

Expert Panel on the Impact of Wildfires on U.S. Health and Life Insurers



Rebecca Owen, FSA, MAAA

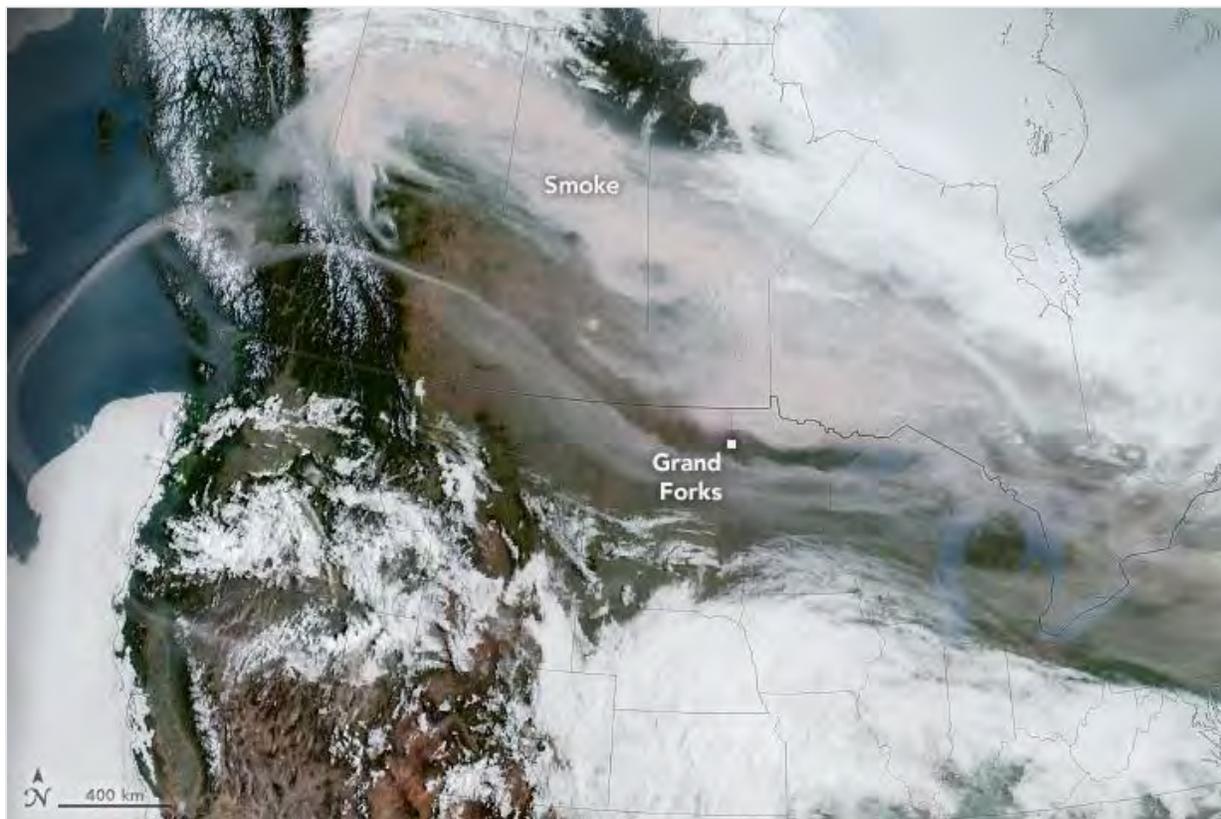
December 2023

Introduction and Summary

The past few decades have shown that while climate change may have been localized or even hard to discern in the past, now nearly every part of the world and every member of the human race is impacted directly or indirectly by some sort of disturbance. The effects of these changes might be distant, such as the increased cost of an imported foodstuff due to scarcity caused by crop failure, or more immediate as households are displaced with floods caused by torrential rains. Nothing is as indiscriminate in its reach as wildfire smoke. It blankets cities with an all-inclusive fog of haze that is sadly familiar to residents of western North America and southern Australia. Some parts of the world now have a wildfire season that is longer and larger than at any time in the recorded past and the people who live in these areas have developed a healthy respect for fire season. This year, the summer of 2023 brought the first persistent and severe wildfire smoke to the Northeast as smoke from Canadian fires migrated across the border and settled over wide swathes of the United States and Canada shocking everyone and plaguing people with sensitive health conditions. Figure 1 shows the source and dispersion of wildfire smoke from western Canada as it spreads across the continent.

Figure 1

NASA EARTH OBSERVATORY IMAGE OF SMOKE FROM CANDIAN WILDFIRES MAY 17, 2023



Source: NASA: <https://earthobservatory.nasa.gov/images/151346/smoke-fills-north-american-skies>

On August 2, 2023, the Society of Actuaries (SOA) Research Institute convened a panel of experts to discuss the current understanding of the health impacts of wildfires and how the urgency has changed. The purpose of the project was to create a resource for actuaries and others to educate them on the potential insured risks from wildfires to help in their current and future assessments of the impact of wildfires to individual life and health companies. The panel included actuaries as well as a climate scientist, a meteorologist and a clinician to ensure a broad and deep perspective.

Panelists included Michelle Young, who moderated the discussion, Jesse Bell, Peter Sousounis, Rebecca Owen and Valerie Kaufman. Each of the panelists have had a long interest in understanding climate change both as an overall concept and with specific insights into the impact on life and health insurers in the United States. The SOA Research Institute staff facilitators for this panel were Rob Montgomery and Ronora Stryker, who also brought a wealth of knowledge about climate to the discussion.

The panel focus areas included questions about

- how the present differs from the past,
- understanding how smoke from fires travels,
- the health issues of wildfire smoke exposure, and
- how determinants of health interact with wildfires.

The panel considered direct impacts for those living in wildfire areas where the fire has immediate, physical damages as well as those whose exposure is secondary such as those caught in a smoke plume. The panel discussed both mortality and morbidity, both short and long term.

The Past versus the Present

DIFFERENCES BETWEEN THE 2023 WILDFIRE SEASONS, AND HISTORICAL WILDFIRE SEASONS IN THE WESTERN U.S.

The first and most notable difference that the panel observed is that this wildfire season was not confined to the mountain ranges in the intermountain west and the coastal areas. California has been experiencing larger population exposure in the last decade but this year the number of people and the wide geographic expanse exposed millions more to wildfire smoke. Not only were they exposed but the level of exposure was very high.

While the panel was convened and thinking about past versus present fires, the fire in Maui showed again that wildfire poses much more risk in areas that had not experienced extensive fire in prior decades. All the panelists noted that the summer of 2023 was exceptional but noted that there seemed to be a string of exceptional years.

Some of this had to do with where the fires were – the Canadian Shield burned this summer – but also that the wind patterns brought the smoke down into the upper Midwest and the Northeast from fires in Western Canada. This is evident in Figure 1 above – smoke goes where the wind blows. Wildfire and the resulting smoke, as with other climate disasters, is no respecter of political boundaries, and cross border dispersion means a different sort of collaboration is needed.

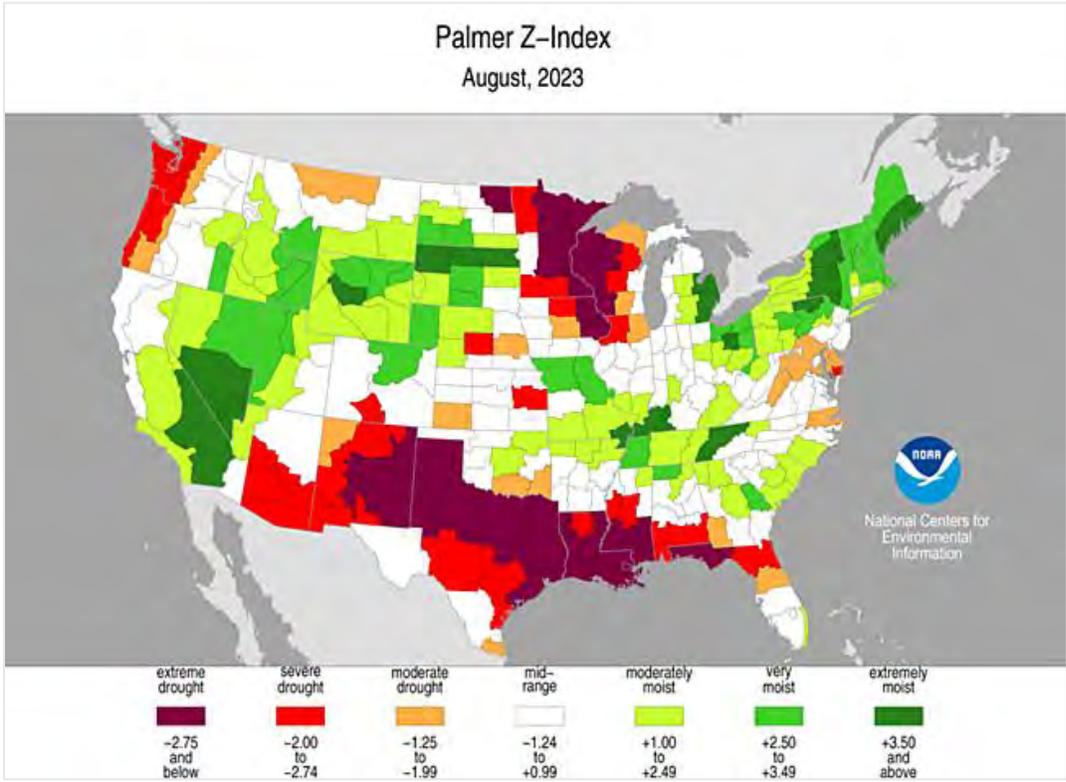
The worst day for smoke in New York City was June 6, 2023, but the fires still as of this writing are raging in British Columbia, Oregon and Washington. In between was the shocking fire on Maui. Wildfire season is longer, more intense and more widespread than in the past.

It is also less likely to be remote, as houses and entire towns are exposed to the immediate and present danger of active fires. Increased population pressure as people seek to live in the beautiful but fire prone areas of the West also contribute.

A last thought that was included was the role of the drought in increasing the likelihood of fires. Maui was experiencing drought conditions that were labeled moderate or severe, but not as severe as some of the areas in deep red and purple shown in the Figure 2 and Figure 3 maps of the west below. While the heavy snowstorms of the past winter alleviated the stress in the southwestern U.S., fires can happen anywhere as shown by the large areas in drought shown in these figures. Current climate models suggest that drought will continue to be a concern in the southwest as hot weather returns. The U.S. Drought Monitor¹ released weekly through a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the U.S. Department of Agriculture and National Oceanic and Atmospheric Administration is also another drought monitoring resource.

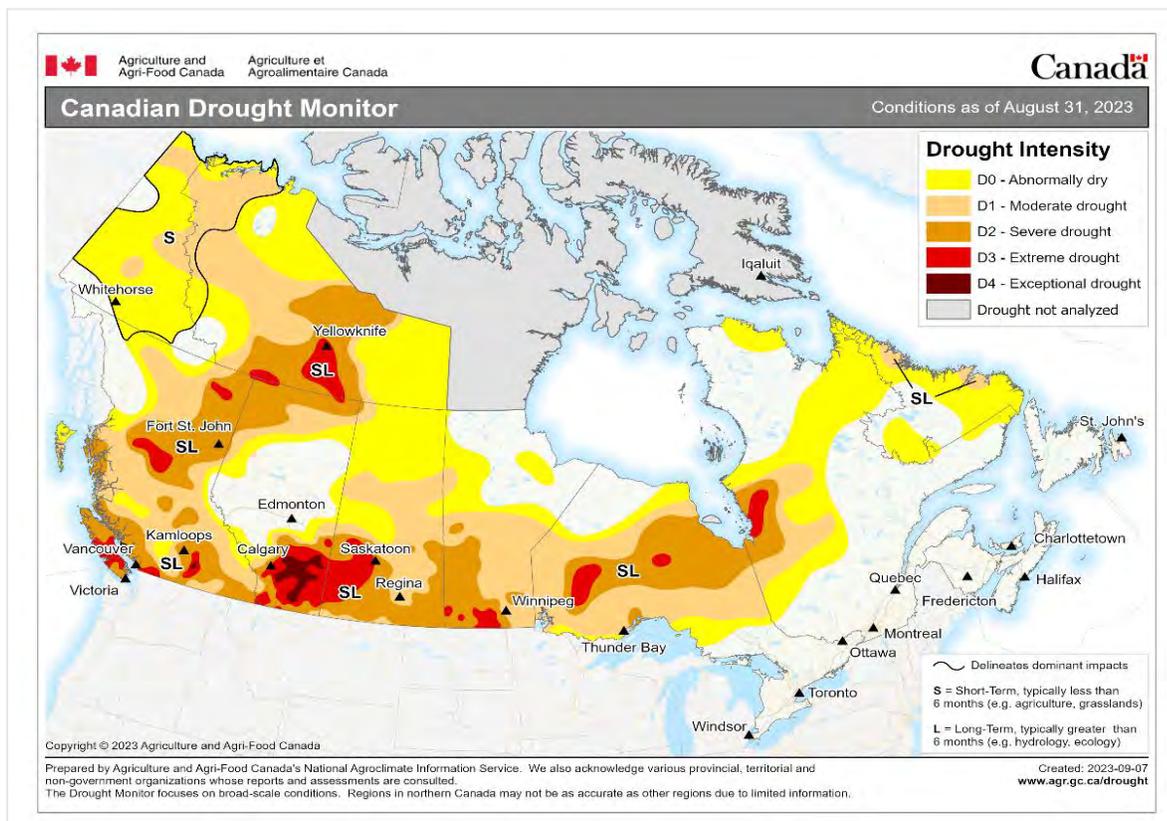
¹ U.S. Drought Monitor. https://droughtmonitor.unl.edu/CurrentMap/StateDroughtMonitor.aspx?fips_15009H. (Accessed September 2023)

Figure 2
DROUGHT SEVERITY ACROSS THE UNITED STATES USING THE PALMER Z-INDEX, AUGUST 2023



Source: NOAA: <https://www.ncei.noaa.gov/access/monitoring/monthly-report/drought/202308>

Figure 3
DROUGHT SEVERITY ACROSS CANADA, AUGUST 2023



Source: Agriculture and Agri-Food Canada: <https://agriculture.canada.ca/en/agricultural-production/weather/canadian-drought-monitor/current-drought-conditions>

Panelists returned often to a discussion of how helpful it is to understand other situations where airborne pollutants impacted human health. For example, the brown fogs of London caused by burning coal were connected to a number of upper respiratory harms, while the urban smogs of the mid to late 20th century were of such concern that they became a fundamental target of organizations like the EPA. It was noted that recently Seattle, usually a pristine city, had worse air quality than some areas known for bad air quality.

SMOKE DISPERSION PATTERNS

Smoke from wildfires travels long distances. One of the panelists noted that fires show no “respect for borders” a reality that extends to dust storms from the Sahara or volcanic ash clouds. Pictures of the dust bowl haunt our collective memories. How far and in what direction is strongly determined by wind patterns and these in turn are influenced by phenomena such as the currently ending La Niña and rapidly developing El Niño. Strong directional wind patterns mean the smoke does not disperse vertically but travels horizontally and as the wind patterns change to a more southerly direction, the smoke migrates to urban areas.

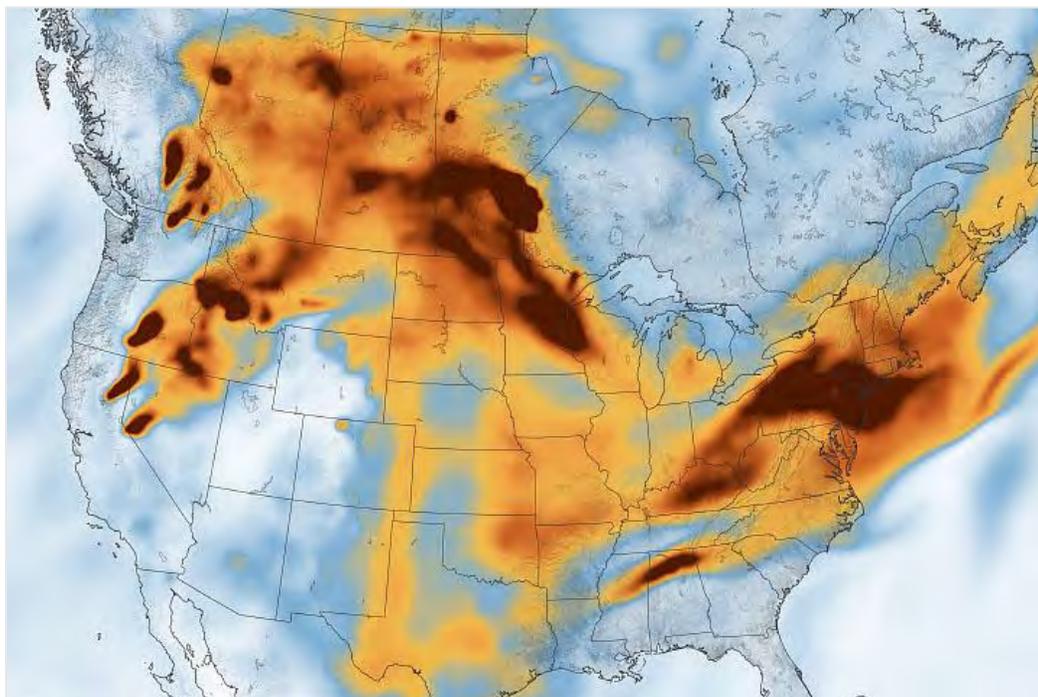
It was noted that there is some evidence that wildfires are influencing weather patterns by blocking sunlight from reaching the lower atmosphere. This creates a pressure trough that creates a path for longer smoke trails that end up bringing the smoke from the west to the east coast. This impact is not confined to wildfire smoke – summer of 2023 brought heavy rains to the east as well. Additionally, the stable pressure troughs block the dispersion of smoke into the upper atmosphere which is harmful to people with respiratory disease.

In some geographies, weather patterns cause the smoke to stay for days. Places like the central valleys of Washington, Oregon and California can have smoke linger for a long time as stable marine environments trap air masses against the western cordillera.

Another panelist pointed out that the transfer of smoke across the atmosphere has been more consistent in recent times and also noted that in 2018 smoke from the Canadian Rockies blanketed Nebraska. The 2020 fire year was remembered by several panelists as a bad year for the west coast, and there were some locations on the east coast that experienced some smoke, although not the extent of 2023. Panelists noted that there is a point at which the smoke is heavy enough to see and smell and that is when the health risks are alarmingly elevated.

Figure 4

SMOKE DISPERSION PATTERNS SHOW THE MIGRATION OF SMOKE



Source: <https://earthobservatory.nasa.gov/images/151346/smoke-fills-north-american-skies>

IMMEDIATE IMPACTS

Fires are burning houses and towns. These locations experience short-term and long-term impacts. Communities are displaced and connections broken, but infrastructure destruction is the most noticeable immediate impact. Healthcare facilities are closed or displaced, and their workers are dispersed. Schools close. Grocery stores close and jobs disappear. Roads close. Electricity is turned off – often before the fire as a precautionary measure.

Longer term impacts emerge as the community struggles to reestablish itself. We know that schooling and strong communities are associated with better health outcomes, but often those take a while to reestablish. Insurance may not cover replacement costs for lost property and continuing coverage may no longer be affordable. Health care professionals and other professions, including skilled tradesmen needed for reconstruction, that are in strong demand elsewhere may have relocated permanently. Studies show that long term mental health issues are common in displaced persons after a fire and persons with chronic disease may have trouble accessing care.

Water quality is both an immediate and a long-term issue. Immediately after the fire water sources are degraded from ash and other pollutants. Later heavy rains cause mud slides and runoffs that threaten dams. Stream and reservoir water quality is at risk for a long time afterward.

UNHEALTHINESS OF THE SMOKE

Wildfire smoke poses significant health concerns which can vary with time and distance traveled. The EPA notes “Wildfire smoke is comprised of a mixture of gaseous pollutants (e.g., carbon monoxide), hazardous air pollutants (HAPs) (e.g., polycyclic aromatic hydrocarbons [PAHs]), water vapor, and particle pollution.” Panelists discussed that the composition changes as it travels with particulate matter becoming less of a concern, but lighter free radicals present that cause other health problems. There was an open question about the nature of volatile chemicals that are present near the fire versus more stable constituents that can travel causing localized issues.

Particulate matter is the most noticeable component of wildfire smoke; it can be seen and smelled. Everyone on the panel could recall the smell of the smoke from this summer. Particulate matter can be large like ash or fine. Fine, inhalable particulate matter (PM_{2.5}) is the air pollutant of greatest concern to public health from wildfire smoke because it can travel deep into the lungs and may even enter the bloodstream. Maps showing PM_{2.5} Air Quality Index (AQI) levels are often in news reports showing color dots of increasing darkness. The measure of the severity of the levels is shown in Figure 5 below. Note that in early June 2023, NYC exceeded the 300 AQI threshold, high enough to pose a least some threat to most of the population.

Figure 5
AIR QUALITY INDEX LEVELS

Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health alert: everyone may experience more serious health effects.
Hazardous	301 to 500	Health warnings of emergency conditions. The entire population is more likely to be affected.

Source: EPA: <https://www.epa.gov/wildfire-smoke-course/why-wildfire-smoke-health-concern>

The inequality of health risks associated with wildfire smoke was discussed. Certain populations are more vulnerable, for example children, aged and disabled, those with pre-existing respiratory conditions, and pregnant women. Also, some determinants of health contribute to vulnerability, such as underserved areas are at increased risk as are resource poor communities, and some occupations with existing long exposure to poor air quality.

The length of time of exposure is an important factor contributing to the unhealthiness of smoke. Healthy people with short exposure – hours or days - may not have only minor irritation to eyes and throat, but long-term exposure

- weeks or months - can exacerbate existing disease in people with chronic conditions. At least one panelist noted that this is an area that is not well enough studied.

Some of the conditions mentioned included pediatric asthma, cardiac disease, and respiratory disease. Links to studies and articles on specific diseases are listed in the appendix.

IMPACTS ON MORTALITY AND MORBIDITY

The panel was concerned that a full understanding of the impact of fires is not well understood at the present. Identifying the cause of the hospitalization and attributing it to wildfire smoke is not easy even in the location of the fire. We intuit that there is more than just a respiratory impact and we know that the sorts of diseases that are associated with the impact of poor air quality are associated with increased or early mortality.

DETERMINANTS OF HEALTH

All the panelists emphasized that not everyone suffers equally from wildfire smoke. The determinants of health (DOH) that negatively affect overall health are all worsened in a wildfire situation. The same conditions that are aggravated by wildfire smoke are overrepresented in the populations that have DOH stressors.

For example, lower quality housing with leaky windows and ill-fitting doors makes it harder to keep the smoke outside and lower income people may not be able to buy and run air purifiers. Wildfire season often overlaps with hot weather so lack of access to air conditioning makes people open windows for relief from heat which means more exposure. Hot weather is associated with exacerbation of some of the same cardiac and respiratory issues discussed above.

Persons who work outdoors such as agricultural or construction workers have longer exposure. People using public transport wait at bus stops. This population cannot relocate temporarily or permanently to avoid bad air quality situations.

There was some concern in the panel for social isolation during these times and mental health issues which are worsened in communities with fewer resources. Other DOH issues included rural/urban differences, the ability to access food as wildfire areas have road closures, disruption to community structures that support child wellbeing and elder connections. From a health perspective, what care is available and how it is financed makes a difference.

CLIMATE CHANGE AND WILDFIRE

Many of the impacts of climate change will increase wildfire and thus exposure to wildfire smoke. Change is more pronounced in polar regions which could be worse for fire in the northern reaches of Canada, or even Russia. Increased heat and drought will make the situation worse. It is important to make sure that monitoring and early warning to identify potential exposure is important.

There was some discussion about contributing causes, such as the role of electrical utility companies in the fires in California.

Also, it was noted that if this is a growing issue, better identifying issues in vulnerable communities to foster resilience is an important focus for all stakeholders.

One of the methods of managing wildfires is the use of controlled burns, which create localized air quality concerns. It will be important to protect the health of the residents while managing the health of the forests.

Conclusions

Wildfires have always caused loss and trauma, but the recent spate of extreme wildfires in Europe and North America, not to mention the repeated devastation in Australia are alarming. Experts who have worked in the field have been alarmed by the severity and frequency of the fires for many reasons, including the impact on human health. This discussion brought together a diverse assortment of experts whose differing perspectives on wildfire risk had a unifying theme of concern and disquiet as increasing heat and drought foster more – and larger - fires. Wildfires don't respect borders or persons as they spread toxic gases and particulates across wide geographies as was noted by persons living in the Northeastern part of North America in the summer of 2023. Strong weather patterns can hinder or help the dispersion of smoke.

While the geographic dispersion is broad, the resulting harm is borne disproportionately by people with fewer social, physical and financial resources. Health impacts are primarily respiratory and transitory, but not the only concerns. Cardiovascular health as well as mental health are harmed by smoke exposure and the trauma of living with fire. Long term exposure to fire has a cumulative effect on many body systems, including mental health. While there are a large number of clinical studies on the health impacts of fires, the impact to health insurance costs is not as well developed and will be an area for actuaries to monitor and pursue.

Fire management and risk mitigation will be key to helping people live with fire. From an actuarial perspective, while the topic is often focused on property and casualty insurance, emerging evidence suggests that health actuaries will need to think about taking note of the geography of fires and fire seasons, especially for populations at risk. It is also important to think about the impact of poor health leading to increased mortality on life, pension and annuity actuarial work. The Society of Actuaries Research Institute will be sponsoring research on the impact of air quality on mortality in the near future which will provide insight into these topics. While no one really knows what the future brings, it is becoming more evident that the increasing frequency and severity of grassland and forest fires will have widespread impact on the health and wellbeing of all of the residents of Planet Earth.



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Appendix – A Sampling of Resources for Actuaries

Climate Change

Many organizations have topic areas devoted to climate impacts that are good sources for information about fires and other climate issues. A few examples are:

Nature has a topic area of climate and atmospheric science (<https://www.nature.com/npjclimatsci/>). (Accessed October 2023)

The World Health Organization (WHO) has a topic area of climate change and health including a section on wildfire (https://www.who.int/health-topics/climate-change#tab=tab_1). (Accessed October 2023)

The National Oceanic and Atmospheric Administration (NOAA) Climate Program Office is responsible for the Assessments Program which publishes the National Climate Assessment (NCA) every four years. It includes a section on health (<https://cpo.noaa.gov/the-assessments-program/>). (Accessed October 2023)

Actuarial resources include:

Studies and committees promulgated by the Society of Actuaries Research Institute including (<https://www.soa.org/programs/catastrophe-climate/resources/>). (Accessed October 2023)

Actuaries Climate Index (<https://actuariesclimateindex.org/home/>). (Accessed October 2023)

Studies and Publications of the American Academy of Actuaries promulgated by the Climate Change Joint Committee (<https://www.actuary.org/committees/dynamic/CLIMATEJTE>). (Accessed October 2023).

Several actuarial consulting firms are also active in research on the junction between fire and health.

Air Quality

U.S. Environmental Protection Agency (EPA) has a variety of data areas focusing on air quality during wildfires such as the impact of wildfires on indoor air quality (<https://www.epa.gov/indoor-air-quality-iaq/wildfires-and-indoor-air-quality-iaq>). (Accessed October 2023)

The NOAA offers real-time air quality and smoke forecast information, including a visual on the Impact of Wildfires on Climate and Air Quality (<https://csl.noaa.gov/factsheets/csdWildfiresFIREX.pdf>). (Accessed October 2023)

The US Forest Service Research and Development has a topic area on Smoke and Air Quality (<https://www.fs.usda.gov/research/fire/smoke>). (Accessed October 2023)

Health Impacts

Medical Journals are publishing more articles as concern grows and better data is available – both on mortality and morbidity. A Medline search yielded a plethora of articles.

Some examples – note that this is very far from a comprehensive list:

The Lancet has a study area devoted to climate and health for example they published: Mortality risk attributable to wildfire-related PM_{2.5} pollution: a global time series study in 749 locations

([https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(21\)00200-X/fulltext](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(21)00200-X/fulltext)). (Accessed October 2023)

The Journal of the American Medical Association (JAMA) has published 32 papers on wildfire and health risks in the first nine months of 2023 including a research letter on the impact of the 2023 Canadian Wildfire smoke on ED visits in New York City:

Chen K, Ma Y, Bell ML, Yang W. Canadian Wildfire Smoke and Asthma Syndrome Emergency Department Visits in New York City. *JAMA*. 2023;330(14):1385–1387. doi:10.1001/jama.2023.18768

Public Health Organizations are compiling and publishing information from studies around the world:

Prevention Web, an organization that focuses on disaster risk, featured a summary of a large fire study in Australia in June (<https://www.preventionweb.net/news/worlds-biggest-study-wildfire-smoke-impact-reveals-alarming-long-term-health-impacts>). (Accessed October 2023)

The American Lung association has a discussion on wildfires and health (<https://www.lung.org/blog/how-wildfires-affect-health>). (Accessed October 2023)

The EPA:

The EPA has a summary discussion of the health and environmental effects of particulate matter (<https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm>). (Accessed October 2023)

The EPA has also created a course for clinicians to inform them of the health effects of wildfire smoke (<https://www.epa.gov/wildfire-smoke-course>). (Accessed October 2023).

Tracking Sites and Other Information

The EPA has a site to track air quality, AirNow (<https://www.enviroflash.info/signup.cfm>)

Purple Air sells stations so you can monitor your own backyard (<https://map.purpleair.com/1/mAQI/a10/p604800/cC0#14.01/44.30466/-124.08283>). (Accessed October 2023)

The Canadian government has a tracker (https://weather.gc.ca/airquality/pages/index_e.html).

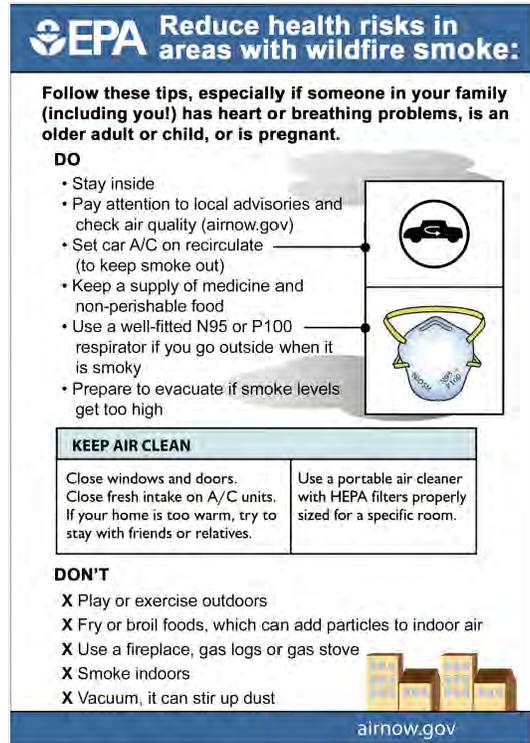
IQ Air tracks internationally (<https://www.iqair.com/us/>). (Accessed October 2023)

NASA publishes the Fire Information for Resource Management System (FIRMS) a global tracker (<https://firms.modaps.eosdis.nasa.gov/map/#d:24hrs:@0.0,0.0,3.0z>). (Accessed October 2023)

Protecting yourself from wildfire risks or harms – or at least mitigating them:

The CDC has a site with tips to reduce your risk from wildfire smoke (<https://www.cdc.gov/nceh/features/wildfires/index.html>). (Accessed October 2023)

The EPA offers guidance for reducing health risk.



EPA Reduce health risks in areas with wildfire smoke:

Follow these tips, especially if someone in your family (including you!) has heart or breathing problems, is an older adult or child, or is pregnant.

DO

- Stay inside
- Pay attention to local advisories and check air quality (airnow.gov)
- Set car A/C on recirculate (to keep smoke out)
- Keep a supply of medicine and non-perishable food
- Use a well-fitted N95 or P100 respirator if you go outside when it is smoky
- Prepare to evacuate if smoke levels get too high

KEEP AIR CLEAN

Close windows and doors. Close fresh intake on A/C units. If your home is too warm, try to stay with friends or relatives.	Use a portable air cleaner with HEPA filters properly sized for a specific room.
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DON'T

- X Play or exercise outdoors
- X Fry or broil foods, which can add particles to indoor air
- X Use a fireplace, gas logs or gas stove
- X Smoke indoors
- X Vacuum, it can stir up dust

airnow.gov

[Document Display | NEPIS | US EPA](#) (Accessed October 2023)

Look for help from local public health departments or air pollution control districts like this one from the Great Basin Unified Air Pollution Control district, which includes a great visual on how much outside activity is safe.

Recommendations for Outdoor Physical Activity during Smoky Conditions

This guide is intended to help you make decisions on outdoor activities when it's smoky outside. Group information is listed below.

Length of Outdoor Physical Activity	Good for Groups 1-3	Moderate for Group 1 Individuals	Unhealthy for Group 1 & 2 Individuals	Unhealthy for Group 1-3 Individuals	Very Unhealthy for Group 1-3 Individuals	Hazardous for Group 1-3 Individuals
	Visibility > 10 miles	Visibility 5 - 10 miles	Visibility 3 - 5 miles	Visibility 1.5 - 3 miles	Visibility 1 - 1.5 miles	Visibility < 1 mile
30 Minutes	No Restrictions	Group 1 Individuals should monitor or reduce physical activity.	Groups 1 & 2 should limit time spent outdoors or reduce physical activity.	Groups 1 & 2 should avoid the outdoors and Group 3 should reduce physical activity.		
1 Hour	No Restrictions	Group 1 Individuals should monitor or reduce physical activity.	Groups 1 & 2 should considerably limit time spent outdoors and reduce physical activity.	All Groups should avoid the outdoors and physical activity.	All Groups should avoid the outdoors and physical activity.	All Groups should avoid the outdoors and physical activity.
2 Hours or More	No Restrictions	Group 1 Individuals should limit prolonged physical activity.	Groups 1 & 2 should avoid the outdoors and Group 3 should reduce physical activity.			

WHICH GROUP ARE YOU IN?		
Group 1 Individuals	Group 2 Individuals	Group 3 Individuals
This group includes those with respiratory or heart disease, angina, pulmonary disease, asthma, emphysema or any other disease that may be impacted by any level of smoke.	This group includes those with asthma, or recent respiratory infections, those who experience seasonal allergies, work outside, or in general are more sensitive to the acute effects of smoke.	This group includes those who are more resistant to the short term effects of smoke. Healthy people may also experience adverse effects of smoke depending on duration and exposure.

Graphic created by: Pam Gaulty AFCD

Great Basin Unified Air Pollution Control District 

<https://www.gbuapcd.org/AirMonitoringData/Smoke/smokyConditionsRecs.html>

Acknowledgements

The SOA Research Institute would like to thank the following individuals for their participation in the wildfire discussion.

The Panel:

Jesse Bell, Ph.D. is on the faculties of the University of Nebraska Medical Center and the University of Nebraska, Lincoln. He is the Claire M. Hubbard Professor of Water, Climate and Health at UNMC, and is the director of the Water Climate and Health Program. He is also a director in the Daugherty Water for Food Global Institute at the University of Nebraska. A greater part of his work has been focused on climate change and how it impacts human health.

Valerie Kaufman, MD is the Senior Vice President and Chief Medical Director at RGA. She has been in the insurance industry for about 30 years primarily in the life insurance space. Her clinical background is in cardiology. She brings a clinical eye to the science of climate change and the impact of wildfire smoke.

Rebecca Owen, FSA, MAAA is a consulting actuary residing in Oregon. She is interested in population health impacts of policy, the delivery system and climate. She is a member of several committees with the Society of Actuaries Research Institute including the Catastrophe and Climate Strategic Research Program Steering Committee.

Peter Sousounis, Ph.D. is the director of Climate Change research at Verisk, where he helps clients understand their exposure to risk due to climate change. Peter is a meteorologist with a long history of publications on how climate change impacts health.

Michelle Young, FSA, MAAA, is an actuary by background, mostly in the reinsurance space, concentrating on life with some background in disability and long-term care. She is active on the Catastrophe and Climate Strategic Research Program Steering Committee for the Society of Actuaries Research Institute as well as the past vice chair of the Joint Climate Risk Committee for the Academy of Actuaries.

The Facilitators:

Ronora Stryker, ASA, MAAA, Sr. Practice Research Actuary at the Society of Actuaries Research Institute

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About The Society of Actuaries Research Institute

Serving as the research arm of the Society of Actuaries (SOA), the SOA Research Institute provides objective, data-driven research bringing together tried and true practices and future-focused approaches to address societal challenges and your business needs. The Institute provides trusted knowledge, extensive experience and new technologies to help effectively identify, predict and manage risks.

Representing the thousands of actuaries who help conduct critical research, the SOA Research Institute provides clarity and solutions on risks and societal challenges. The Institute connects actuaries, academics, employers, the insurance industry, regulators, research partners, foundations and research institutions, sponsors and non-governmental organizations, building an effective network which provides support, knowledge and expertise regarding the management of risk to benefit the industry and the public.

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