

Elders, Climate and Refuge Indoors Risks, Prevention, Funding and the Perspectives of a Public Health Practitioner

2023 Tribal Public Health Emergency Preparedness Training & Conference

Ashley Schmidt, MSN RN

Tsimshian Alaska Native descendent Lead Community Health Nurse Tulalip Community Health Department

Dr. Gillian Mittelstaedt

Director, Tribal Healthy Homes Network and the Partnership for Air Matters





Clean Air. Safe Homes. Healthy Lives.



CLEAN AIR. SAFE HOMES. HEALTHY LIVES.



In appreciation and honor of Celeste Davis

Risks



Our homes are becoming a refuge.

Refuge from Heat

Seeking cooler, more comfortable environment.



Refuge from Smoke

Seeking less smoky, less irritating environment where easier to breathe.





Refuge from Precipitation

Seeking protection from floods, torrential rain or excess snow.



Refuge from Pandemics

Seeking to avoid public spaces where viruses circulate.



Elders, our greatest community resource, are at highest risk during climate events.

Why? How can we Help?



What Types of Risks do Elders Experience?

Safety risks

less mobility, more isolation

Property risks

damage to home, property, loss of personal belongings **Psychological risks**

Emotional and

disruption to home, disconnection to family, community and culture

Health risks

greater biological age and more underlying health conditions...







Aging and myocardial function.

"Older adults less capable of augmenting cardiac output in response to heat-related dehydration." Aging and cognitive function.

"Dementia is not only itself a predictor of worse clinical outcome from air pollution exposure, it is itself believed to be worsened by particulate matter inhalation."

Aging and lung function.

Aging reduces lung function, "leaving older adults more susceptible to the effects of inhaled particles and toxins."

Chang AY, Tan AX, Nadeau KC, Odden MC. Aging Hearts in a Hotter, More Turbulent World: The Impacts of Climate Change on the Cardiovascular Health of Older Adults. Curr Cardiol Rep. 2022 Jun;24(6):749-760. doi: 10.1007/s11886-022-01693-6. Epub 2022 Apr 19. PMID: 35438387; PMCID: PMC9017408.







Aging and kidney and gut function

"Increasing age results in a reduction of the body's ability to redirect blood flow from the vasculature to the surface capillaries for heat dispersal."

Aging and immune response.

"Older adults more vulnerable to epidemic infectious diseases, less responsive to vaccines," and more susceptible to inflammation.

Aging and skin

Aging can blunt the body's ability to regulate itself "against extreme heat and cold. Older adults have decreased overall sweat production, particularly from the core of the body, reducing evaporative cooling efficiency."

Chang AY, Tan AX, Nadeau KC, Odden MC. Aging Hearts in a Hotter, More Turbulent World: The Impacts of Climate Change on the Cardiovascular Health of Older Adults. Curr Cardiol Rep. 2022 Jun;24(6):749-760. doi: 10.1007/s11886-022-01693-6. Epub 2022 Apr 19. PMID: 35438387; PMCID: PMC9017408.

Aging and Chronic Disease

arthritis asthma cancer cardiovascular disease chronic obstructive pulmonary disease diabetes PERCENTAGE OF ADULTS AGE 65 YEARS AND OVER (TOTAL, MALE & FEMALE), WITH 1, 2 OR 3 OR MORE CHRONIC CONDITIONS IN US (2008)

■ 1+ chronic conditions ■ 2+ chronic conditions

■ 3+ chronic conditions



CDC/NATIONAL CENTER FOR HEALTH STATISTICS: NATIONAL HEALTH INTERVIEW SURVEY. (N=37,186,373) What can happen when an older person, with an underlying disease, experiences a climate event?

Snapshot of the scientific research



Wildfire Smoke and Elderly

Between 2006 – 2017, 84% of mortality associated with wildfire smoke events in Washington was in adults ages 65 and older² Mortality associated with wildfire smoke exposure in Washington state, 2006–2017



Doubleday, A., Schulte, J., Sheppard, L., Kadlec, M., Dhammapala, R., Fox, J., & Busch Isaksen, T. (2020). Mortality associated with wildfire smoke exposure in Washington state, 2006–2017: A case-crossover study. *Environmental Health*, *19*(1), 1–10. <u>https://doi.org/10.1186/s12940-020-0559-2</u>
 Schramm, P. J. (2021). Heat-Related Emergency Department Visits During the Northwestern Heat Wave—United States, June 2021. *MMWR*. *Morbidity and Mortality Weekly Report*, 70. <u>https://doi.org/10.15585/mmwr.mm7029e1</u>



<u>% of Heat-Related Deaths by</u> Age, June 26 - August 30, 2021, Washington State



 Doubleday, A., Schulte, J., Sheppard, L., Kadlec, M., Dhammapala, R., Fox, J., & Busch Isaksen, T. (2020). Mortality associated with wildfire smoke exposure in Washington state, 2006–2017: A case-crossover study. *Environmental Health*, *19*(1), 1–10. <u>https://doi.org/10.1186/s12940-020-0559-2</u>
 Schramm, P. J. (2021). Heat-Related Emergency Department Visits During the Northwestern Heat Wave—United States, June 2021. *MMWR*. *Morbidity and Mortality Weekly Report*, 70. <u>https://doi.org/10.15585/mmwr.mm7029e1</u>

Heat and the Elderly

Klenk et al. (2010) examined the relationship between maximum outdoor temperature and mortality rates in residents of 95,808 elderly nursing homes in southwest Germany between 2001 and 2005. They concluded that mortality risk increased by 26% and 62% at days of maximum outdoor temperature of 32.0°C and 34 °C



Klenk J, Becker C, Rapp K. Heat-related mortality in residents of nursing homes. Age Ageing. 2010 Mar;39(2):245–52.

Particulate Matter and Elderly

Shao et al., 2017 – Compared filtered versus non-filtered indoor air among seniors, comparing changes in air quality (PM2.5 and black carbon), and the levels of inflammation in the occupants.

In the group with air filtration in their homes, air quality improved and systemic inflammation was reduced by 59% and among those with COPD, by 70%



Shao D, Du Y, Liu S, Brunekreef B, Meliefste K, Zhao Q, et al. Cardiorespiratory responses of air filtration: A randomized crossover intervention trial in seniors living in Beijing: Beijing Indoor Air Purifier StudY, BIAPSY. Science of The Total Environment. 2017 Dec 15;603–604:541–9.

Prevention



AirMATTERS and SmokeMATTERS Toolkits

- Meals on Wheels
- Community Health
 Worker Visits
- Elders Events
- Health Fairs
- New Resident Move-In
- School Events



How would Elders like us to engage with them as we seek to provide safe indoor environments?



Montesanti et al., 2023

 Sharing circles were held to understand indigenous perspectives about the consequences and impacts of a wildfire event, observing heightened physical and emotional stress experienced by Elders. ". . . since the fire I have had a lot of health problems, including troubles with breathing. I have never been sick in my life. I hadn't seen a hospital or doctor for years, but now, since the fire, I have to go every Tuesday to see the doctor. Maybe because the pollution or the smoke, but I think the fire is the reason [for my poor health].

.....I was all by myself, nobody cared for me I just looked after myself, and nobody questioned where I was and I didn't know where to go. I heard someone say something about hotels that were taking evacuees but there were none."

Montesanti S, Fitzpatrick K, Azimi T, McGee T, Fayant B, Albert L. Exploring Indigenous Ways of Coping After a Wildfire Disaster in Northern Alberta, Canada. Qual Health Res. 2021 Jul 1;31(8):1472–85.

Soebarto et al., 2019

- Many seniors lived in housing with "<u>minimal shading and no wall insulation and</u> <u>appeared to rely on the use of heaters and coolers to achieve thermally comfortable</u> <u>conditions</u>".
- Majority expressed <u>concerns over the cost of this additional heating and cooling</u>, <u>particularly among low-income</u>.
- Most choose to live in their own homes as long as possible important to consider health and safety (slips and falls) but CV and respiratory safety from climate events.

Soebarto V, Bennetts H, Hansen A, Zuo J, Williamson T, Pisaniello D, et al. Living environment, heating-cooling behaviours and well-being: Survey of older South Australians. Building and Environment. 2019 Jun 15;157:215–26.

Tulalip Tribes' Research, 2022

Elders' Preferences and Interest in Actions for Future Smoke Events

- When asked about future wildfire smoke events, <u>Elders were</u> more comfortable with being notified or supported *in their* <u>own home</u>.
- Most (67%) said they would not likely want to be picked up and driven to a community "clean room" space. <u>Rather, 63% of</u> <u>Elders reported that they would be likely or very likely to call</u> <u>someone during a smoke event who could come to their home</u> <u>to help them up a "smoke safe" or "clean" room.</u>

Tulalip Tribes' Research, 2022

Elders' Preferences and Interest in Actions for Future Smoke Events

- Similarly, <u>70% of Elders reported that during a smoke event, they</u> would be likely or very likely to request that someone call, email or text them about public indoor spaces at Tulalip with filtered, clean, cool air.
- About half (46%) of Elders reported that they would be <u>likely or</u> very likely to request a call, email or text message from their <u>doctor's office</u> to discuss their health risks during a smoke event.
- <u>Slightly more (52%) reported they would be likely or very likely to</u> request a call, email or text message from their pharmacist to discuss their health risks during a smoke event.

Question #1 for Ashley

From your experience working with Tulalip elders, what are some of the cultural or generational factors that we should always keep in mind when doing outreach or risk communication during smoke and heat events?

Mechanical/Indoor Air Key Findings from Tulalip Research

- Significant portion (70%) reported they have no form of air cleaner in their home.
- Over a third of respondents (34%) reported they do not have a working fan in their kitchen, while just under half (48%) reported their kitchen fan did not have enough strength to remove odors or fumes. Homes with exhaust stove hoods have been demonstrated to have lower indoor levels of wildfire smoke and particulates (Shrestha et al., 2019).
- A majority (54%) reported they do not have a furnace, which means they do not have whole-house ventilation or filtration, as with HVAC systems. In homes without HVAC systems, wildfire smoke and high heat can pose a greater risk, due to absence of air filtration.
- A majority, <u>68% of Elders reported that they do not have a heat pump.</u>

Questions to Explore...

- How might Elders be involved when developing risk communication campaigns? Do they want to go to a clean air shelter? Why or why not? What would make them more comfortable with asking for help? Who would they trust?
- What barriers might Elders encounter in their home during a climate event? Are there financial barriers, geographic issues?

- To what extent do Elders in your community recognize that they are at greater risk during heat or smoke events? To get this information out to them, who would be the best messenger?
- How might a Tribal Council support Elders to reduce the impact of climate events on their health and safety in their homes? (i.e., adopting a policy of prioritizing Elders/Seniors housing for mechanical interventions?)

Question #2 for Ashley

What services do you provide to Tulalip elders and within that work, where do you see opportunities for addressing the growing risks of heat, smoke, and infectious diseases? Question #3 for Ashley

Are there specific programs or departments where you see the potential for increased collaboration?

\$370 billion through Inflation Reduction Act of 2022

Funding

\$9 Billion Directly to Consumers

(Point of purchase, rebates or tax credits)

\$361 Billion

Directly to Communities

Federal Agency Grants and Loans to local, state, Tribal and private entities



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3 times more efficient than generating heat from wood, oil or gas Multi-heads for multi-rooms Extracts 'heat' from outside air and transfers into the inside

IRA Consumer-Direct Funding

- High-Efficiency Electric Home Rebate Program (HEEHRA)
- Energy Efficient Home Improvement Credit
- Hope for Homes Rebate Program

IRA Grant Funding:

- Climate Pollution Reduction Grants (Implementation Phase)
- Greenhouse Gas Reduction Fund*
- Tribal Electrification
 Program
- Environmental & Climate Justice Grants

New Bath and Kitchen Fans



New fans in both the bath and kitchen will help to exhaust and minimize unnecessary moisture and pollutants from the home Energy Star fans use 60% less energy than standard fans

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Air Cleaners and HEPA Furnace Filters



Provide indoor filtration of fine particle air pollution, including some filtration of toxic gases in wildfire smoke.

Can be low-cost (DIY Filter-a-Fan) or Hospital grade.

If home has furnace, MERV filters with highest possible rating should be provided.

IRA Consumer-Direct Funding

IRA Grant Funding:

• Environmental & Climate Justice Grants

From Statute:

(B) mitigating climate and health risks from urban heat islands, extreme heat, wood heater emissions, and wildfire events;"

(C) climate resiliency and adaptation;

(D) reducing indoor toxics and indoor air pollution;

Energy Audit HOME

Weatherization Package



Weatherization is the process of Improving the energy efficiency and performance of your home through various strategies

It will make your home a more energy efficient indoor environment that will increase comfort, safety and indoor air quality Audit helps you learn how nergy, determine where it's ted, and prioritize efficiency upgrades

energy efficiency upgrades d can save 5-30 % on your nergy bill while also ensuring h and safety of your house.

Consumer-Direct Funding

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Grant Funding:

- Greenhouse Gas Reduction Fund*
- Climate Pollution
 Reduction Fund
- Environmental and Climate Justice Grants

Question #4 for Ashley

In your day-to-day work, are there other risks or factors that you want to ensure stay a part of this conversation?

Thank you.

Contact Us

gmittelstaedt@thhnw.org

ascmidt@tulaliptribes-nsn.gov



www.thhnw.org www.tribalindoorairfunding.org



CLEAN AIR. SAFE HOMES. HEALTHY LIVES.