Wildfire Smoke: A Guide for Public Health Officials Planned Updates

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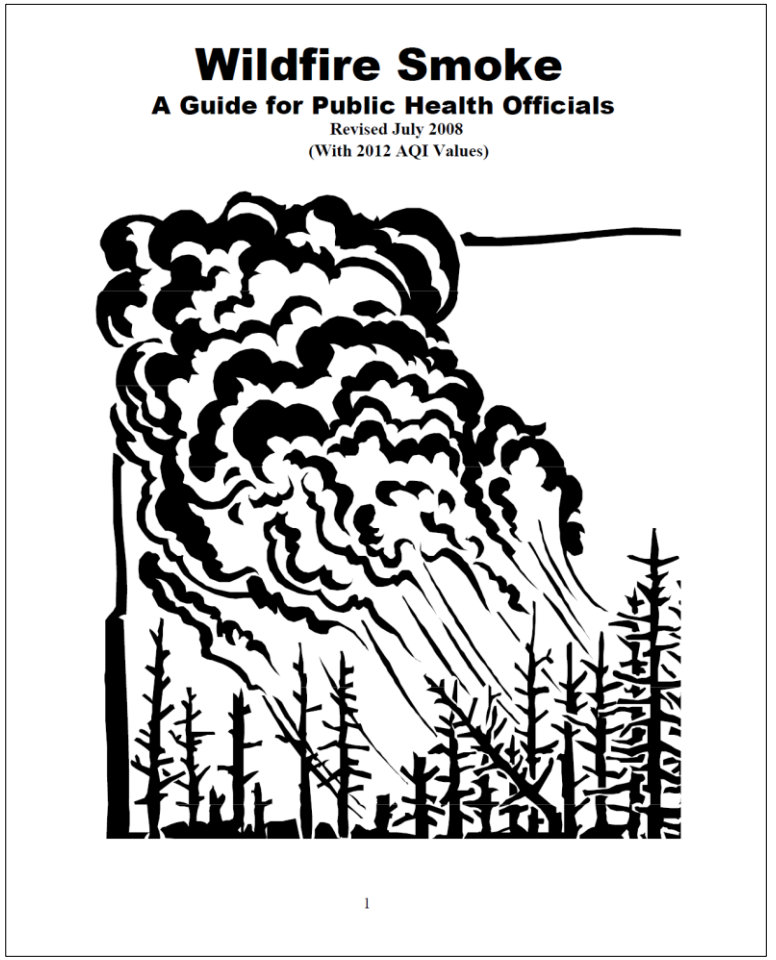
Overview

- Wildfire Smoke: A Guide for Public Health Officials
- Sections and key revisions
- Authors
- Schedule and review
- Stakeholder input

Wildfire Smoke: A Guide for Public Health Officials

- Developed in 2001
  - Response to 1999 fires on Hoopa reservation
  - Meetings in 2000 (CA OEHHA) and 2001 (University of Washington) led to development
  - Very little health or air quality information upon which to base recommendations
  - Developed by EPA, agencies in California and Washington; no agency took ownership. Widely used by state/local agencies
- Revised in 2008
  - Better information about PM health effects and exposure information (e.g., more continuous monitoring data)
  - Same partners made revisions, still widely used
- Revising it now
  - Stronger evidence base
  - Federal agencies making revisions with input from state and local partners
  - Two-step process



http://www.oehha.ca.gov/air/risk_assess/wildfirev8.pdf

Sections of the Guide

- Composition and characteristics of wildfire smoke
- Health effects of smoke and at-risk populations
- Strategies to reduce smoke exposure
  - Indoors
  - Outdoors
- Calculating PM levels
  - NowCast (new section)
  - Visibility
- Recommendations for public health actions - based on real-time AQI (NowCast) and forecasts
- Current appendices: protecting indoor workers from smoke; respirator use; clean-up; cleaner air shelters; smoke alert examples

CDPH Environmental Health Investigations Branch • California Department of Public Health

Protect Your Lungs from Wildfire Smoke

Wildfire smoke can irritate your eyes, nose, throat and lungs. It can make you cough and wheeze, and can make it hard to breathe. If you have asthma or another lung disease, or heart disease, inhaling wildfire smoke can be especially harmful.

If you cannot **leave** the smoky area, good ways to protect your lungs from wildfire smoke include staying indoors and reducing physical activity. Wearing a special mask called a "**particulate respirator**" can also help protect your lungs from wildfire smoke.

N95 respirators can help protect your lungs from wildfire smoke. Straps must go above and below the ears.

A one-strap paper mask will NOT protect your lungs from wildfire smoke.

A surgical mask will NOT protect your lungs from wildfire smoke.

How to Choose the Correct Mask to Protect Your Lungs

- Choose a mask called a "**particulate respirator**" that has the word "**NIOSH**" and either "**N95**" or "**P100**" printed on it. These are sold at many hardware and home repair stores and pharmacies.
- Choose a mask that has **two straps** that go around your head. **DO NOT** choose a mask with only one strap or with straps that just hook over the ears.
- Choose a size that will fit over your nose and under your chin. It should seal tightly to your face. These masks do not come in sizes that fit young children.
- Do not use bandanas (wet or dry), paper or surgical masks, or tissues held over the mouth and nose. These will not protect your lungs from wildfire smoke.

How to Use a Mask

- Place the mask over your nose and under your chin, with one strap placed below the ears and one strap above.
- Pinch the metal part of the mask tightly over the top of your nose.
- The mask fits best on clean shaven skin.
- Throw out your mask when it gets harder to breathe through, or if the inside gets dirty. Use a new mask each day if you can.
- It is harder to breathe through a mask, so take breaks often if you work outside.
- If you feel dizzy or nauseated, go to a less smoky area, take off your mask and get medical help.
- If you have a heart or lung problem, ask your doctor before using a mask.

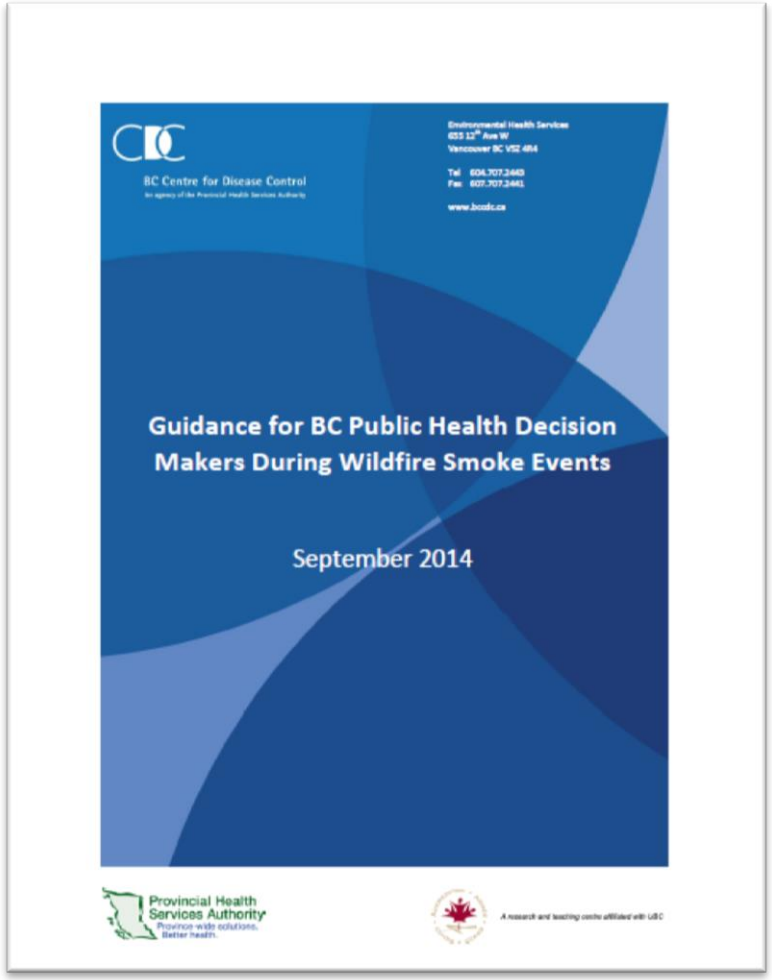
For more information about protecting yourself from wildfire smoke, call your local health department.

June 30, 2008

Updating the Wildfire Guide

- Revisions to guide will be led by federal agencies
  - Partners include CDC, EPA, USFS and other federal, state and local agencies
  - Target completion date is May, prior to 2016 fire season
- Revised guide will reflect recent advances
  - Stronger evidence base, including new PM/fire-related research and recent peer-reviewed assessments from British Columbia CDC
  - New thinking informs use of air quality “snapshots” such as instantaneous air quality readings or visual ranges
  - 2014 deployment of NowCast - responsive hourly AQI metric for $PM_{2.5}$
  - Fires: Current Conditions webpage - linking information from federal, state and local agencies
- Revised guide will reflect concerted effort by federal agencies to provide integrated and consistent messaging for use by state, tribal and local agencies
- CDC will disseminate information to state and local health departments

Stronger Evidence Base



- New PM and fire-related research
- British Columbia Centre for Disease Control peer-reviewed documents
  - Guidance for BC Public Health Decision Makers During Wildfire Smoke Events
  - Evidence reviews about: clean air shelters; reducing time outdoors, and smoke and public health risk
  - http://www.bccdc.ca/health-info/health-your-environment/air-quality

Changes to Table with Recommended Actions for Public Health Officials

Table 3. Recommended Actions for Public Health Officials [2,3]

AQI Category (AQI Values)	PM2.5 or PM10 Levels (ug/m³) 1-3hr avg	8 hr avg	24 hr avg[1]	Visibility - Arid Conditions (miles)	Recommended Actions
Good (0 to 50)	0 – 38	0 – 22	0 – 12	>11	• If smoke event forecast, implement communication plan
Moderate (51 to 100)	39 – 88	23 – 50	12.1 – 35.4	6 – 10	• Issue public service announcements (PSAs) advising public about health effects and symptoms and ways to reduce exposure • Distribute information about exposure avoidance
Unhealthy for Sensitive Groups (101 to 150)	89 – [illegible]	[illegible] – 79	35.5– 55.4	3 – 5	• If smoke event projected to be prolonged, evaluate and notify possible sites for cleaner air shelters • If smoke event projected to be prolonged, prepare evacuation plans
Unhealthy (151 to 200)	139 – [illegible]	[illegible] – 200	55.5 – 150.4	1.5 – 2.75	• Consider "Smoke Day" for schools (i.e., no school that day), possibly based on school environment and travel considerations • Consider canceling public events, based on public health and travel considerations
Very Unhealthy (201 to 300)	352 – 526	201 – 300	150.5 – 250.4	1 – 1.25	• Consider closing some or all schools (Newer schools with a central air cleaning filter may be more protective than older, leakier homes. See "Closures", below.) • Cancel outdoor events (e.g., concerts and competitive sports)
Hazardous (> 300)	> 526	> 300	> 250.5-500	< 1	• Close schools • Cancel outdoor events (e.g., concerts and competitive sports) • Consider closing workplaces not essential to public health • If PM level is projected to remain high for a prolonged time, consider evacuation of sensitive populations

[1]Revised 24 hour average breakpoints from the **Revised Air Quality** [illegible] **ds for Particle Pollution and Updates to the Air Quality Index**, US Environmental Protection Agency, December 14, [illegible] vailable at http://www.epa.gov/airquality/particlepollution/actions.html#dec[illegible]

[2]These 1- and 8-hr PM2.5 levels are estimated using the 24-hr brea[illegible] of the PM2.5 Air Quality Index included in the February 7, 2007 issue paper (http://www.epa.gov/airnow/aqi_issu[illegible]_020707.pdf) by dividing the 24-hr concentrations by the following ratios: 8-hr ratio is 0.7, 1-hr ratio is 0.4. Visibility is [illegible]n 1-hr values. If only PM10 measurements are available during smoky conditions, it can be assumed that the PM10 [illegible]posed primarily of fine particles (PM2.5), and that therefore the AQI and associated cautionary statements and advisor[illegible] PM2.5 may be used. This assumption is reflected in the column headings for Table 3.

[3]Washington and Montana have developed more precautionary bre[illegible]s, which can be found at: http://www.deq.mt.gov/FireUpdates/BreakpointsRevised.asp and h[illegible]ww.ecy.wa.gov/programs/air/pdfs/WAQA.pdf

Section on visibility guidelines

Smoke Management Guide

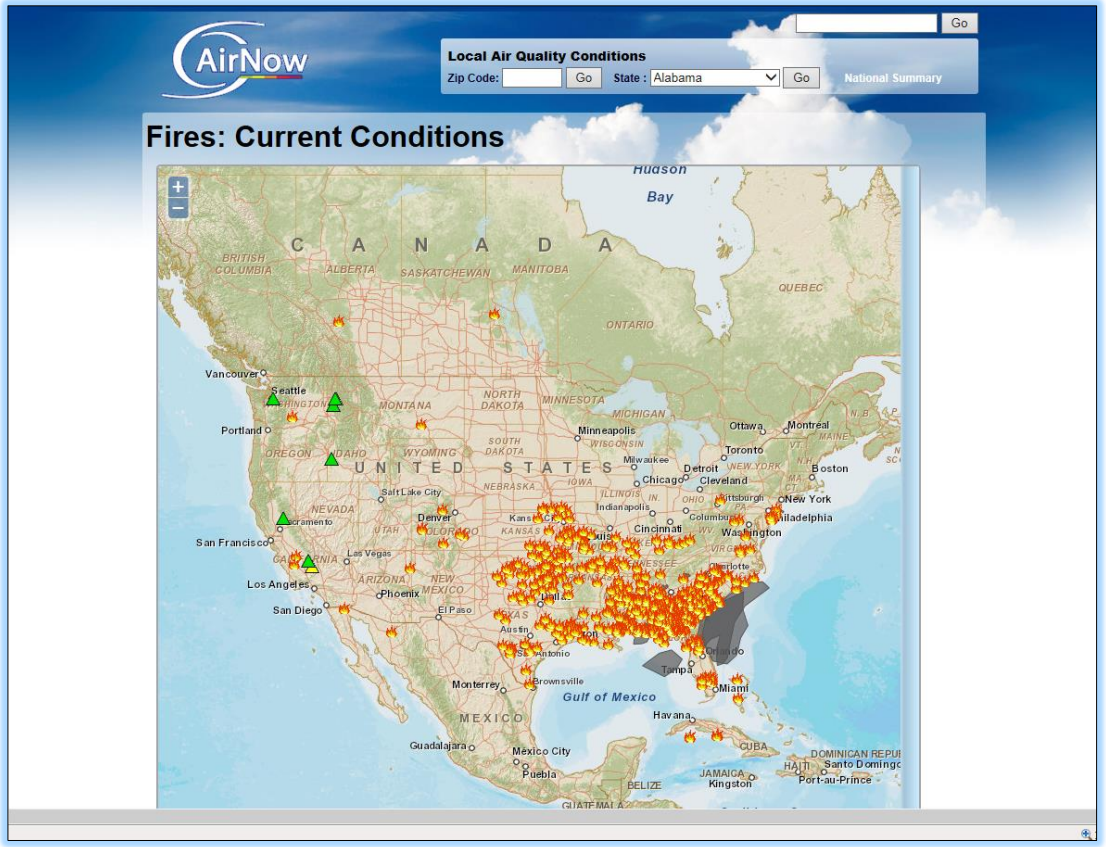
Table 1. Air Quality Index categories (AQI) with actions recommended for public health protection during a wildfire smoke incident.[a]

Category (AQI Values)	PM2.5 or PM10 Levels (µg/m3) 24 hr avg[b]	Recommended Actions
Good (0 to 50)	0 – 12	• If smoke event forecast, implement communication plan
Moderate (51 to 100)	12.1 – 35.4	• Issue public service announcements (PSAs) advising public about health effects and symptoms and ways to reduce exposure • Distribute information about exposure avoidance
Unhealthy for Sensitive Groups (101 to 150)	35.5– 55.4	• If smoke event projected to be prolonged, evaluate and notify possible sites for cleaner air shelters • If smoke event projected to be prolonged, prepare evacuation plans
Unhealthy (151 to 200)	55.5 – 150.4	• Consider "Smoke Day" for schools (i.e., no school that day), possibly based on school environment and travel considerations • Consider canceling public events, based on public health and travel considerations
Very Unhealthy (201 to 300)	150.5 – 250.4	• Consider closing some or all schools (Newer schools with a central air cleaning filter may be more protective than older, leakier homes) • Cancel outdoor events (e.g., concerts and competitive sports)
Hazardous (> 300)	> 250.5-500	• Close schools • Cancel outdoor events (e.g., concerts and competitive sports) • Consider closing workplaces not essential to public health • If PM level is projected to remain high for a prolonged time, consider evacuation of sensitive populations

[a] Not all states agree entirely with the values and/or recommendations given in this table. Check with your state or county health department before using or distributing.
[b]Revised 24 hour average (midnight to midnight) breakpoints from 2012 updates to the Air Quality Index

Authors

- EPA
  - Office of Air and Radiation, Office of Research and Development, Indoor Environments Division
- CDC
  - Air Pollution and Respiratory Health Branch
- USFS - air quality and visibility
- Pediatric Environmental Health Specialty Units (PEHSU; http://www.pehsu.net/)
  - Update the sections on children and pregnant women and create factsheet



Schedule and Review

- Two-step process
  - Make initial revisions spring 2016
    - Draft Revised Guide for 2016 fire season
    - Get input before and after fire season
  - Make final revisions winter 2016-2017
    - Final for 2017 fire season
- Opportunity for input from ASTHO and ECOS
- Reach out to other partners/stakeholders

Schedule:	
Provide ASTHO/ECOS and stakeholder s with initial revisions to guide	Early April 2016
ASTHO/ECOS call with States to provide input on initial revisions	Late April 2016
State comments provided to EPA as written comments	Early May 2016
First Draft Revised Guide	End of May 2016
Deliver Draft Revised Guide for use during 2016 fire season	Early June, July, August 2016
After use of the Draft Revised Guide during the 2016 wildfire season partners provide comments to EPA on its utility	Early September 2016
EPA summarizes comments and presents experience to ASTHO and ECOS at their national meetings	Late September 2016
EPA works to finalize the document based on State input	Winter - 2016
Work with partners to develop communications and outreach strategy for Final Guide	Winter - 2016
Release Final Guide	For 2017 fire season

Stakeholder Input

- ASTHO and ECOS
- Partners: California (OER, CARPA, ARB) Washington, New Mexico, Wyoming, others?
- NACAA?