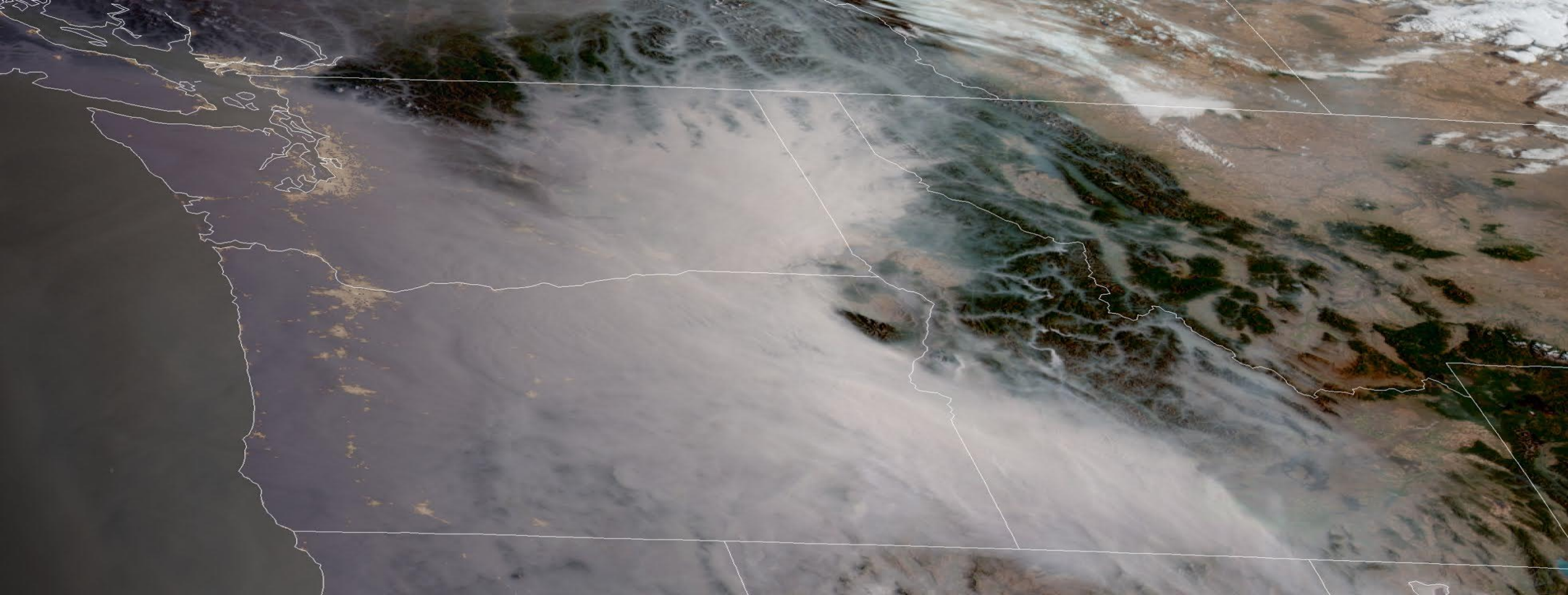




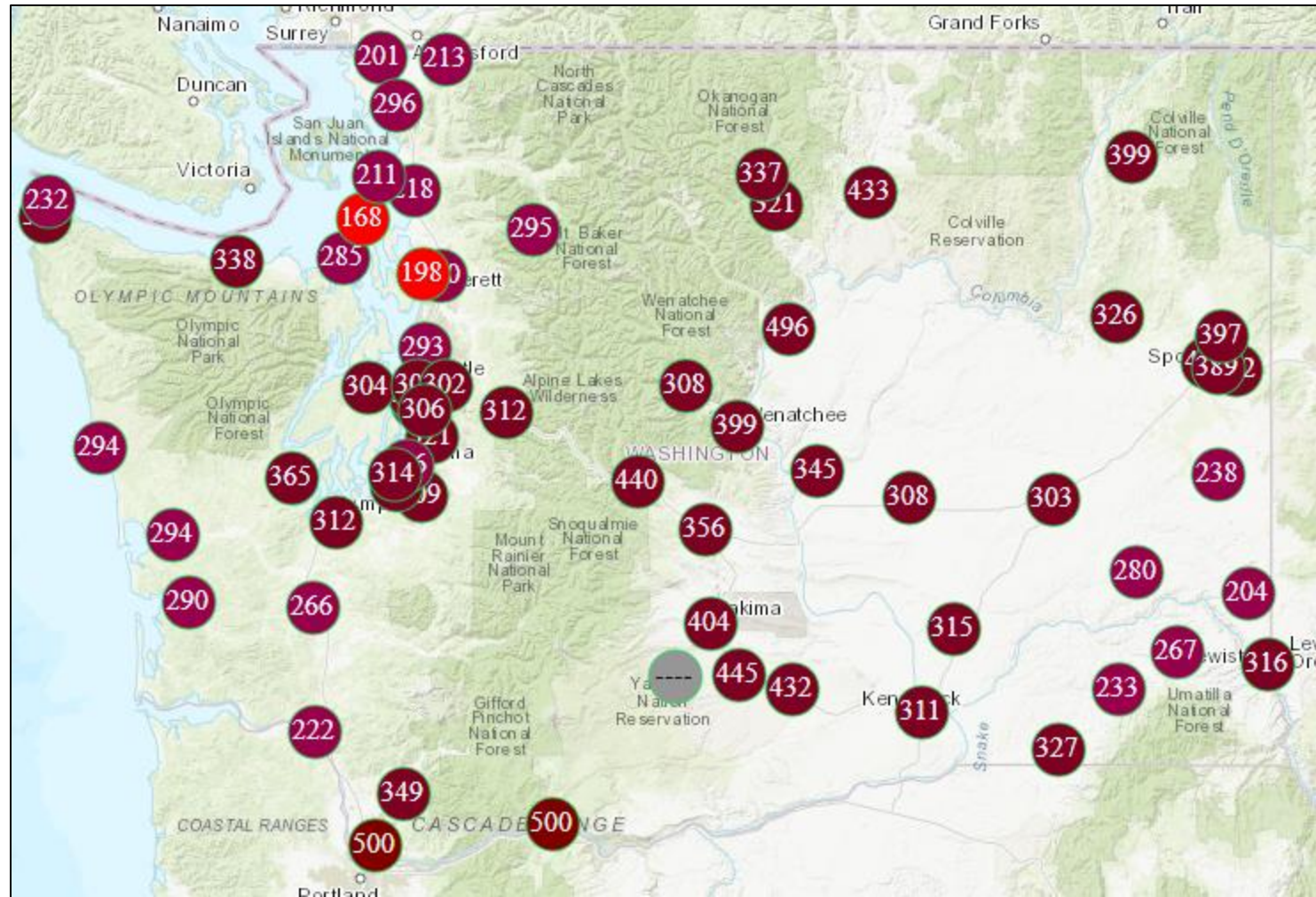
WILDFIRE SMOKE RESPONSE DURING THE COVID-19 PANDEMIC

Kaitlyn Kelly, MPH
Air Quality Policy Specialist
Office of Environmental Public Health Sciences

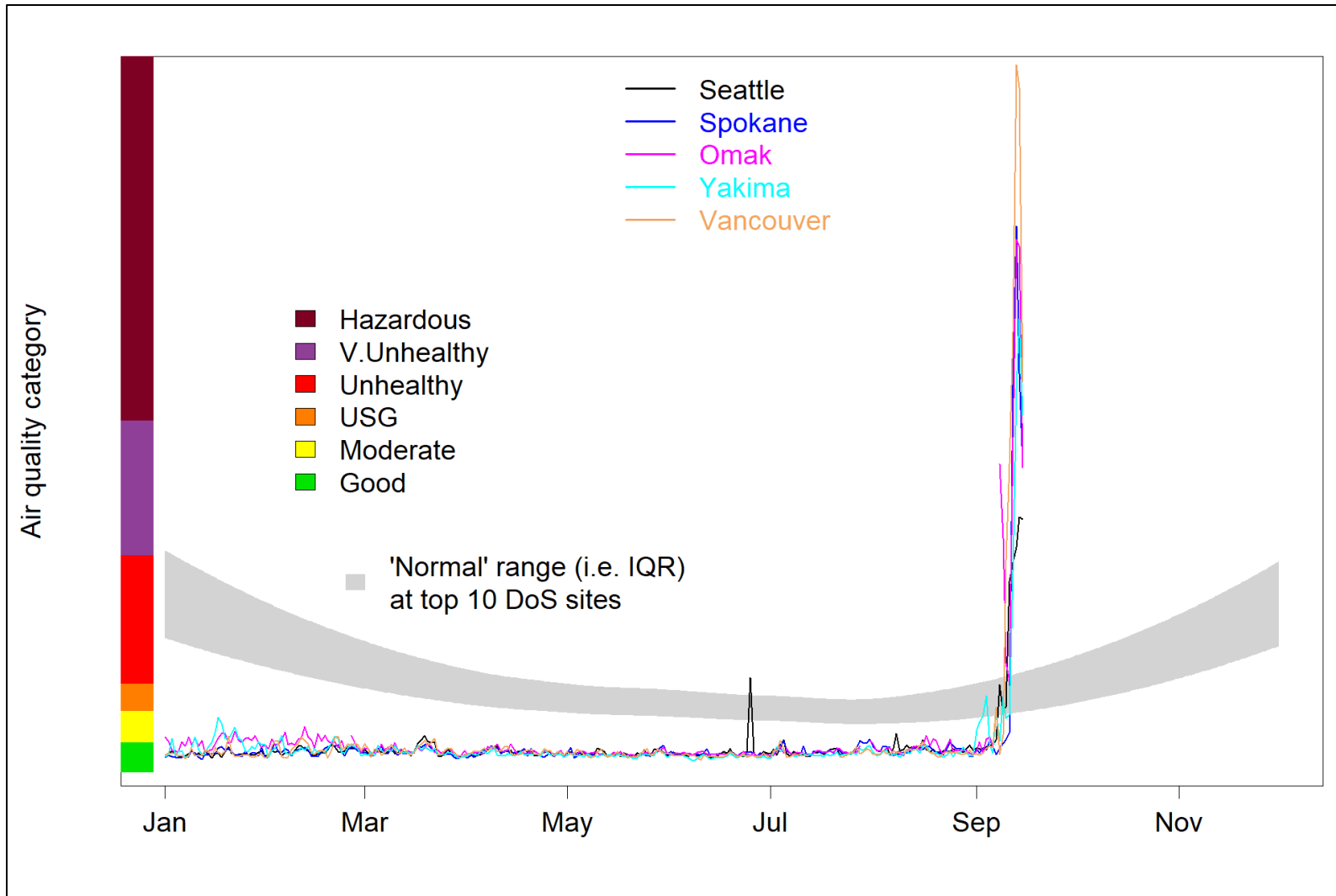
The “super massive” plume



Source: WA Smokeblog, Washington Department of Ecology, Air Quality Program, 2020.



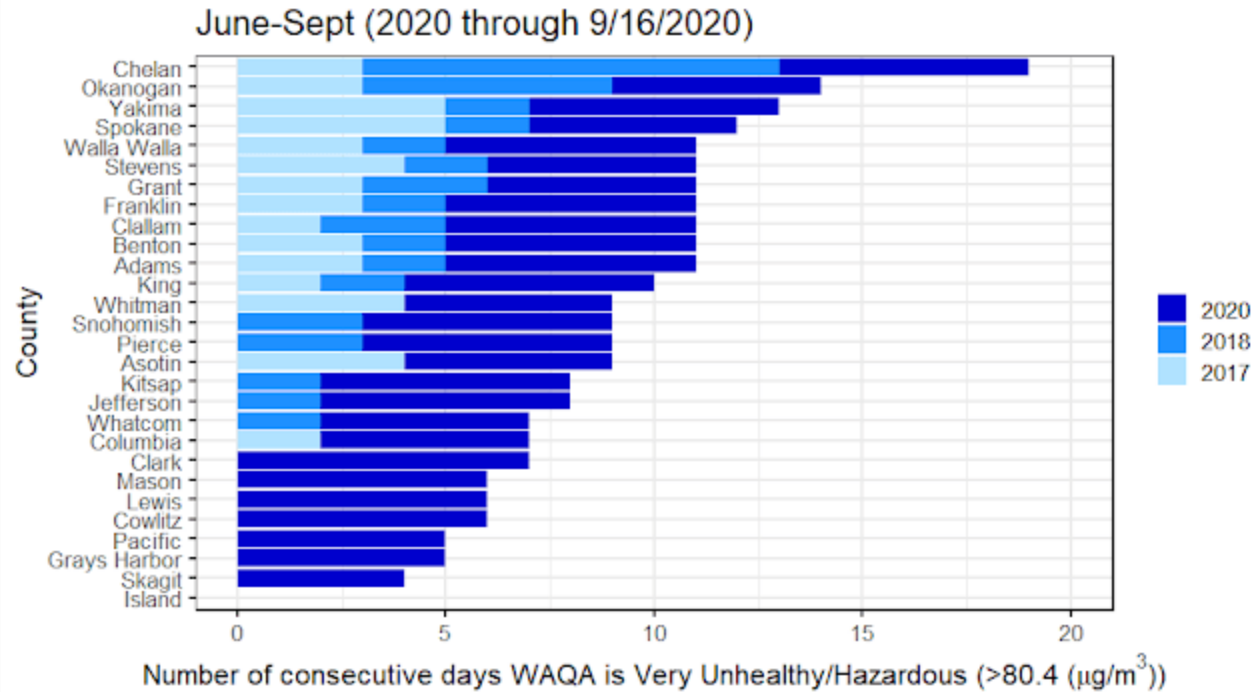
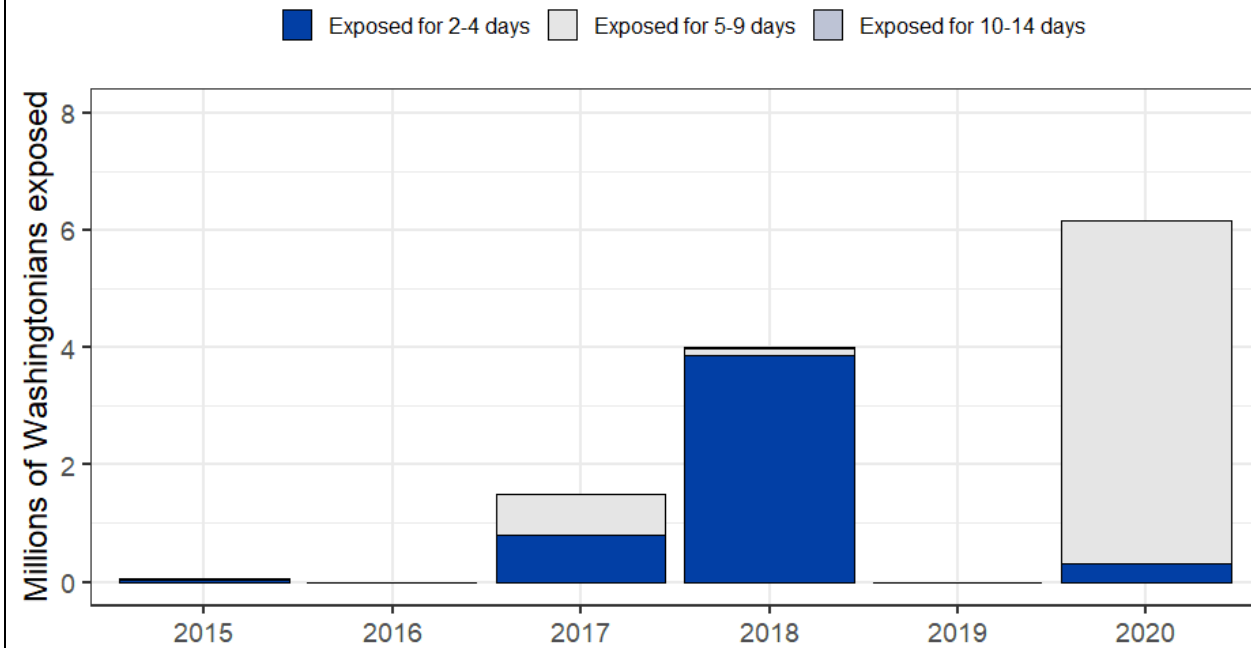
Source: WA Smokeblog, Washington Department of Ecology, Air Quality Program, 2020.



Source: WA Smokeblog, Washington Department of Ecology, Air Quality Program, 2020.

WA 2020 Smoke Event

WA population exposed to very unhealthy or worse air quality, June-September (2020 through 9/17/2020)



Source: WA Smokeblog, Washington Department of Ecology, Air Quality Program, 2020.

Minor to deadly responses

- Eye, nose, and throat irritation
- Cough, wheeze, shortness of breath
- Cardiovascular morbidities
- Respiratory morbidities
- Overall increase in hospitalizations & deaths
- Psychological stress



sore throat



headaches



burning eyes



coughing



wheezing



shortness of
breath

Groups vulnerable to smoke from fires

- People with chronic conditions
 - Heart, lung, and circulatory diseases
- Infants and children
- People 65 years and older
- Pregnant women
- People of low socioeconomic status

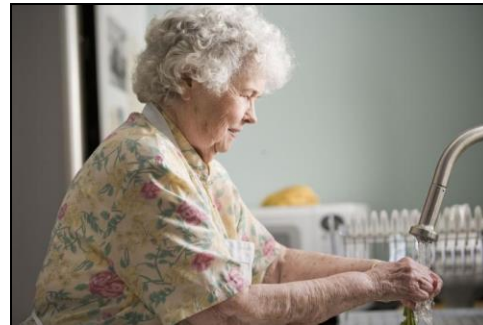


Photo credits: CDC/Dawn Arlotta 2009, www.pixabay.com

These groups make up >40% of Washington's population.

Steps to protect health from smoke

1. Stay informed about air quality

- Check the air quality hazard level

2. Limit exposure

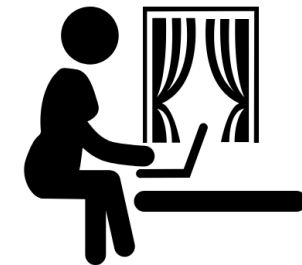
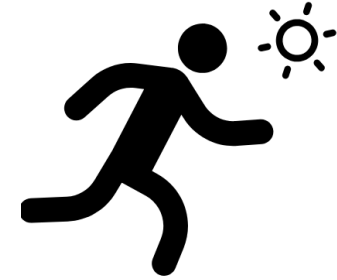
- Avoid strenuous outdoor activity
- Limit time outdoors
- Stay indoors

3. Keep indoor air clean

- Keep windows and doors closed
- Filter air through an HVAC system
- Use a portable air cleaner with a HEPA filter or DIY box fan filter
- Don't contribute to indoor air quality

4. Pay attention to symptoms

- Seek medical help if needed



Key Resources in WA State

- WA DOH Smoke From Fires webpage
- WA ECY Washington Monitoring Network
- Washington Smoke Blog
- Clean Air Agency websites
- Local health jurisdiction websites



WAQQA WASHINGTON AIR QUALITY ADVISORY

Check air quality conditions at ecology.wa.gov/WAQA

	GOOD Air pollution is so low so there is little health risk. It's a great day for everyone to enjoy the outdoors!	SENSITIVE GROUPS INCLUDE: • People with health conditions such as: - Asthma, COPD, diabetes, & other heart/lung diseases - Respiratory illnesses & colds - Stroke survivors • Children under 18 & adults over 65 • Pregnant women • People who smoke
	MODERATE People with health conditions should limit spending any time outdoors & avoid strenuous outdoor activities. They may begin to have worsened symptoms.	
	UNHEALTHY FOR SENSITIVE GROUPS <i>All of the above &:</i> All sensitive groups should limit spending any time outdoors. People with health conditions may have worsened symptoms. Healthy people may start to have symptoms.	
	UNHEALTHY FOR EVERYONE Everyone, especially sensitive groups, should limit time spent outdoors, avoid strenuous activities outdoors, & choose light indoor activities.	
	VERY UNHEALTHY FOR EVERYONE Everyone should stay indoors, avoid all strenuous activity, close windows & doors if it's not too hot, set your AC to recirculate, & use a HEPA air filter if possible.	
	HAZARDOUS FOR EVERYONE <i>All of the above &:</i> People with heart or lung disease, or those who have had a stroke, should consult their healthcare provider about leaving the area & wearing a properly-fitted respiratory mask* if they must go outdoors. Follow burn bans and evacuation orders.	KNOW THE SYMPTOMS: • Watery or dry eyes • Coughing/wheezing • Throat & sinus irritation • Phlegm • Shortness of breath • Headaches • Irregular heartbeat • Chest pain

If you are experiencing serious symptoms, seek immediate medical attention.

Air pollution from dust, vehicles, woodstoves, wildfires, & industries can seriously impact your health.
*For more health information & how to choose the proper respiratory mask, visit doh.wa.gov/smokefromfires.

WASH STATE DEPT OF HEALTH | DEPARTMENT OF ECOLOGY | STATE OF WASHINGTON

WA DOH Wildfire Smoke Response

**Review
evidence &
best practices**



**Work with
partners**



**Develop
guidance &
materials**



**Share
resources**



Wildfire Smoke Impacts Advisory Group

- Formed at the request of local health jurisdictions
- 33 Members
 - Including WA Dept of Health, local health jurisdictions, WA Dept of Ecology, WA Labor & Industries, regional clean air authorities, tribal communities, University of Washington & EPA
- 3 sub workgroups to address 3 priorities

Communication Workgroup

Develop custom toolkit for local outreach and communication

Closures Workgroup

Develop guidance for school and outdoor event closures

Sensors Workgroup

Develop guidance for low-cost sensors to use for health decisions

The impact of COVID-19 on wildfire smoke response

- Increased health risk
 - If you have COVID-19, breathing in wildfire smoke may make your symptoms worse.
 - Wildfire smoke can make you more susceptible to respiratory infections, like COVID-19.
 - Overlapping symptoms (cough, sore throat, and difficulty breathing)
- Impacts to health recommendations and messaging
 - Clean air shelters, indoor air quality, masks
- Limitations to capacity
 - Staff, resources
 - Shift in priorities
- Unexpected challenges

How did we respond?

- Early preparation
 - But at the cost of postponing other pre-season priorities
- Updating guidance prior to season
- Early dissemination of information
- Communicating health risk messaging across platforms
- Staff capacity and expertise
- Coordination with partners
 - Including new COVID-19 partners

Updated Guidance



Updated September 11, 2020

Recommendations for wildfire smoke and COVID-19 during the 2020 wildfire season

This wildfire season will be especially challenging as we continue to respond to the COVID-19 pandemic. There is concern about the health impacts of wildfire smoke overlapping with COVID-19 because both impact respiratory and immune systems. COVID-19 restrictions limit current public health recommendations to reduce exposure to wildfire smoke and will complicate our public health response.

This guidance will help air quality and public health officials in Washington state respond to wildfire smoke events during these unique circumstances.

Overlapping Health Impacts of Wildfire Smoke and COVID-19

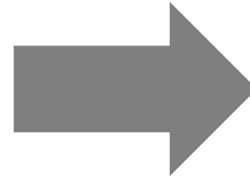
Breathing in wildfire smoke by itself can produce harmful health effects. These range from minor symptoms, such as eye, nose, and throat irritation or headaches, to more severe symptoms like shortness of breath, chest tightness, asthma attacks, and worsening existing chronic conditions. Some of these respiratory symptoms, including dry cough, sore throat, and difficulty breathing, are also common to COVID-19.

Early evidence indicates wildfire smoke exposures can make people more susceptible to respiratory infections, likely including COVID-19. Recent studies indicate that poor air quality can make symptoms and outcomes in people with COVID-19 more severe. Populations sensitive to wildfire smoke exposures include people with heart and lung diseases, people with respiratory infections, people with diabetes, stroke survivors, infants, children, pregnant women, and people over 65 years of age. Some of these groups are also those most at risk for COVID-19. Persons with, or recovering from, COVID-19 may be more at risk for negative health effects from wildfire smoke exposure because of compromised lung and heart function.

Additional COVID-19 Guidance: Seek medical attention when experiencing severe symptoms, such as chest pain or difficulty breathing, during wildfire smoke events. If you have a fever, cough, or shortness of breath, it is best to treat it like it could be COVID-19. Protect others by staying home. If you are concerned about your health, call your health care provider to discuss [COVID-19 testing](#) and other possible reasons for your illness.

Reducing Exposure to Wildfire Smoke during COVID-19

The following identifies normal recommendations to reduce exposure to wildfire smoke and provides additional guidance for this year, as many of these recommendations are impacted by COVID-19 related restrictions. Additional information on how to protect yourself from wildfire smoke is available on our [Smoke from Fires webpage](#).



Stay indoors and keep indoor air clean

When the air quality is poor from wildfire smoke, reduce outdoor physical activity. As the air quality worsens you will need to go indoors and take additional steps to keep smoke out of your home to improve indoor air quality.

Additional COVID-19 Guidance: With additional limitations this year, this will be the best way to protect yourself from exposure to wildfire smoke.

Resources:

- [EPA's information on COVID-19, Wildfires, and Indoor Air Quality](#)
- [EPA's information on wildfires and indoor air quality](#)
- [EPA's information on creating a clean room](#)

Seeking Cleaner & Cooler Air Elsewhere

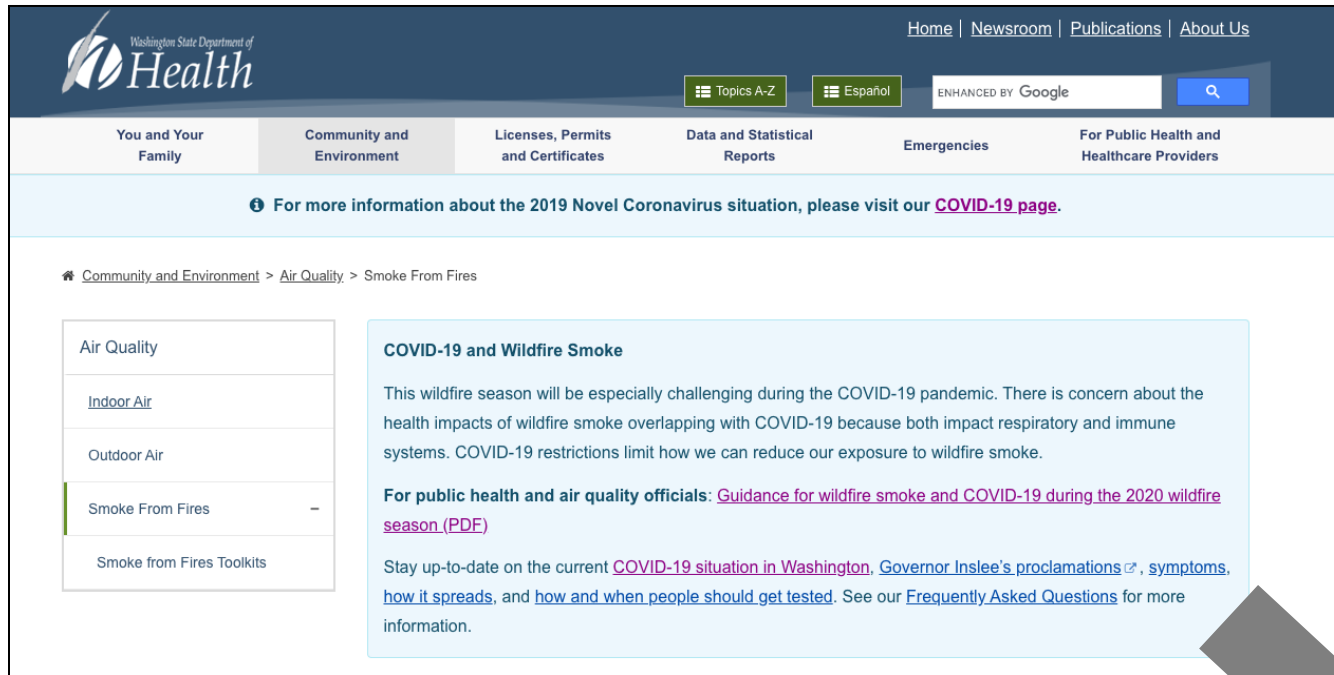
Going to clean air shelters and public clean air spaces or a friend's or relative's place with a dedicated clean air space and air conditioning can provide relief from wildfire smoke and heat when you cannot keep your indoor air clean or you cannot keep your house cool.

Additional COVID-19 Guidance: It might not be safe for people to go to public spaces to seek cleaner and cooler indoor air away from home this year due to COVID-19. With the congregation of people at these settings, there is a risk of transmission of SARS CoV-2, the virus that causes COVID-19. Check in advance to see if these places are open and be prepared for lower capacity, to physically distance, and wear a cloth face covering.

If you decide to leave the area and visit friends or relatives, consider COVID-19 restrictions in the county you are traveling to and with the people you are visiting. This is important if either they or you are more sensitive to COVID-19 and should be especially cautious about exposures. Please follow current guidance for indoor gathering size etc.

[Smoke from Fires Toolkit](#)

Updated WA DOH Smoke From Fires Webpage



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For more information about the 2019 Novel Coronavirus situation, please visit our [COVID-19 page](#).

Community and Environment > Air Quality > Smoke From Fires

Air Quality

Indoor Air

Outdoor Air

Smoke From Fires

Smoke from Fires Toolkits

COVID-19 and Wildfire Smoke

This wildfire season will be especially challenging during the COVID-19 pandemic. There is concern about the health impacts of wildfire smoke overlapping with COVID-19 because both impact respiratory and immune systems. COVID-19 restrictions limit how we can reduce our exposure to wildfire smoke.

For public health and air quality officials: [Guidance for wildfire smoke and COVID-19 during the 2020 wildfire season \(PDF\)](#)

Stay up-to-date on the current [COVID-19 situation in Washington](#), [Governor Inslee's proclamations](#), [symptoms](#), [how it spreads](#), and [how and when people should get tested](#). See our [Frequently Asked Questions](#) for more information.

doh.wa.gov/smokefromfires

Should I use a face mask when there is outdoor smoke?

COVID-19: N95 and other NIOSH approved respirators may be in short supply due to COVID-19, and need to be reserved for those required to wear them for work. Cloth face coverings may help a small amount, but won't filter out the fine particles or hazardous gasses in smoke. It's important to stay inside and take other actions to limit your exposure to smoke. Continue to wear your cloth face coverings to reduce the risk of COVID-19.

If you cannot leave the smoky area or find other ways to reduce your exposure, certain types of face masks can provide some protection. NIOSH approved N95 or N100 respirator masks filter out fine particles but not hazardous gases (such as carbon monoxide). These masks can be found at many hardware and home repair stores and pharmacies. Face masks will not work for everyone.

Updated Messaging

Wildfire Smoke & COVID-19: A Bad Combination for Health

The active wildfires in our state present many dangers, including the impact wildfire smoke has on our health. The smoke produced by wildfires can also be dangerous to you and your family, even when you don't live near the wildfire.

Breathing in wildfire smoke can cause symptoms that are relatively minor, such as eye, nose, and throat irritation, and also more dangerous symptoms like as wheezing, coughing, and shortness of breath. We are especially concerned this year with COVID-19 because both impact our respiratory and immune systems and some of the symptoms are the same, like coughing, wheezing and shortness of breath. If you have COVID-19, breathing in smoke may make your symptoms worse. Smoke can make you more susceptible to respiratory infections, like COVID-19. Some people most vulnerable to wildfire smoke, like those over 65 or with pre-existing conditions, are also those most at risk for serious impacts from COVID-19.

There were already limited ways to protect ourselves from wildfire smoke, and COVID-19 makes it even more challenging.

Here are steps you can take now to protect your health:

- Stay informed about current and forecasted air quality here on the blog and your local clean air agency's website.
- Reduce outdoor physical activity
- Stay indoors when it's smoky and keep indoor air clean
 - Close your windows and doors to reduce intake of smoke. However, ventilation is good for helping prevent COVID-19, so when air quality is good, open them to get fresh air and reduce potential viral load.
 - Improve filtration of indoor air in your home and create a clean air room where you spend most of your time. Making your own box fan filter can be a less expensive option to filter air and improve indoor air quality in a single room. Filtering indoor air is an effective way to reduce fine particles from wildfire smoke. It can also provide some protection from COVID-19, but this alone is not enough to protect you from COVID-19.
 - Avoid burning candles or incense, smoking inside, frying or broiling, or vacuuming (unless your vacuum has a HEPA filter).

[Washington Smoke Blog, September 2020](#)



[WA DOH Twitter](#)

Videos



<https://spokanecleanair.org/air-quality/wildfire-smoke>



<https://www.facebook.com/spokanehealth/videos/930251154132286>

Syndromic Surveillance

- Partner with syndromic surveillance (RHINO) team
- Developed dashboard to monitor wildfire smoke related health visits
 - Emergency department visits, inpatient visits, and urgent care visits
- During smoke event, RHINO team monitors dashboard daily
 - If data shows change in trend, check-in with WFS response team
 - Talk through data
 - Make decisions regarding communication to
 - Public health system
 - Media & general public

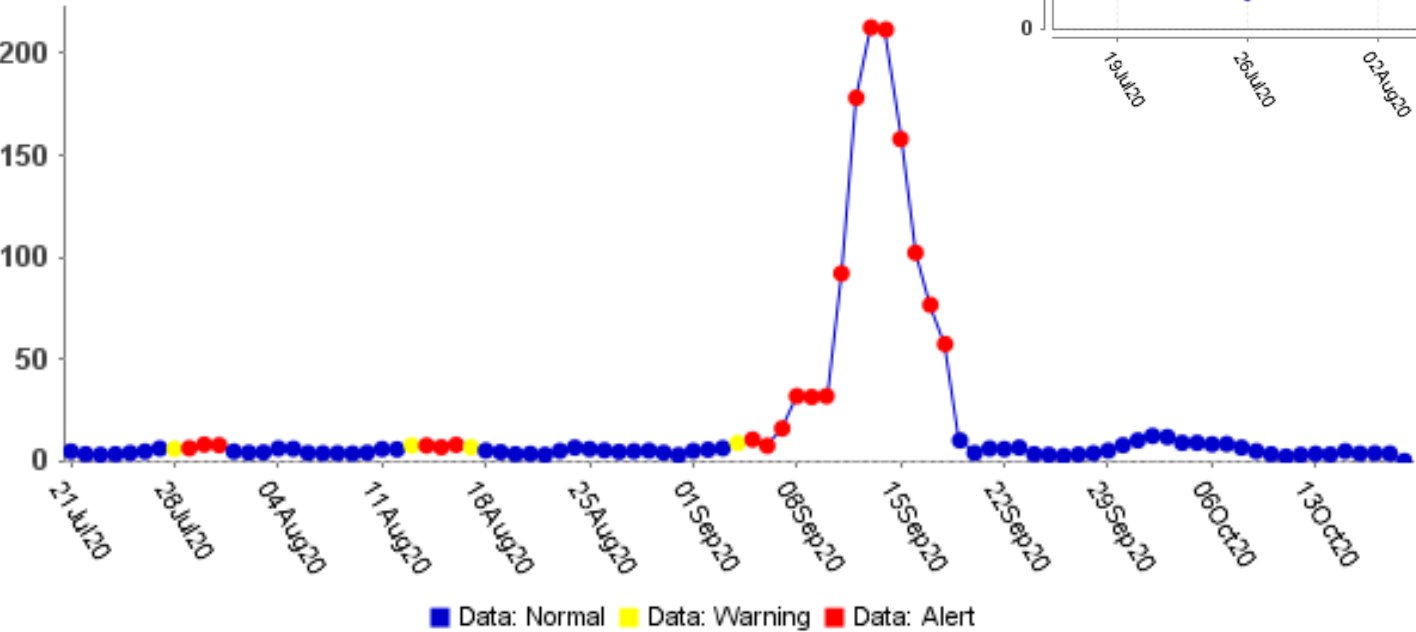
Description of the Syndromic Surveillance Data

- Population-based available in near-real-time
- Overlay multiple data sources (e.g. PM 2.5 concentrations) to look for possible associations
- Case definition for WFS outcomes is challenging
 - COVID-19 & WFS
- Data feeds are occasionally interrupted
- Complexity of data
 - No “final” dataset
 - Data fills in over time as updates are made to a patient record
 - Every facility is different → coding and reporting inconsistencies

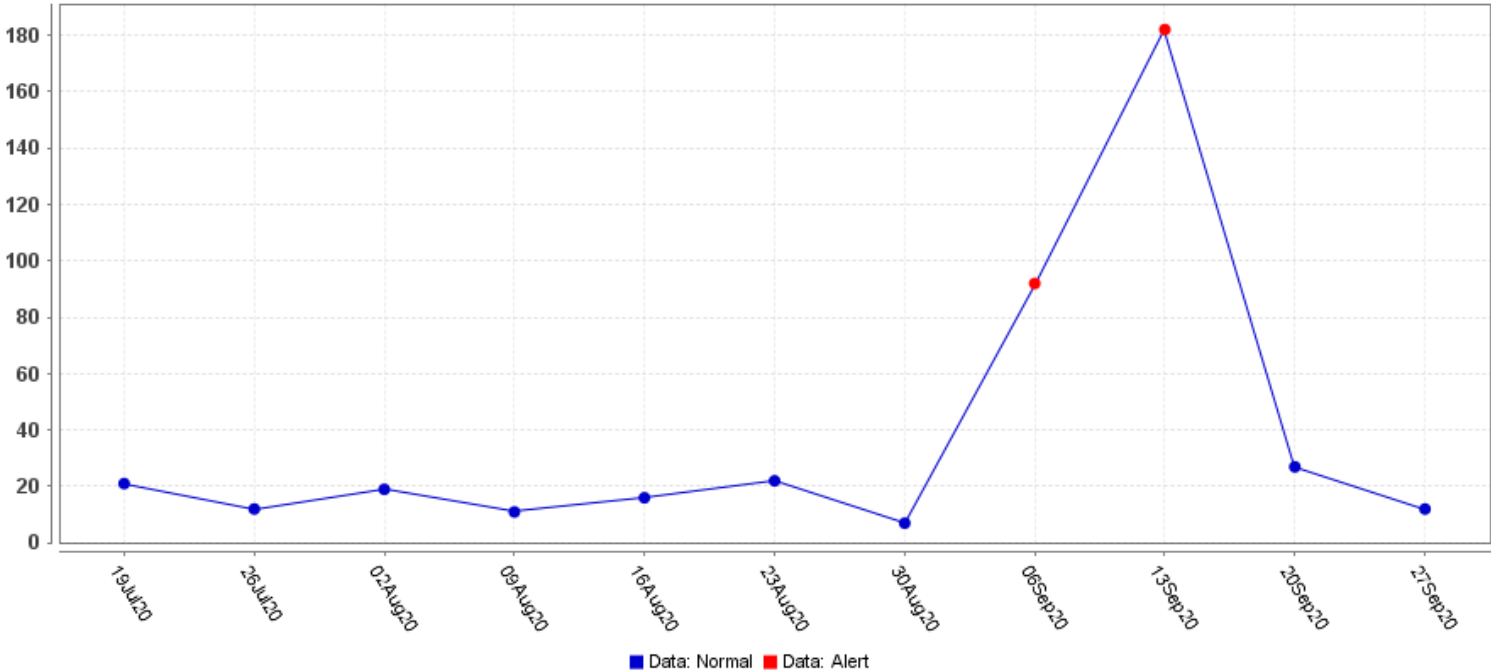
Smoke-related Discharge Diagnosis (DD)

Respiratory visits with DD indicating smoke exposure/inhalation based on clinical judgement in emergency departments (ED), urgent care (UC), and primary care (P) locations.

WA_Daily Average PM2.5_



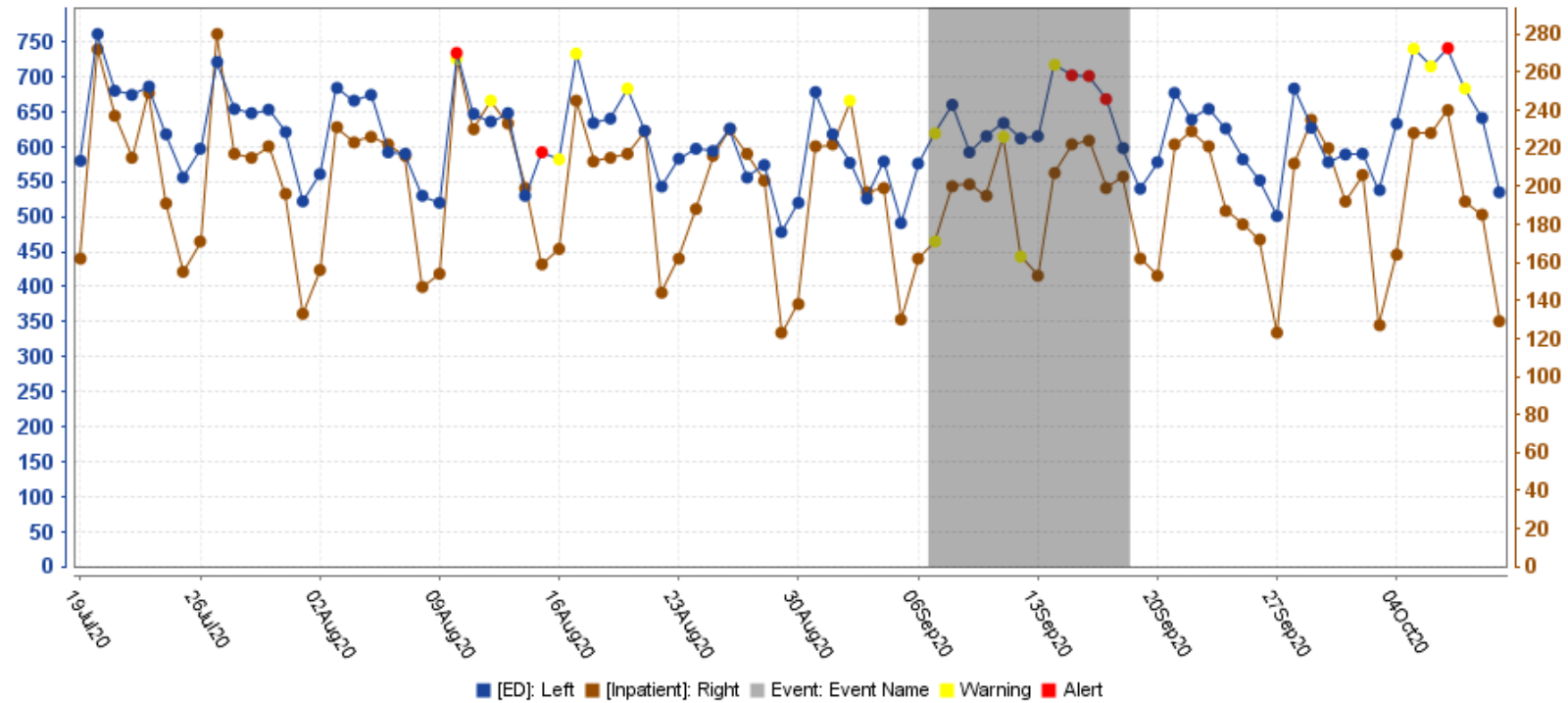
Weekly Data Counts



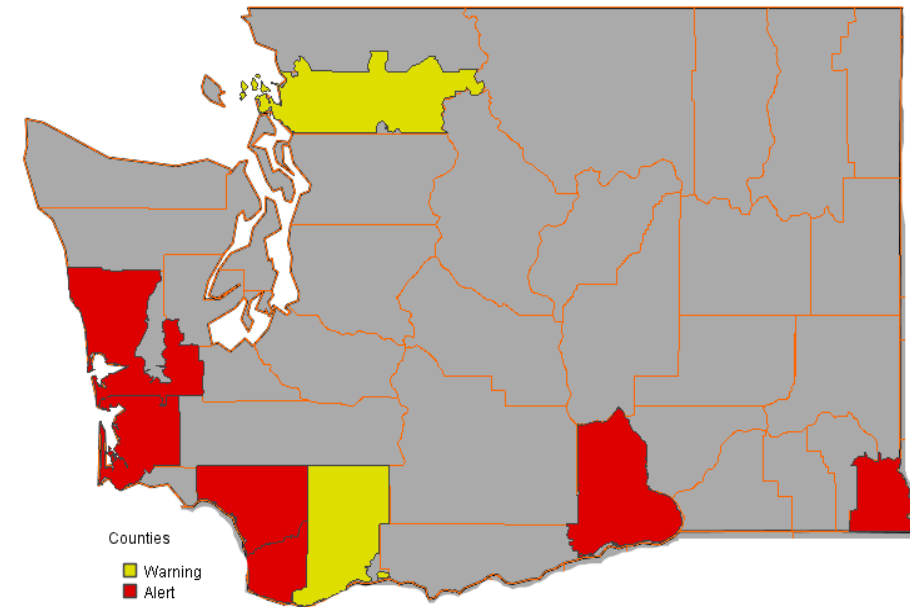
Similar trend across facility types (ED, UC, P), across the state, and for all age groups.

Respiratory Visits – Emergency Department and Inpatient

Respiratory ED and Inpatient Visits



- Respiratory visits were elevated across the state in emergency departments (9/12-9/17) and hospital admissions (9/9-9/11), particularly in the 5-17, 45-64 and 65+ age groups.
- These visits corresponded with peak PM2.5 levels.
- The grey area signifies increased average daily PM2.5 levels in WA.



Challenges & Opportunities

- Balancing indoor air quality guidance for WFS and COVID-19
- Limited supplies
- Mental health & disaster fatigue
- Developing best practices without overstepping when the data is limited
- Crossing disciplines of COVID-19 and WFS
- Collaboration and consistency across partners

Lessons Learned

- Build partnerships
- Early preparation (when possible)
 - Among your agency & partners
 - Among the public and constituents
- Flexibility and adaptability
 - Be ready for on the fly discussions and development of guidance and messaging
- Don't let perfection stop public health action
- Share early, be open to feedback, consistently engage with partners
- Priorities shifted and there will always be more to do

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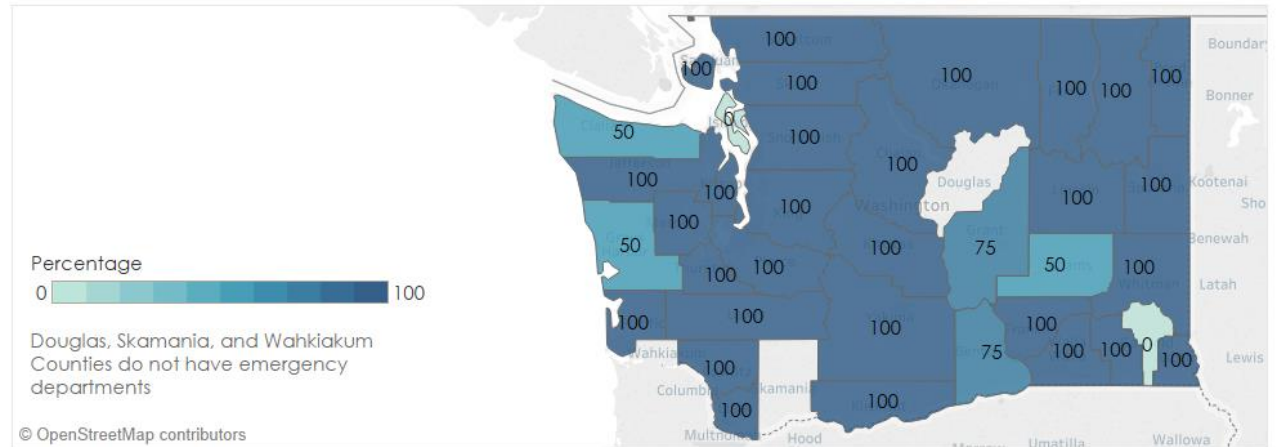


To request this document in another format, call 1-800-525-0127. Deaf or hard of hearing customers, please call 711 (Washington Relay) or email civil.rights@doh.wa.gov.

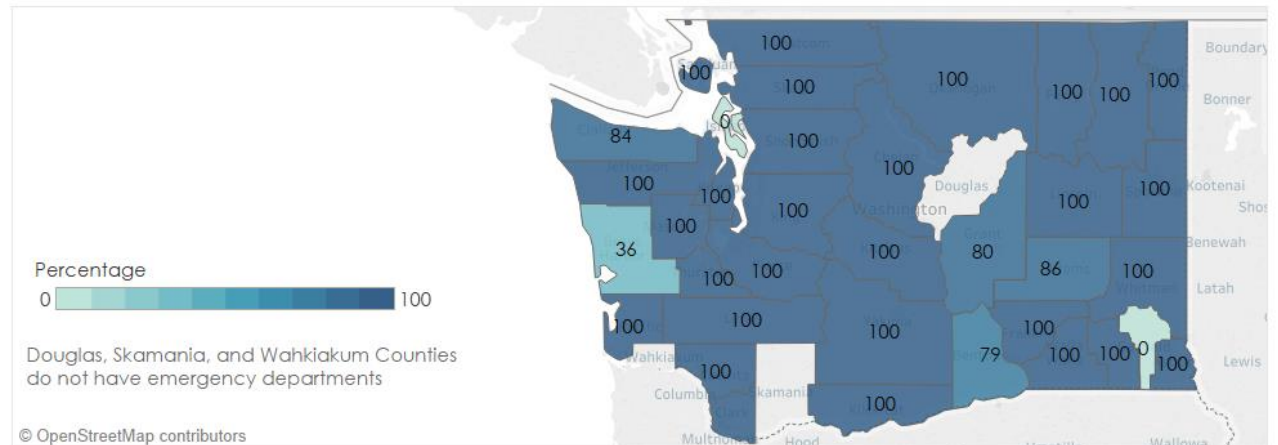
RHINO Data: Onboarding Status

- As of July 23, 2017, RCW 43.70.057 requires ALL emergency departments in the state to submit data to RHINO
- 91/99 (92%) of non-federal emergency departments are now available in NSSP ESSENCE

Percentage of Non-Federal Emergency Departments Available in NSSP ESSENCE (by County)



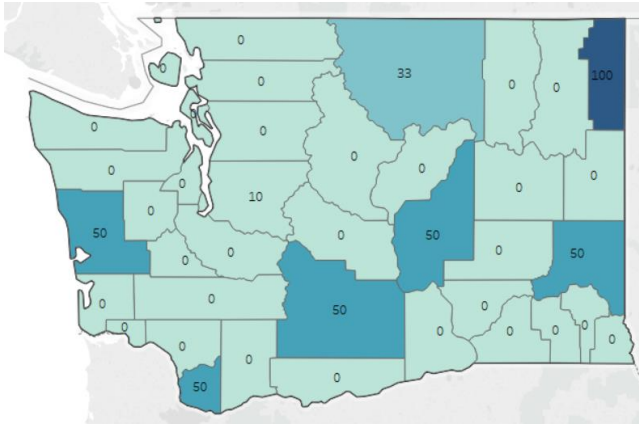
Percentage of Quarterly Non-Federal Emergency Department Visits Captured (by County)



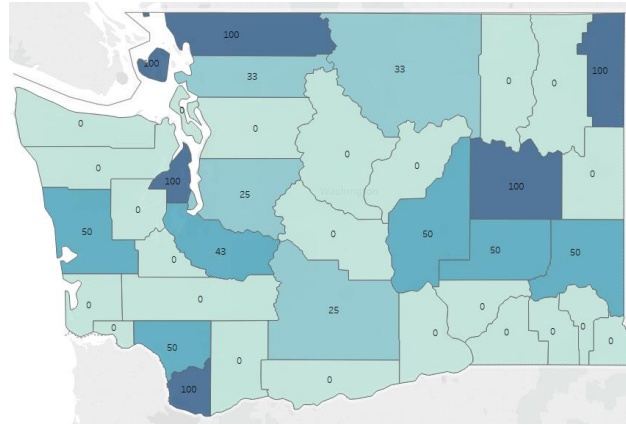
Percentage of Emergency Departments Available (by County)



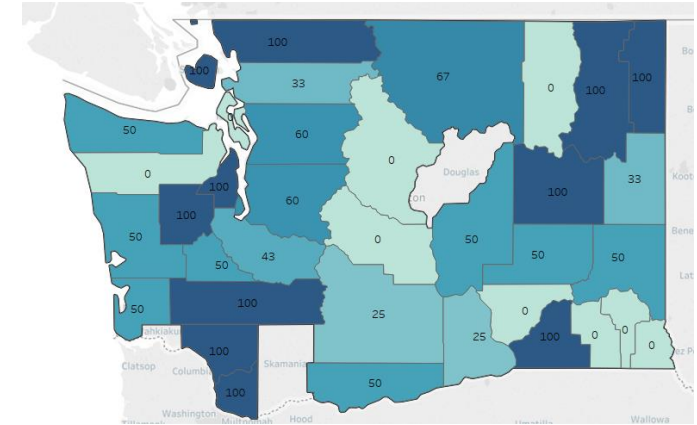
December 2016



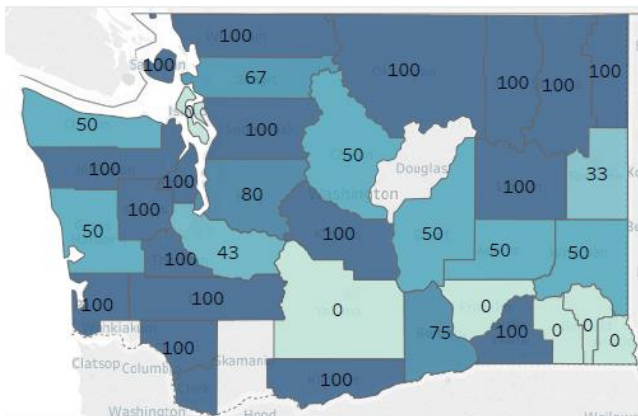
May 2017



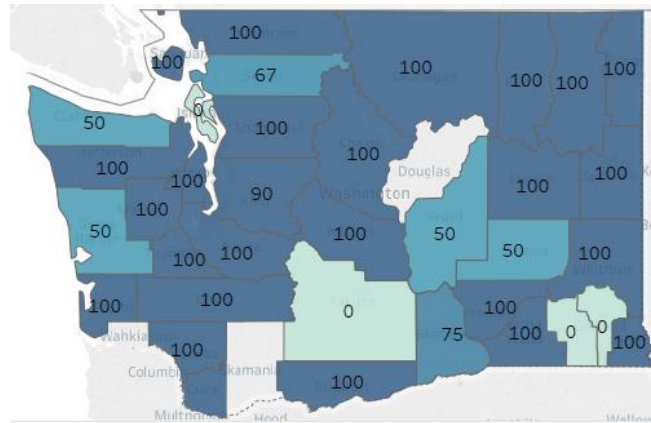
March 2018



January 2019



December 2019



July 2020

