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
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?

<table>
<thead>
<tr>
<th>Safety risks</th>
<th>Property risks</th>
<th>Emotional and Psychological risks</th>
<th>Health risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>less mobility, more isolation</td>
<td>damage to home, property, loss of personal belongings</td>
<td>disruption to home, disconnection to family, community and culture</td>
<td>greater biological age and more underlying health conditions...</td>
</tr>
</tbody>
</table>
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.”

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.”

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: 52%
2+ chronic conditions: 34%
3+ chronic conditions: 14%
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**

- **Age 65 - 84**: 52%
- **Age 25 - 64**: 14%
- **Age 85+**: 32%
- **Age 15 - 24**: 2%

---


Heat and Elderly

67% of all heat-related deaths during a mid-summer 2021 heat event in Washington were in adults ages 65 and older³.

---


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.

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%**

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.”

Soebarto et al., 2019

- Many seniors lived in housing with “minimal shading and no wall insulation and appeared to rely on the use of heaters and coolers to achieve thermally comfortable conditions”.
- Majority expressed concerns over the cost of this additional heating and cooling, particularly among low-income.
- 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.
When asked about future wildfire smoke events, Elders were more comfortable with being notified or supported in their own home.

Most (67%) said they would not likely want to be picked up and driven to a community “clean room” space. Rather, 63% of Elders reported that they would be likely or very likely to call someone during a smoke event who could come to their home to help them up a “smoke safe” or "clean" room.
Similarly, 70% of Elders reported that during a smoke event, they 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 likely or very likely to request a call, email or text message from their doctor’s office to discuss their health risks during a smoke event.

Slightly more (52%) reported they would be likely or very likely to request a call, email or text message from their pharmacist to discuss their health risks during a smoke event.
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?
• 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, 68% of Elders reported that they do not have a heat pump.

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

$370 billion through Inflation Reduction Act of 2022

$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
Pre-IRA

Post-IRA
Ductless Heat Pump System

‘Mini Split’

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.

IRA Consumer-Direct Funding

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

IRA Grant Funding:

- Climate Pollution Reduction Grants (Implementation Phase)
- Greenhouse Gas Reduction Fund*
- Environmental & Climate Justice Grants
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;
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.

Energy Audit

An energy audit helps you learn how energy is being used, determine where it’s wasted, and prioritize efficiency upgrades. Energy efficiency upgrades can save 5-30% on your energy bill while also enhancing the comfort and safety of your house.

Consumer-Direct Funding

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

Grant Funding:

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