air quality, either indoors or to a different location. For children and youth with health conditions, further limit time or intensity if needed.	Cancel outdoor activity or move to an area with safer air quality, either indoors with filtered air or to a different location. Limit to light intensity activities indoors if indoor PM2.5 levels are elevated.

ADDITIONAL CONSIDERATIONS

Close windows and doors when activities are moved indoors. Pay attention to heat.

Indoor air filtration can reduce elevated levels of indoor PM2.5. *See Appendix C.* To measure indoor PM2.5 levels, *see Appendix B.*

Consider time spent in transit in activity duration.

All children and youth 18 and younger are considered a sensitive group. Health conditions include but are not limited to asthma and other lung disease, heart disease, diabetes, and respiratory infection (e.g., RSV and pneumonia).

Sources of PM2.5	The primary sources of PM2.5 are typically wildfire smoke during warmer months and smoke from home heating during colder months, though this varies by location. Other sources include vehicle exhaust, industrial emissions, and prescribed burning.
Children's Health & Increased Risk	Children and youth are more sensitive to health effects from breathing in PM2.5 because they breathe in more air than adults for their body weight. This increases their total dose of air pollution. The respiratory system also develops until about age 21. Children and youth with health conditions (including asthma and other lung diseases, heart disease, and diabetes) have a higher risk of emergency department visits and hospitalizations compared to children without health conditions. Children and youth may also be at risk for declines in academic performance, neurodevelopmental problems, and chronic conditions in adulthood. Children with asthma should follow their Asthma Action Plan.
Symptoms	Symptoms of PM2.5 exposure include burning eyes, coughing, throat and nose irritation, fatigue, headache, wheezing, and shortness of breath. Monitor symptoms. If symptoms become serious, seek medical attention. Symptoms can continue or appear in the week following exposure to PM2.5.
Physical Activity	CDC recommends children and youth 6-17 years old exercise an hour or more every day as an important part of health. WAC 110-300-0360(2)(c) requires minimum outdoor activity/active play in child care programs with an exception for extreme weather. Safe outdoor play when PM2.5 levels are high, especially for days or weeks, requires precautions. People breathe deeper and take more air into their lungs when exercising, thus taking in more air pollution. Children and youth's breathing rates increase over 2 times during light intensity physical activity, over 4 times during moderate intensity activity, and over 8 times during high intensity activity compared to being at rest. Intensity level is related to the exertion and varies individually, but as examples: » Light Intensity Activities: playing board games, playing catch, and stacking blocks » Moderate Intensity Activities: climbing on playground, dodgeball, four-square, golf, gymnastics, hopscotch, lightly riding a tricycle/bicycle, marching band, moderate or brisk walking, shooting basketballs, softball/baseball, table tennis, volleyball, weight training, and yoga » Vigorous Intensity Activities: aerobic dance, basketball, cheer, competitive swimming, football, jogging, jumping jacks, jump rope, karate, race walking, running, soccer, swimming, tennis, and vigorous bicycling For a more detailed list see CDC's guidance, Measuring Physical Activity Intensity.
Reducing Exposures	As PM2.5 pollution increases, each action is increasingly important to protect health: limit duration and intensity of outside physical activity (e.g., increase rest periods), stay indoors when possible and keep indoor air clean. Consider a child's total exposure throughout the day and night, including time spent at school, home, and in transit. Walking, biking, or riding in a bus with windows opened is time outdoors. Some children may not have cleaner air at home.
Masks & Respirators	A NIOSH approved N95 or other particulate respirator can be an option when you have no other way to avoid wildfire smoke. NIOSH approved respirators do not come in suitable sizes for very young children and have not been tested for broad use in children. Effective use requires proper selection, size and fit. See Western States PEHSU guidance on respirator use by children. More NIOSH information here.
Air Quality Monitoring & Low-Cost Sensors	Outdoor Air Monitoring: Use air pollution forecasts and government agency monitors on AirNow.gov for non-wildfire smoke pollution. Use the Washington Smoke Blog for wildfire smoke. The Smoke Blog includes low-cost sensors and has the most relevant forecasts for Washington wildfire smoke. See Appendix A. Indoor Air Monitoring: Indoor low-cost sensors can be used for indoor activities. Do not compare uncorrected sensor data to the AQI. Compare sensor data in locations throughout the facility and indoors vs outdoors. See Appendix B.
Indoor Air Quality	During high levels of PM2.5 or extended durations of poor air quality, taking steps to improve indoor air quality is extra important because PM2.5 will seep into buildings. If you're not sure whether indoor PM2.5 levels are lower than outside, assume levels are similar and increase steps to reduce exposure. Indoor air filtration (HVAC systems with enhanced filtration or HEPA portable air cleaners) can reduce indoor levels of PM2.5. Do not use air cleaners that produce ozone or have additive technology, such as ionization and plasma. See Appendix C.
Adult Staff & Volunteers	Adult staff and volunteers can be impacted by air pollution, see WA Air Quality Guide for Particle Pollution. For policies on outdoor workers during wildfire smoke, see WA L&I's Wildfire Smoke Workplace Safety & Health webpage.
School Closures	Consider school and facility closures if you cannot maintain indoor 125.5 µg/m3 (AQI value of 201). See Summary Wildfire Smoke Guidance for Closing Schools, which includes factors to consider.
Resources	Websites: WA DOH's Air Quality and Health or Smoke from Fires and Health, EPA's Air Quality Flag Program. For technical assistance: airquality@doh.wa.gov.

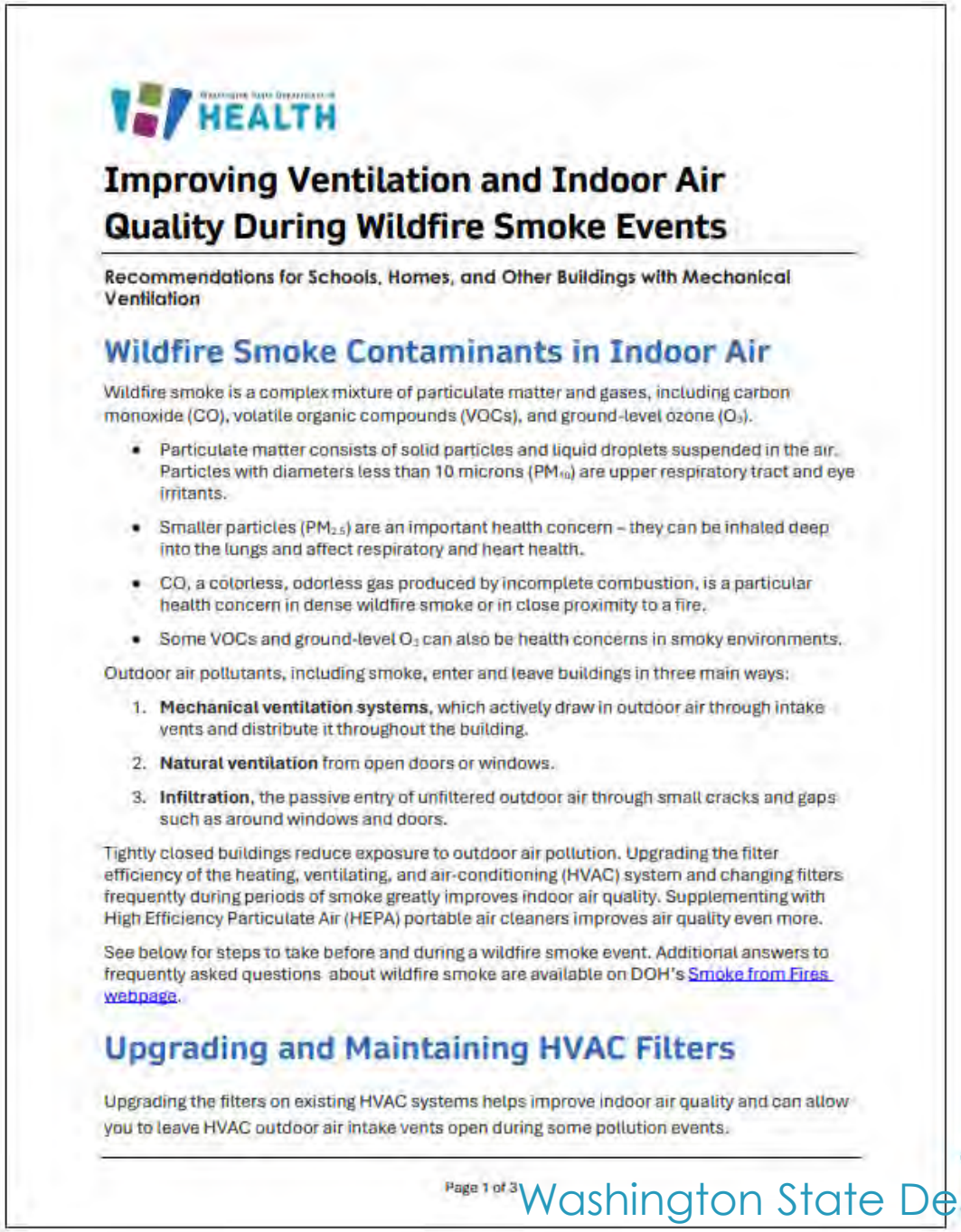
Washington Children and Youth Activities Guide for Air Quality

Washington Guide for Public Health Actions for Wildfire Smoke

This guide is designed for air quality, public health, and other officials making local decisions.

Air Quality Index	Recommended Public Health Actions Check current and forecasted air quality at wasmoke.blogspot.com
Good (0-50)	**Prior to wildfire season:** • Coordinate a local plan for public health actions and distribute preparedness information to the public. • Identify indoor spaces where individuals will seek cleaner air during wildfire smoke events and develop plans to protect indoor air quality, including filtration. » Indoor spaces used by sensitive groups, such as schools, child care facilities, and long-term care facilities. » Community cleaner air settings, such as libraries. » Temporary cleaner air shelters. **During wildfire season:** • Monitor wildfires, smoke forecasts, and air quality at WA Smoke Blog. • If forecasts predict smoke in your area, review the Washington Wildfire Response document for Severe Smoke Episodes and the Wildfire Smoke Guide for Public Health Officials.
Moderate (51-100)	**Above recommendations, plus:** • Distribute health information to the public, including steps to take with health advisory categories: Washington Air Quality Guide for Particle Pollution. » Refer to the WA Smoke Blog for information about wildfires, smoke forecasts, and air quality. » Identify and focus outreach efforts for sensitive groups. • Coordinate with public health partners to follow recommended public health actions. • Recommend following the Washington Children and Youth Activities Guide for Air Quality. • For outdoor workers, start following WA Department of Labor and Industries' requirements.
Unhealthy for Sensitive Groups (101-150)	**Above recommendations, plus:** • Recommend sensitive groups take steps to reduce exposure (limit time outside, avoid strenuous outdoor activity, and follow tips for cleaner indoor air). • Recommend sensitive groups spend time in a cleaner air setting in the community, such as a library, if they cannot maintain cleaner air at home. • Cancel children's outdoor athletic events and practices or move them to an area with safe air quality, either indoors or at a different outside location: Washington Children and Youth Activities Guide for Air Quality. • For an extended duration of smoke, consider opening a cleaner air shelter for sensitive groups.
Unhealthy (151-200)	**Above recommendations, plus:** • Recommend everyone take steps to reduce exposure (limit time outside, avoid strenuous outdoor activity, and follow tips for cleaner indoor air). • Recommend everyone spend time in an identified cleaner air setting in the community, such as a library, if they cannot maintain cleaner air in their residence. • Consider canceling outdoor public events and activities: Wildfire Smoke Guidance for Canceling Outdoor Events or Activities and Closing Schools. • For an extended duration of smoke, consider opening a cleaner air shelter for the public.
Very Unhealthy (201-300)	**Above recommendations, plus:** • Strongly recommend everyone take steps to reduce exposure (stay inside and filter indoor air to keep it cleaner; go elsewhere for cleaner air if needed and possible). • Cancel outdoor public events and activities: Wildfire Smoke Guidance for Canceling Outdoor Events or Activities and Closing Schools. • If school is in session, discuss school closure with administrators if indoor air cannot be kept lower than $PM_{2.5}$ 125.5 µg/m³ (AQI value of 201): Wildfire Smoke Guidance for Canceling Outdoor Events or Activities and Closing Schools. • Distribute NIOSH-approved particulate respirators, such as N95 masks, as available, for limited use outside. Include training material for proper fit and use. • For an extended duration of smoke, consider recommending that sensitive groups voluntarily relocate to an unimpacted area.
Hazardous (>300)	**Above recommendations, plus:** • For an extended duration of smoke, consider recommending that everyone voluntarily relocate to an unimpacted area.

DOH 334-429 CS May2024 To request this document in another format, call 1-800-525-0127. Deaf or hard of hearing customers, please call 711 (Washington Relay) or email doh.information@doh.wa.gov.



HEALTH

Improving Ventilation and Indoor Air Quality During Wildfire Smoke Events

Recommendations for Schools, Homes, and Other Buildings with Mechanical Ventilation

Wildfire Smoke Contaminants in Indoor Air

Wildfire smoke is a complex mixture of particulate matter and gases, including carbon monoxide (CO), volatile organic compounds (VOCs), and ground-level ozone (O_3).

- Particulate matter consists of solid particles and liquid droplets suspended in the air. Particles with diameters less than 10 microns (PM_{10}) are upper respiratory tract and eye irritants.
- Smaller particles ($PM_{2.5}$) are an important health concern – they can be inhaled deep into the lungs and affect respiratory and heart health.
- CO, a colorless, odorless gas produced by incomplete combustion, is a particular health concern in dense wildfire smoke or in close proximity to a fire.
- Some VOCs and ground-level O_3 can also be health concerns in smoky environments.

Outdoor air pollutants, including smoke, enter and leave buildings in three main ways:

1. **Mechanical ventilation systems**, which actively draw in outdoor air through intake vents and distribute it throughout the building.
2. **Natural ventilation** from open doors or windows.
3. **Infiltration**, the passive entry of unfiltered outdoor air through small cracks and gaps such as around windows and doors.

Tightly closed buildings reduce exposure to outdoor air pollution. Upgrading the filter efficiency of the heating, ventilating, and air-conditioning (HVAC) system and changing filters frequently during periods of smoke greatly improves indoor air quality. Supplementing with High Efficiency Particulate Air (HEPA) portable air cleaners improves air quality even more.

See below for steps to take before and during a wildfire smoke event. Additional answers to frequently asked questions about wildfire smoke are available on DOH's Smoke from Fires webpage.

Upgrading and Maintaining HVAC Filters

Upgrading the filters on existing HVAC systems helps improve indoor air quality and can allow you to leave HVAC outdoor air intake vents open during some pollution events.

Page 1 of 3

Improving Indoor Air Quality for Schools and Buildings with Mechanical Ventilation

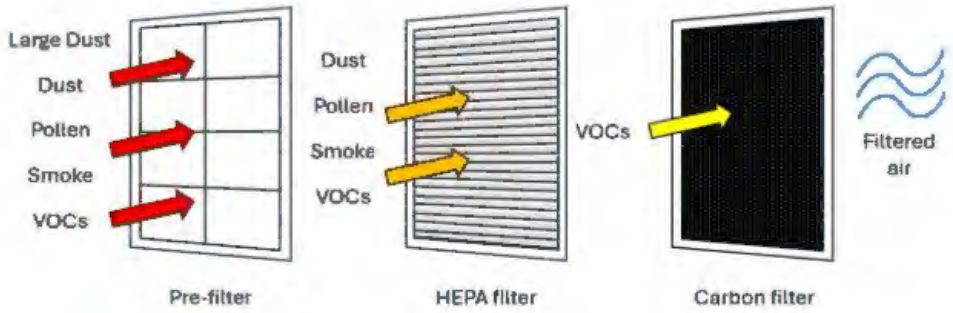
https://doh.wa.gov/sites/default/files/legacy/Documents/Pubs/333-208.pdf

Portable Air Cleaner Selection Guidance

Portable Air Cleaners

Portable air cleaners are an important way to remove wildfire smoke, respiratory viruses, dust, and pollen from indoor air. It's important to keep indoor air healthy. Contaminants in indoor air can cause health effects such as:

- Burning eyes, runny nose, headache, and coughing.
- Aggravation of existing heart and lung diseases, including asthma.
- Mental health concerns and psychological stress.



Consider These Basic Criteria

When choosing a portable air cleaner for your home, classroom, workplace, or oth criteria.

1. **Filter only – no ionic, ozone, or UV technologies**
2. **A real HEPA filter**
3. **The right size for your room**
4. **Not too loud**

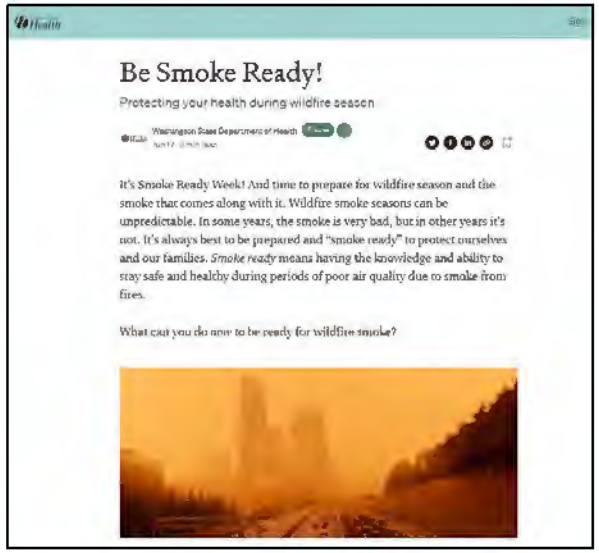
https://doh.wa.gov/community-and-environment/air-quality/indoor-air/portable-air-cleaners

Be Smoke Ready

"Being smoke ready means that communities and individuals have the knowledge and ability to stay reasonably safe and healthy during smoke episodes."

– Interagency Wildland Fire Air Quality Response Program

1. Know how to access forecast and current air quality conditions
2. Know what's in smoke and why it's bad for health
3. Know the health effects and symptoms of exposure to smoke and who is at risk
4. Know how to reduce exposure to smoke and have the resources and ability to do so



Thank you!

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Smoke: Environmental Justice, Exposure, & Resources

dnr.wa.gov

Roles and Responsibilities

Washington Department of Natural Resources

- State agency responsible for wildfire suppression
- Administers Smoke Management Plan as approved by EPA
  - Regulates permitting process for all silvicultural burns
  - Provides authoritative Go/No-Go decisions on all permit burns >100 tons
  - Developed Certified Burner Program which focuses on safe burning and smoke techniques
- ***NEW*** House Bill 1578 (2023) activities
  - Added 3 full time staff for smoke forecasting
  - Provided $600k+ total to 5 local health jurisdictions for smoke readiness training and air filtration equipment
  - Procured 2 air quality sensors for deployment during large prescribed fire operations

Washington Department of Ecology

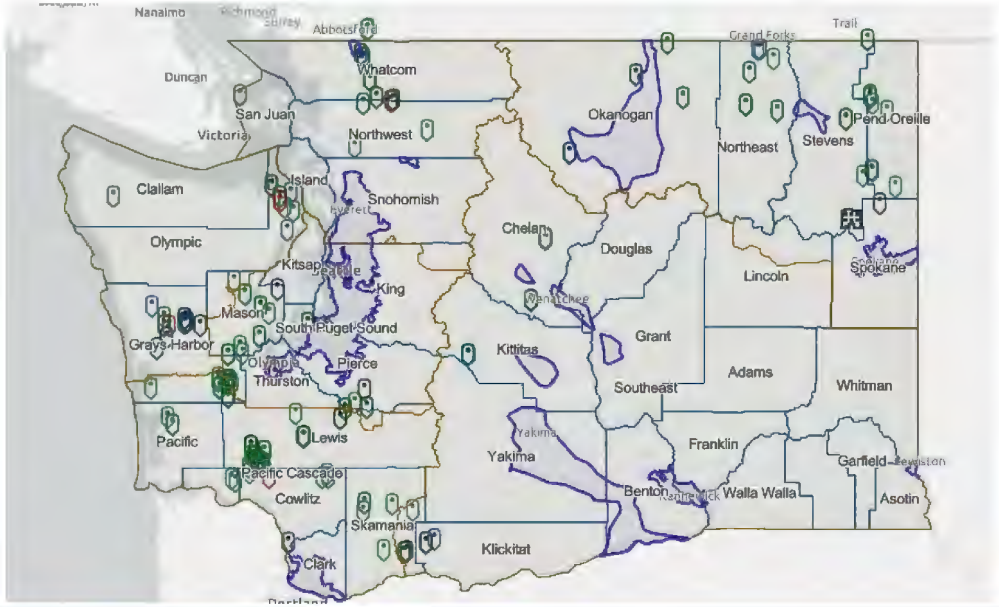
- Regulates agricultural, land clearing, and residential burning alongside local clean air agencies (LCAA's)
  - Issues permits and coordinates with WA DNR on burn decisions
  - Holds authority for calling air quality burn bans
- Manages state air quality monitoring program
- Through Climate Commitment Act, administers $10m grant program to reduce criteria air pollution in overburdened communities
- Leads Washington Smoke Blog: wasmoke.blogspot.com
  - In partnership with DNR & DOH
  - Information on wildfire smoke, in particular

Resources

Washington Department of Natural Resources

- Washington Burn Portal: https://burnportal.dnr.wa.gov/
  - Hub for all burn permits, approved/denied burn requests, smoke complaint submission system, and regulatory information
  - Twice weekly smoke coordination calls (Monday/Thursday)

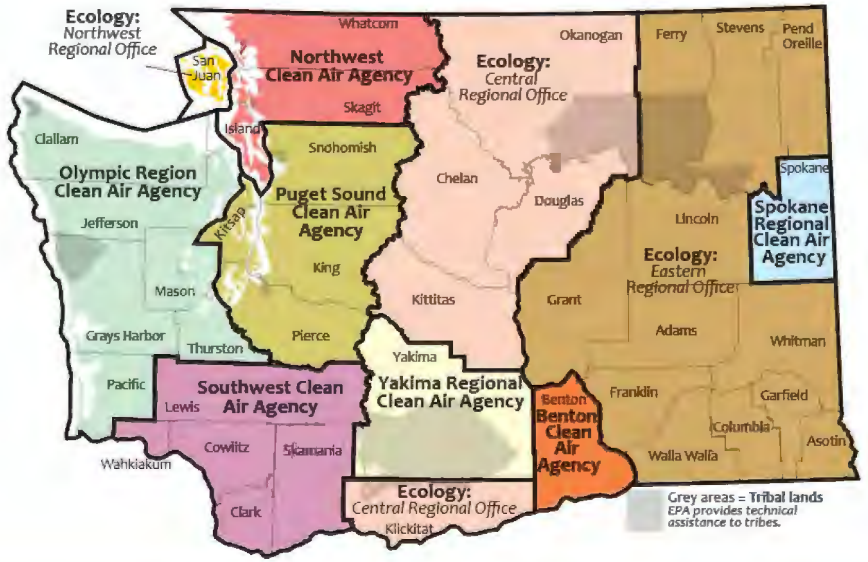
All Burn Requests: October 27 – November 2



Washington Department of Ecology

- Smoke And Fire Management Webpage https://ecology.wa.gov/air-climate/air-quality/smoke-fire
  - Air quality monitoring and forecasting, burn ban monitor, illegal burning/smoke exposure hotline, LCAA links, DIY filter instructions in multiple languages

Local Clean Air Agencies



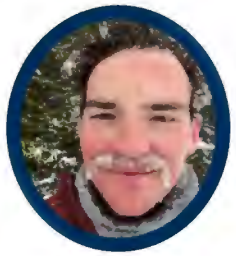
Technical Smoke Resources

Ventilation Index Forecast – By Airshed
https://experience.arcgis.com/experience/ee91213269c449eaa3824b44fdc8dadf

AirFire Central Washington Initiative
https://wcs.airfire.org/r/central-wa/hpf

Contact

smoke@dnr.wa.gov



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EPA Wildland Fire & Smoke Resources

Erin McTigue, Smoke Management Coordinator, EPA Region 10 (Alaska, Oregon, Washington, Idaho)

Pioneer Fire, WA, 7/28/24, InciWeb

AirNow Wildfires Landing Page

airnow.gov/wildfires

Before a Fire

- Be Smoke Ready

During a Fire

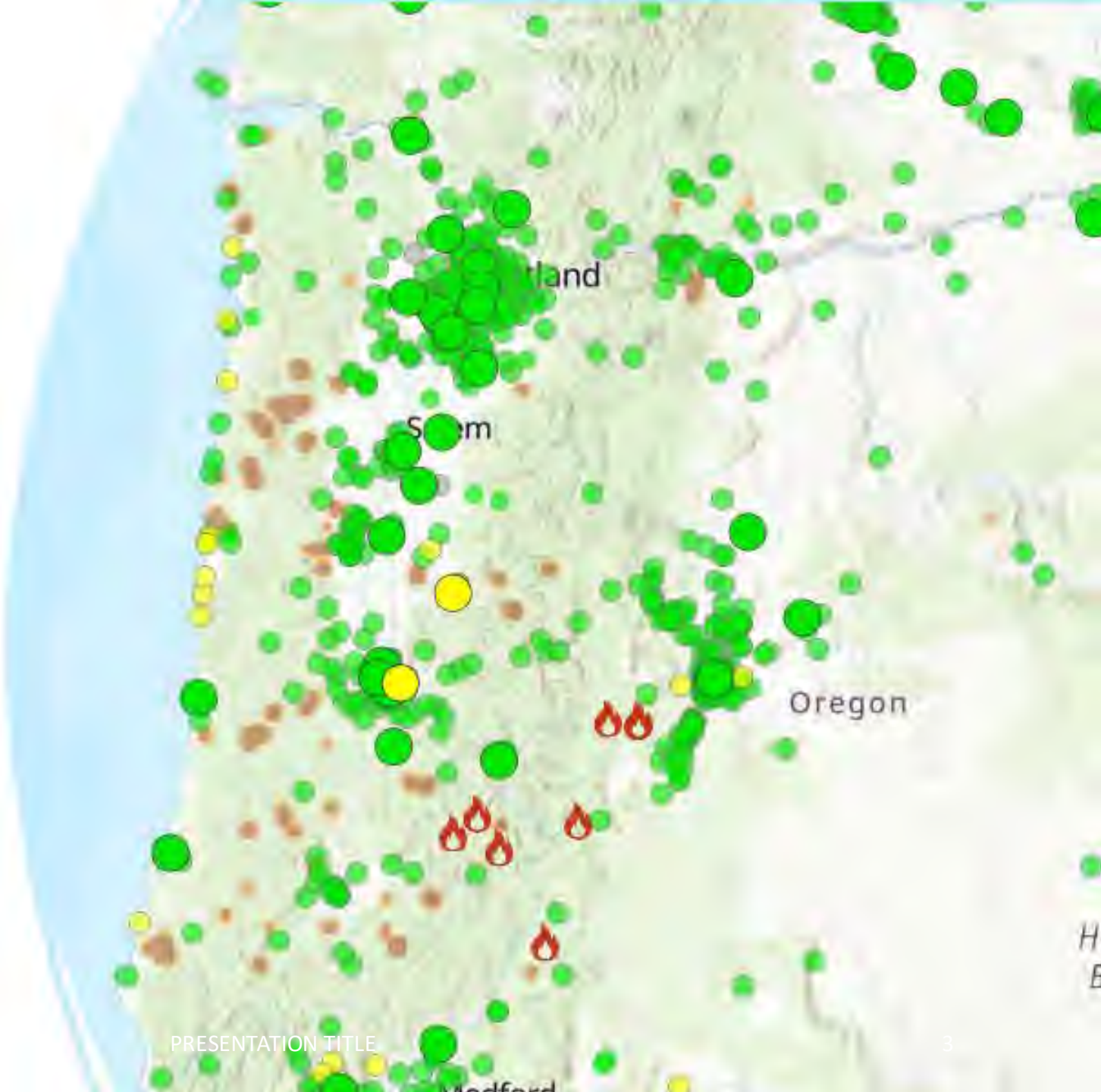
- During a Fire

After a Fire

- After a Fire

AirNow Fire & Smoke Map

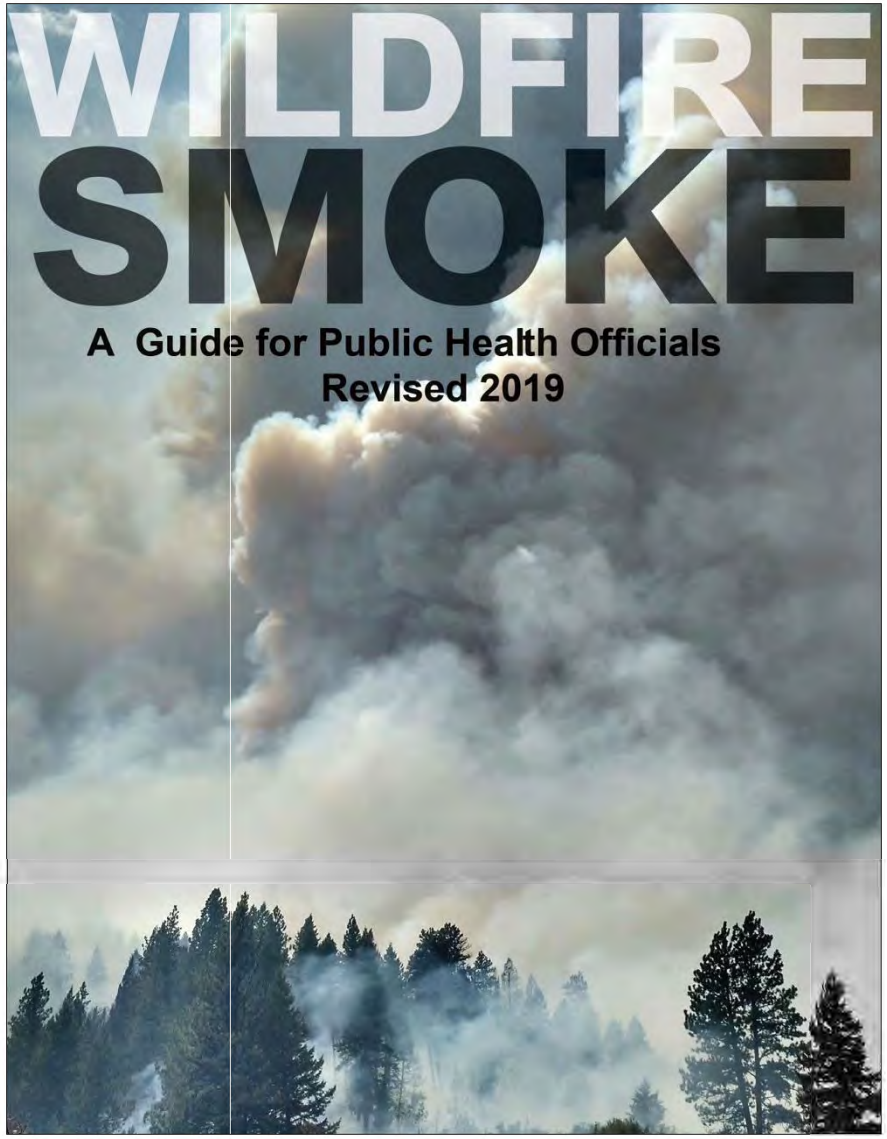
- https://fire.airnow.gov/
- English & Spanish
- Regulatory monitors and low-cost sensors
- Wildfire information and linked Air Resource Advisor forecasts
- Recently added ~1000 Canada based sensors



Wildfire Smoke: A Guide for Public Health Officials *Revising the 2021 Version*

https://www.airnow.gov/wildfire-guide-information/

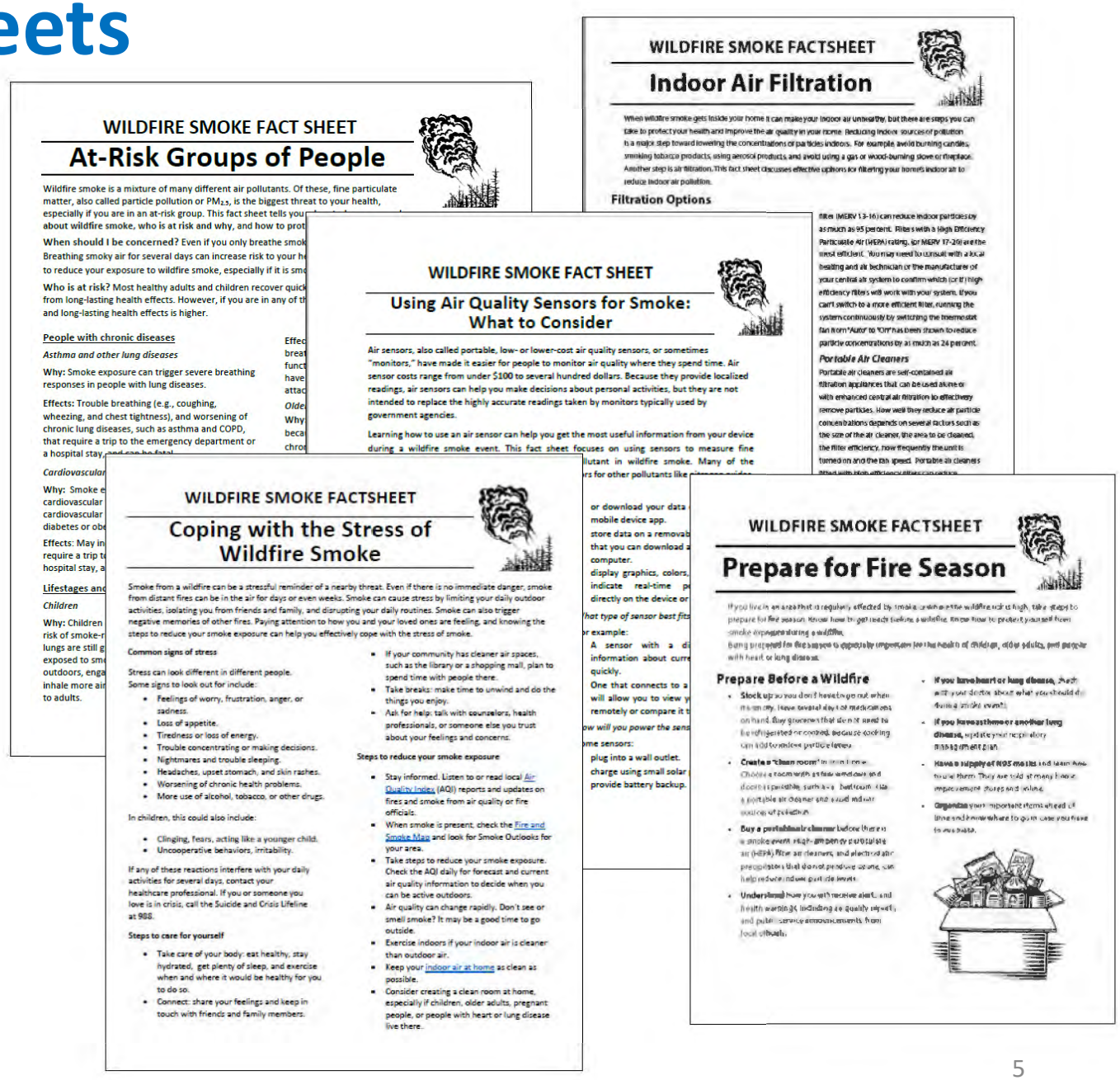
- Multi-agency effort (CARB, CDC, EPA, USFS)
- Includes health impacts, exposure reduction strategies, communications tools, etc.
- Considering content about Rx fires
- Expected completion FY25



Wildfire Guide Factsheets

- Prepare for Fire Season
- Reduce Your Smoke Exposure
- Protecting Children from Wildfire Smoke and Ash
- Protect Your Lungs from Wildfire Smoke or Ash
- How to Create a Clean Room at Home
- Indoor Air Filtration
- Coping with the Stress of Wildfire Smoke
- Using Air Quality Sensors for Smoke
- Protect Your Pets
- Protect Your Large Animals and Livestock
- Protect Yourself from Ash
- Protect Yourself from Smoke and Extreme Heat (coming 2024)

https://www.airnow.gov/wildfire-guide-factsheets/



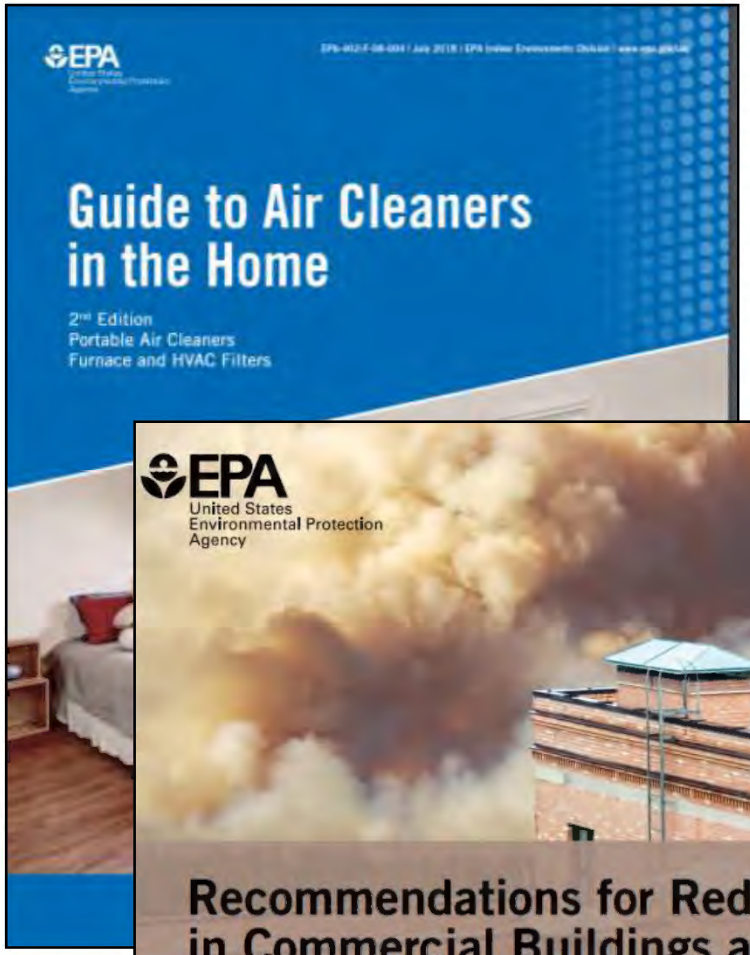
Expected completion 2025. Revisions will be consistent with updates to Wildfire Guide

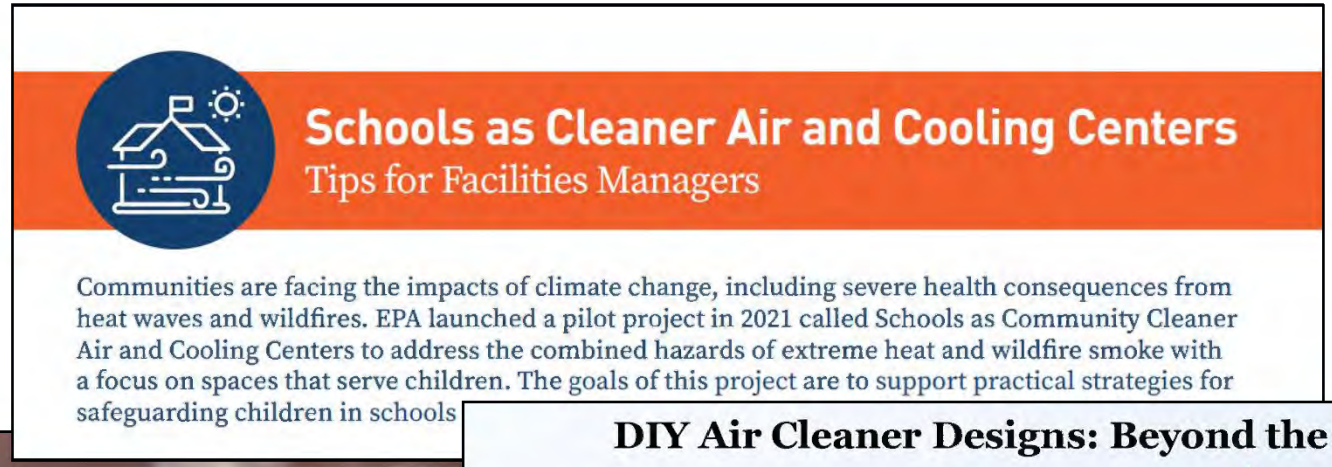
- At-risk groups
- Smoke and extreme heat
- Respirator use

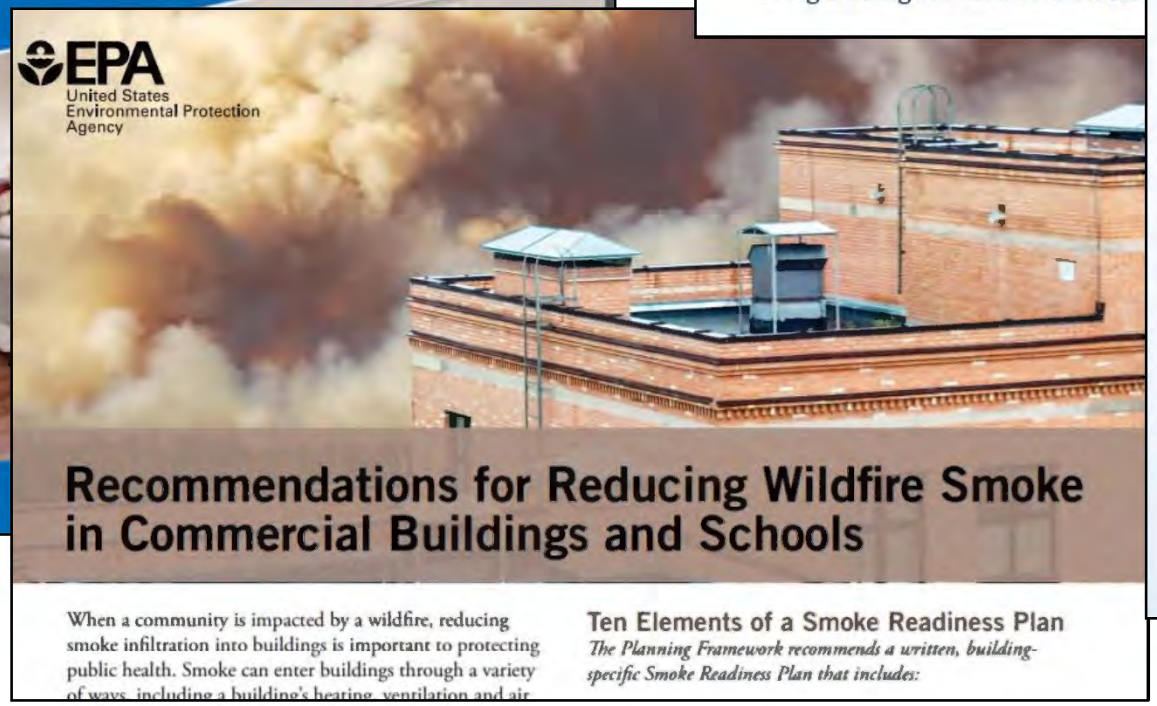
Developing *"smoke action plan"* for healthcare providers to use with patients.

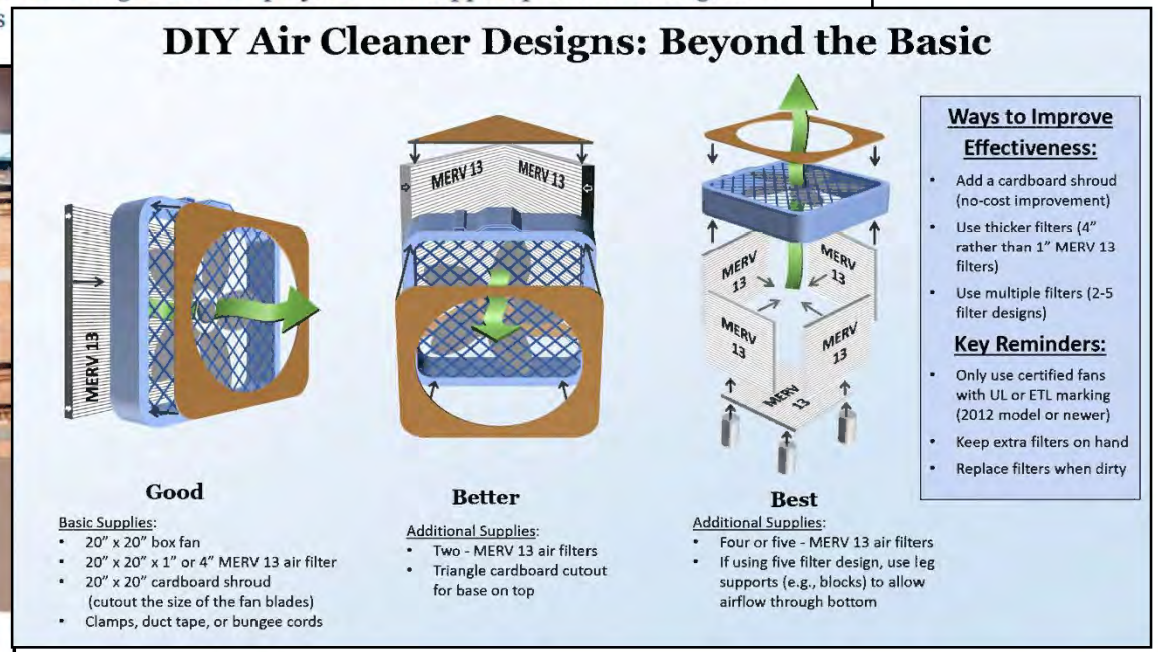
https://www.epa.gov/wildfire-smoke-course - Current course

Guidance for Clean Indoor Air Spaces









Air Sensor Loans

Regional Sensor Loan Programs

Contact Erin for details.

Wildfire Smoke Air Monitoring Response Technologies Program (EPA ORD)

Sensor loans for States, Tribes, Local Agencies: PurpleAir, VAMMS

Tribal Air Monitoring Support Center (TAMS)

Tailored support for Tribes

Social Media Tools

#SmokeReady graphics from the NW Air Quality Communicators

Thank You

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Wildland Fire Smoke and Environmental Justice

R. Byron Rice and Jason Sacks
Integrated Climate Sciences Division (ICSD)
Center for Public Health and Environmental Assessment (CPHEA)
Office or Research and Development (ORD)
U.S. Environmental Protection Agency

Considering Public Health & Equity: Wildland Fire Air Quality
Equity and Environmental Justice in Wildland Fire – Virtual Workshop
Northwest Fire Science Consortium
November 13, 2024

What is Environmental Justice?

Just treatment and meaningful involvement of all people regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other Federal activities that affect human health and the environment so that people:

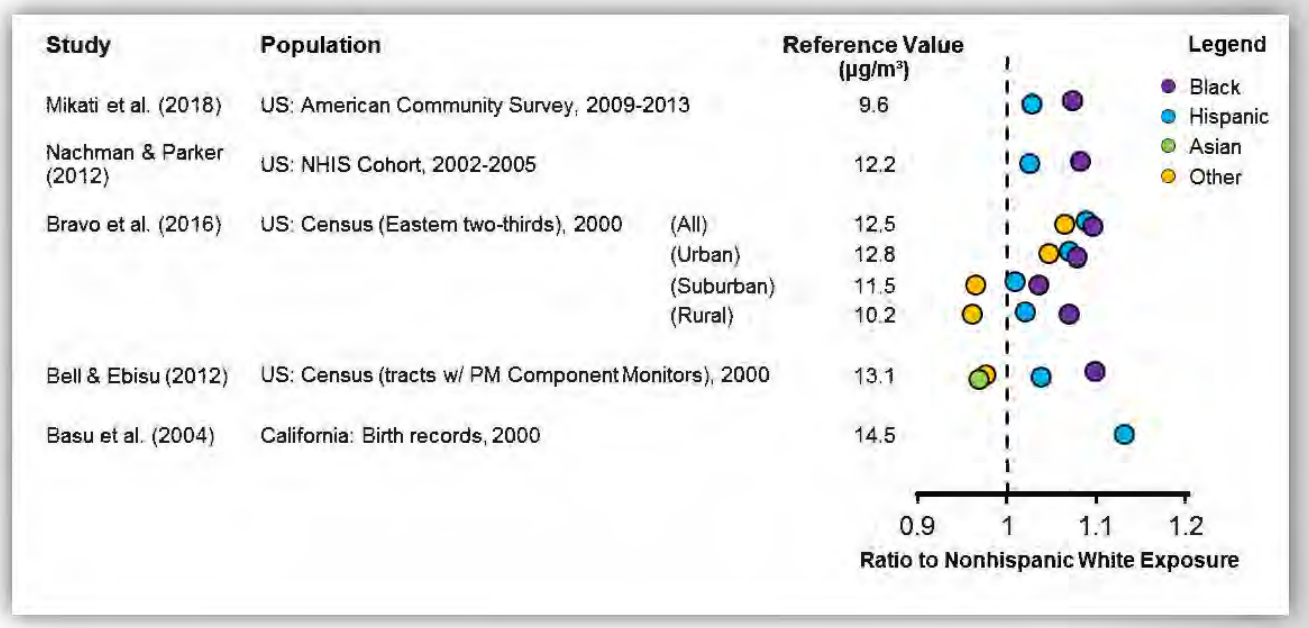
- are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and

- have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices

Source: https://www.epa.gov/environmentaljustice

Environmental Justice and Ambient Air Pollution ($PM_{2.5}$)

- EJ concerns are often defined as disparities in exposure and disparities in the risk of health effects
- Differences in pollution exposures can be attributed to the siting of different sources of emissions, history of housing discrimination, zoning decisions, etc.
- Both regulatory and other actions are taken to reduce these disproportionate burdens that follow defined patterns.



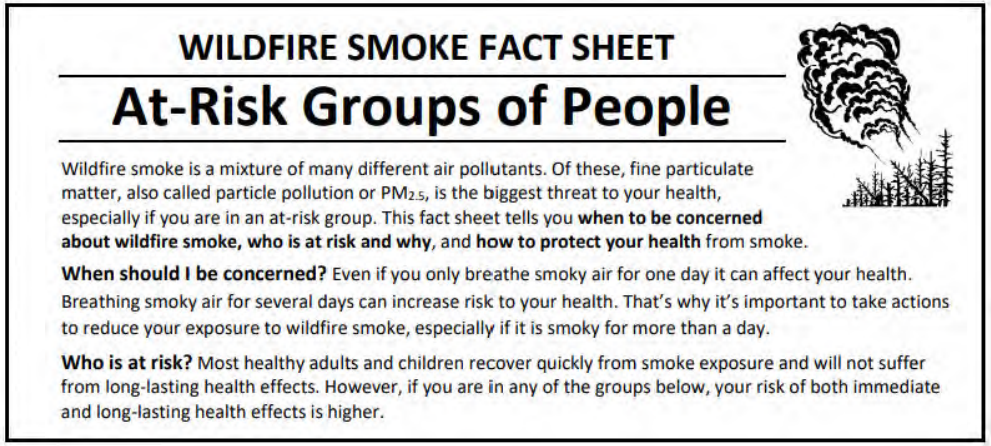
$PM_{2.5}$ exposure for Black, Hispanic, Asian, and other groups compared to Non-Hispanic White exposure

Source: U.S. EPA (2019). PM ISA. Figure 12-1.

Who's At-Risk from Wildland Fire Smoke?

- People with chronic diseases:
  - People with asthma and other lung diseases
  - People with cardiovascular disease
- Lifestages and populations:
  - Older adults (> 65 years of age)
  - Children (≤ 18 years of age)
  - Pregnant people and developing fetus

- People with higher exposure:
  - People from some ethnic and racial minority groups
  - People with lower incomes
  - Outdoor workers



WILDFIRE SMOKE FACT SHEET

At-Risk Groups of People

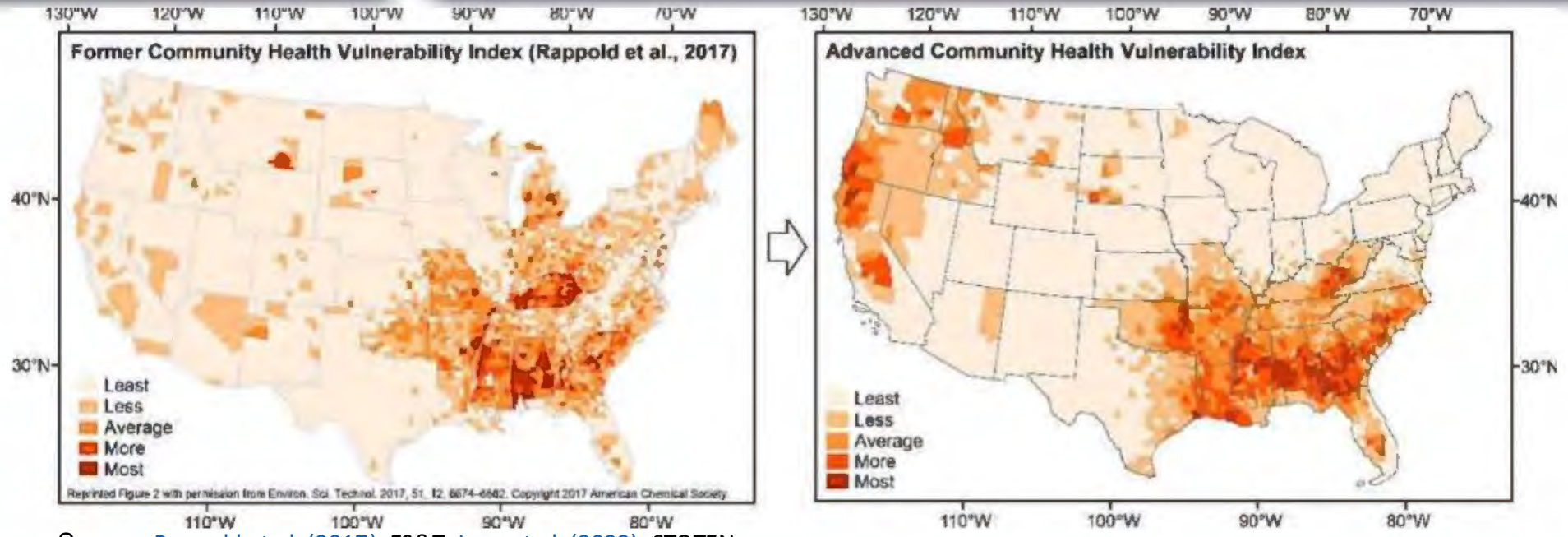
Wildfire smoke is a mixture of many different air pollutants. Of these, fine particulate matter, also called particle pollution or $PM_{2.5}$, is the biggest threat to your health, especially if you are in an at-risk group. This fact sheet tells you **when to be concerned about wildfire smoke, who is at risk and why**, and **how to protect your health** from smoke.

When should I be concerned? Even if you only breathe smoky air for one day it can affect your health. Breathing smoky air for several days can increase risk to your health. That's why it's important to take actions to reduce your exposure to wildfire smoke, especially if it is smoky for more than a day.

Who is at risk? Most healthy adults and children recover quickly from smoke exposure and will not suffer from long-lasting health effects. However, if you are in any of the groups below, your risk of both immediate and long-lasting health effects is higher.

Source: U.S. EPA (2023). Wildfire Smoke Fact Sheet: At-Risk Groups of People.

Community Health-Vulnerability Index



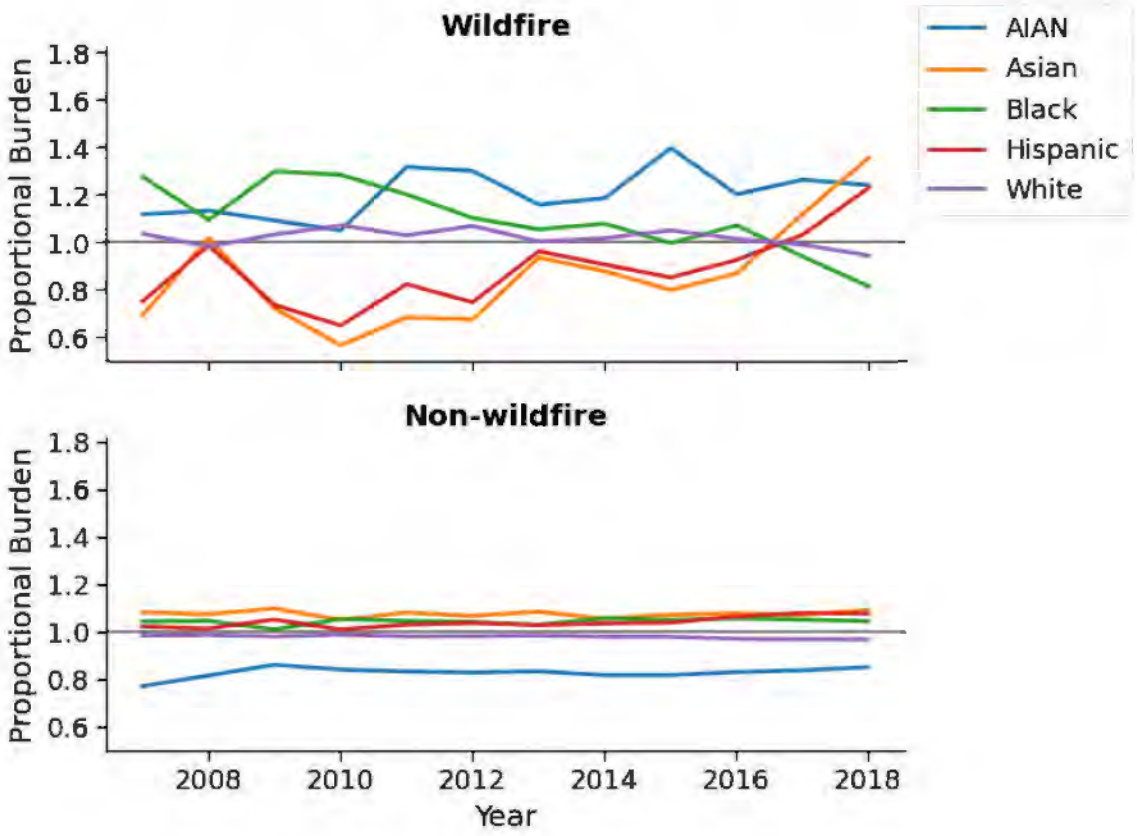
Source: Rappold et al. (2017). ES&T; Jung et al. (2023). STOTEN.

- CHVI identifies the most vulnerable counties
  Factors of Vulnerability
  - Pediatric & Adult Asthma
  - COPD
  - Obesity
  - Diabetes
  - Hypertension
  - % population age 65+
  - Income, education, poverty, unemployment

- Expanded initial CHVI to include:
  - Adaptive capacity
  - Sensitivity
  - Exposure at national and regional levels

Wildfire and Non-Wildfire $PM_{2.5}$ Exposure Disparities

- Analysis of modeled $PM_{2.5}$ concentrations and Census demographic data
  - Continental U.S., 2007-2018
- Overall, wildfire fire $PM_{2.5}$ more variable than non-wildfire $PM_{2.5}$ burden
  - Wildfire $PM_{2.5}$ high in non-urban areas, opposite of non-wildfire $PM_{2.5}$
  - American Indian and Alaskan Native (AIAN) population have low non-wildfire $PM_{2.5}$ but high wildfire $PM_{2.5}$
  - Black people have high wildfire and non-wildfire $PM_{2.5}$ burden

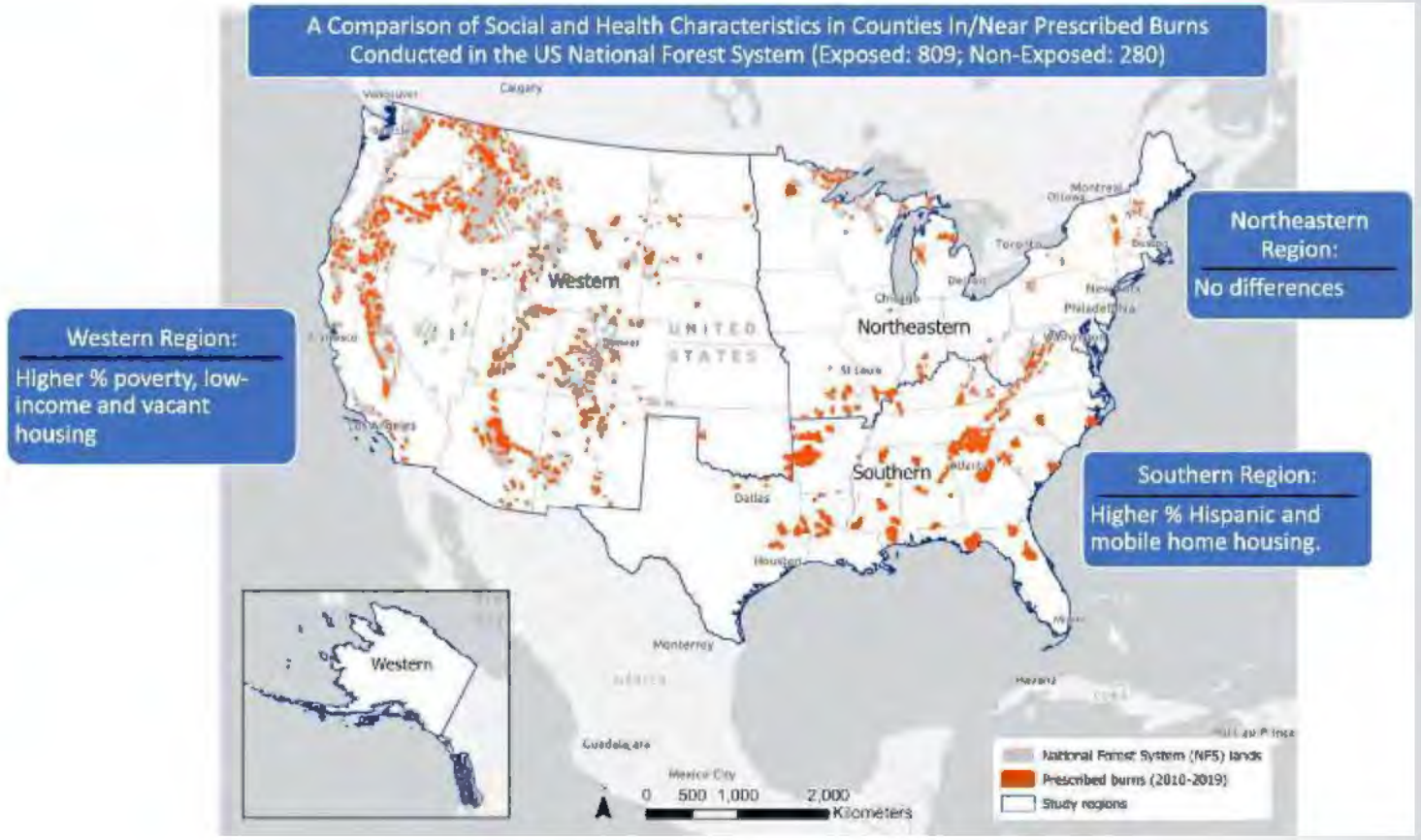


Proportional burden of $PM_{2.5}$ attributed to wildfire and non-wildfire sources among racial and ethnic groups.

Source: Rice et al. (Under Review). ES&T Air.

Prescribed Fire and Exposure Disparities

- Studies have identified regional variability in groups disproportionately impacted by prescribed fire and prescribed fire smoke
  - Prescribed Fire:
    - Different groups nationally in Kondo et al. (2022)
  - Prescribed Fire Smoke:
    - Low socioeconomic status and Black people in Georgia (Johnson-Gaither et al., 2019; Afrin and Garcia-Menendez, 2021)
    - Areas with high social vulnerability index in in Washington, Oregon, and California (Schollaert et al., 2024)



Source: Kondo et al. (2022) Science of The Total Environment

Addressing Environmental Justice and Advancing Equity in Public Health Protection

- Wildfire Smoke
  - Uncontrolled timing and location
  - Understanding of populations and communities disproportionately impacted can allow for targeted messaging and interventions to reduce smoke exposure
- Prescribed Fire Smoke
  - Known timing and location of prescribed fire and communities potentially impacted
  - Provides an opportunity to identify communities potentially impacted and target messaging and interventions to reduce smoke exposure

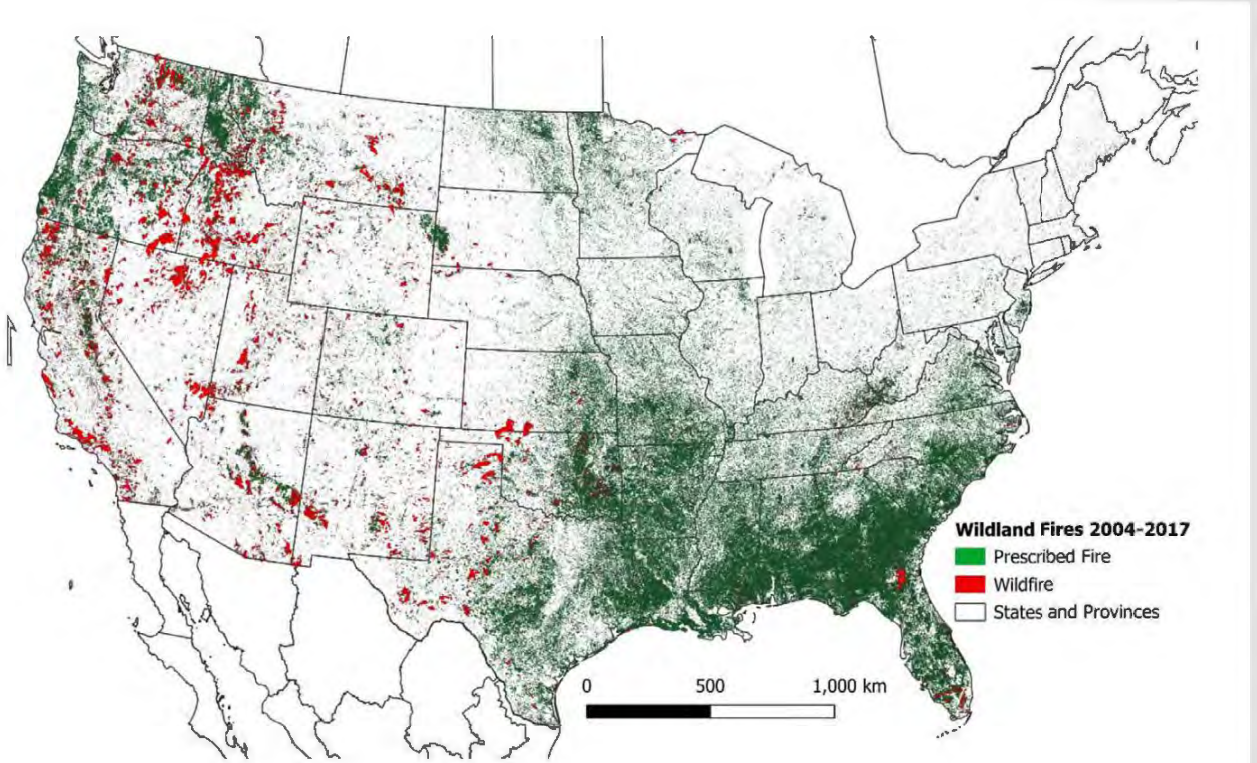


Fig. 1. Geospatial extent of the 2004-2017 wildland fire events.

Source: Beidler et al. (2024). Data in Brief 56 (2024) 110856

Thank You

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Jason Sacks: sacks.jason@epa.gov

OREGON HEALTH AUTHORITY

November 12, 2024

A Whole Community Approach to Wildfire and Smoke Risk Reduction

Jamie Bash, MPH
Crisis and Emergency Risk Communication Analyst

Agenda

- Contextual re-grounding:
  - Disaster risk reduction
  - Behavior change processes
  - Whole community approach
- Whole community approach to engagement and communication (Discussion)

Goals:

- Time for reflection
- Support adaptation
- Drive strategic thinking

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Contextual Regrounding

Disaster Risk Reduction (DRR)

Preventing disasters is largely grounded on:

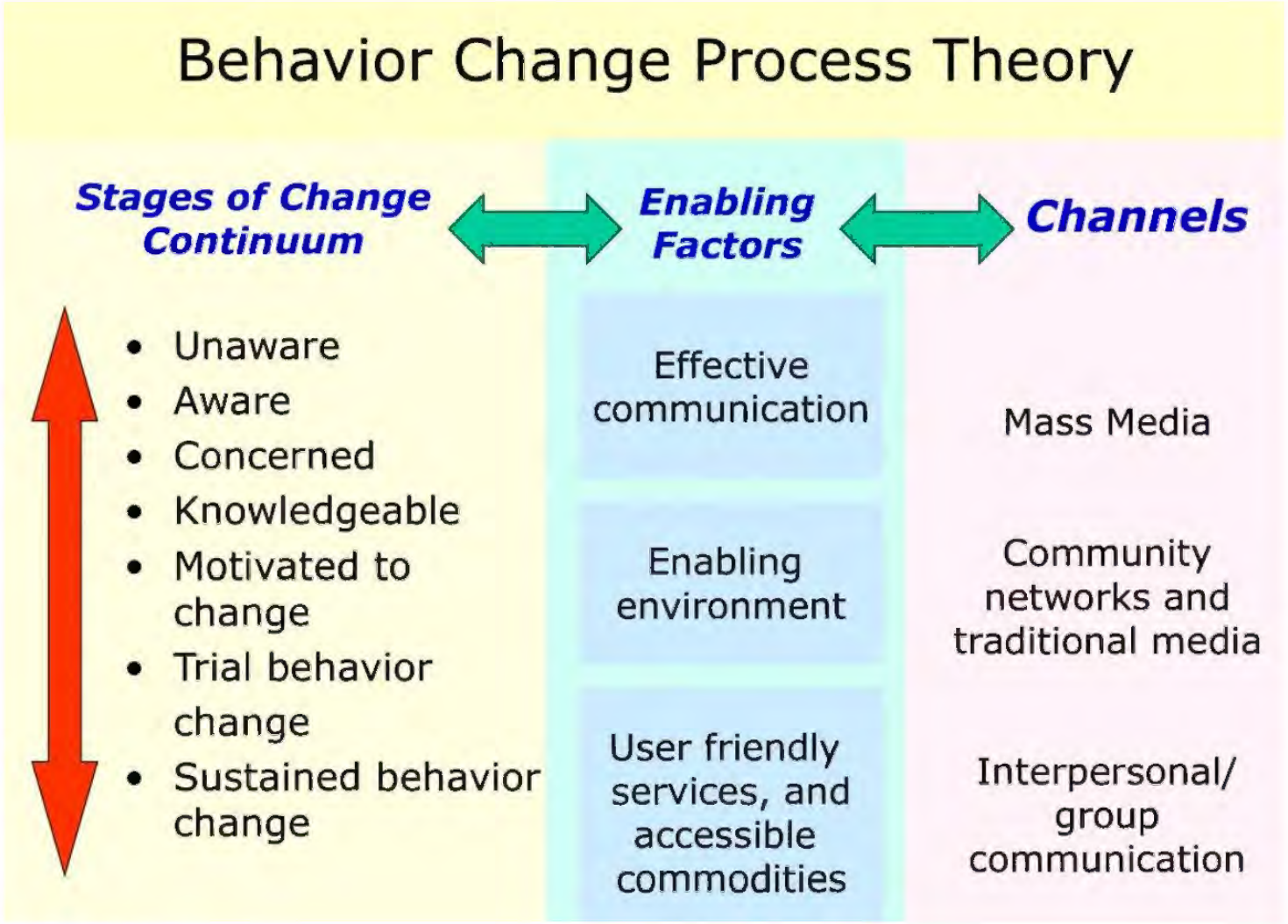
- Understanding our disaster risk.
- Strengthening disaster risk governance.
- Investing in DRR for resilience.
- Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction.

Healthy communication ecosystem and DRR

The public information and communication ecosystem supports DRR:

- Helps people understand disaster risk, prevention, protection and recovery.
- Supports inclusive decision-making.
- Promotes civic engagement, social capital
- Empowers communities.
- Accountability for governance (via media infrastructure).
- Supports alert and warning.

Behavior Change Process



“You can't solve problems until you understand the other side."

–Jeffrey Manber

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Whole Community Approach

Whole Community Approach

- Based on the idea that preparedness is a shared responsibility.
- The approach seeks to engage all sectors and sub-communities:
  - Individuals and families, including individuals with access and functional needs
  - Community and faith -based organizations
  - Private sector
  - Media
  - Schools and academia
  - Non-profit and philanthropic
  - Government of all levels
  - Private sector/business

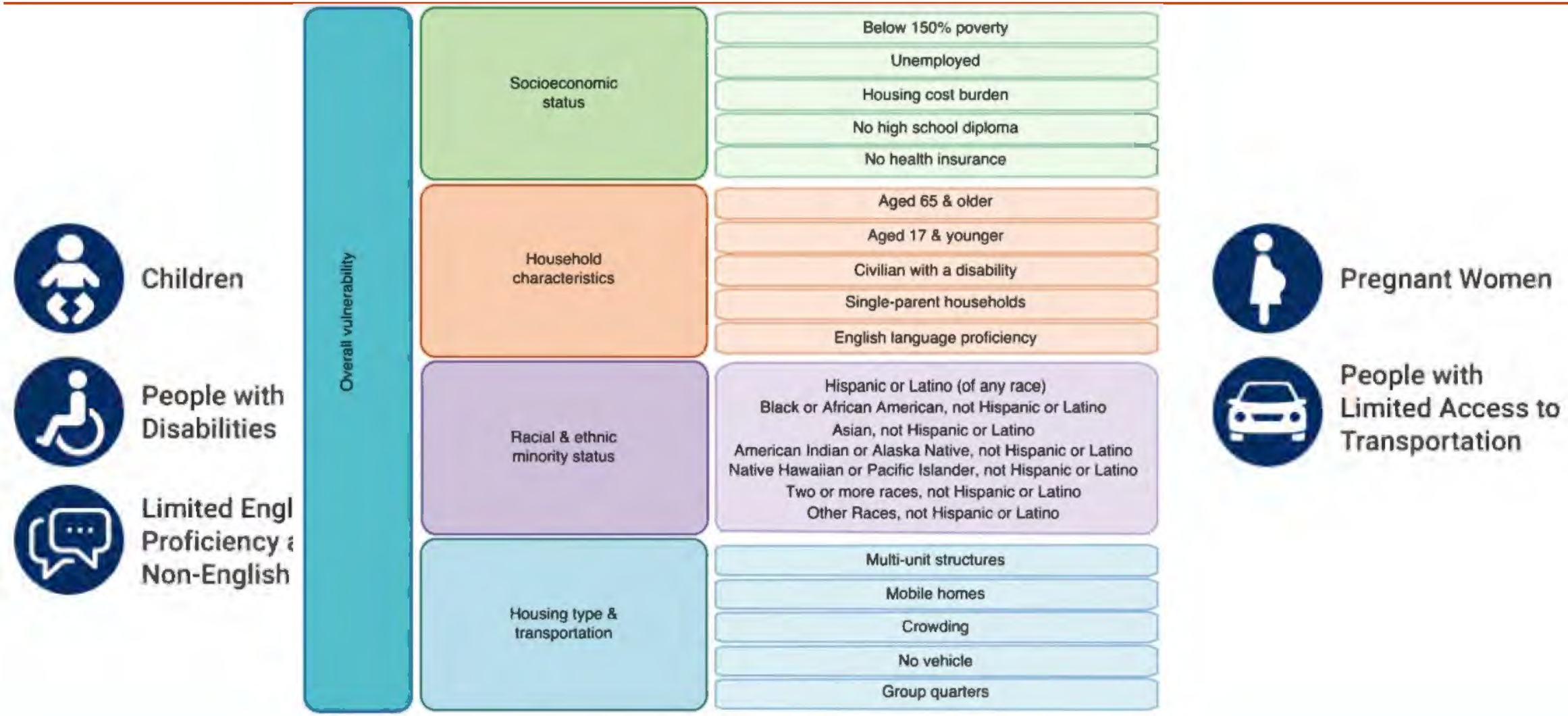
Access and Functional Needs

- Individuals with and without disabilities, who may need additional assistance because of any condition (temporary or permanent) that may limit their ability to act in an emergency.

- Individuals with “access and functional needs” do not require any kind of diagnosis or specific evaluation.

- These may include but are not limited to:
  - individuals with disabilities
  - individuals with limited English proficiency
  - individuals with limited access to transportation
  - individuals with limited access to financial resources
  - older adults
  - others deemed “at risk” by the Pandemic and All-Hazards Preparedness and Advancing Innovation Act (PAHPAIA) or the Secretary of Health and Human Services

Access and Functional Needs- others at risk



Increasing level of community engagement

OUTREACH

- Communication flows from one to the other, ***to inform.***
- Provides community with information.
- Entities coexist.

Outcomes:

- Optimally, establishes communication channels and channels for outreach.

CONSULT

- Communication flows to the community and then back, ***answer seeking.***
- Gets information or feed-back from the community.
- Entities share information.

Outcomes:

- Develops connections.

INVOLVE

- Communication flows both ways, participatory form of communication.
- Involves more ***participation*** with community on issues.

Outcomes:

- Visibility of partnership established with increased cooperation

COLLABORATE

- Communication flow is bidirectional
- Forms ***partnerships*** with community on each aspect of project from development to solution.

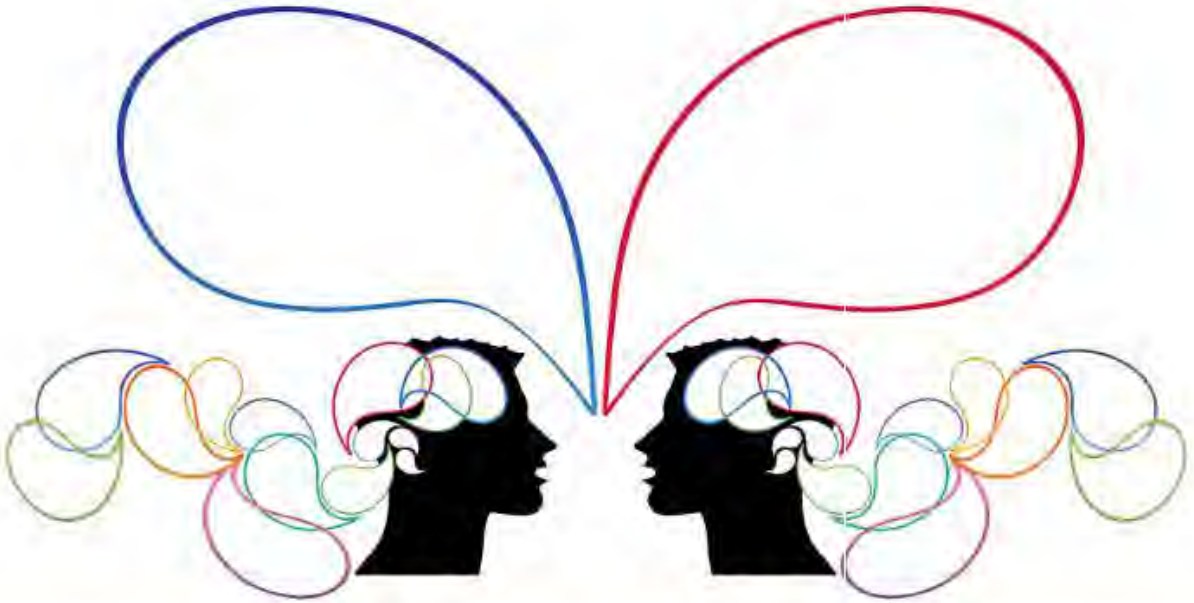
Outcomes:

- Partnership building, trust building

SHARED LEADERSHIP

“The…problem is we do not listen to understand. We listen to reply.”

- Stephen R. Covey



Crisis communication lifecycle

Pre-crisis

- Prepare.
- Foster alliances.
- Develop consensus recommend-ations.
- Test messages.
- Evaluate plans.

Initial

- Express empathy.
- Provide simple risk explanations.
- Establish credibility.
- Recommend actions.
- Commit to stakeholders.

Maintenance

- Further explain risk by population groups.
- Provide more background.
- Gain support for response.
- Empower risk/benefit decision making.
- Capture feedback for analysis.

Resolution

- Educate a primed public for future crises.
- Examine problems.
- Gain support for policy and resources.
- Promote your organization's role.

Evaluation

- Capture lessons learned.
- Develop an event SWOT.
- Improve plan.
- Return to pre-crisis planning.

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Finding Meaning in the Data

Discussion

If we are taking a whole community approach to wildfire smoke:

- Our primary audiences?
- The individuals, groups, organizations and businesses we should partner with across the whole of community to enable
  - Our communications and communication ecosystem
  - Our built, natural, social and policy environments
  - User friendly services, commodities and resources
- Where do we need to advance shared leadership?
- How could improved channels of communication or frequency of communication better support engagement?

Thank you

You can get this document in other languages, large print, braille or a format you prefer free of charge. Contact the Health Security, Preparedness and Response Program at Health.Security@dhsoha.state.or.us or 971.673.1315 (voice/text). We accept all relay calls.

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