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Public Health Seattle & King County

Multnomah County

Action and Research Agenda for Pacific Northwest Extreme Heat Events

Findings and Recommendations from the April 2024 Workshop of the Collaborative on Extreme Heat Events

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EXECUTIVE SUMMARY

On April 12, 2024, the Collaborative on Extreme Heat Events hosted a three-hour virtual workshop with experts in climate change, public health, health equity, urban planning, emergency management, and sustainability. The goals of the workshop were to build a network focused on climate and health equity and identify gaps in practice and research, coupled with actionable recommendations, relating to extreme heat events. Workshop participants were placed in small breakout rooms to discuss questions related to innovations, resources, and actions needed to address extreme heat in their region. The small group discussions elicited short- and long-term ideas for preparing for and responding to extreme heat events. This report summarizes those action, policy, and research opportunities under the categories of **Infrastructure, Funding, Collaboration, Communications, Workforce Capacity, Preparedness and Response Planning, and Heat Risks and Health Impacts**. The role of political will as a necessary component for accomplishing goals and the importance of solutions with co-benefits in prioritizing actions were heavily discussed across these categories.

Table 1: Summary of Action, Policy, and Research Ideas Discussed During Workshop

Actions or Policies	Research Opportunities
Infrastructure	
• Transform the existing built environment into green space or cool space. • Retrofit existing buildings for efficient and effective indoor cooling. • Increase community access to cooling mechanisms. • Design housing to support increased social connection. • Identify and support existing community spaces to serve as resilience hubs. • Implement building codes and enforce maximum indoor temperature limits. • Promote high-level policy change (e.g., divestment from fossil fuel industry, investment in renewable energy). • Mandate land use for social connection (e.g., community gardens).	• Air conditioning usage. • Impacts of buildings on indoor temperatures. • Indoor air temperature monitoring. • Land use and heat impacts on communities and agriculture.

Actions or Policies	Research Opportunities
Funding	
• Streamline funding access for community organizations. • Use sustainable funding mechanisms for long-term heat solutions. • Fund community-based projects that support heat adaptation. • Subsidize cooling (e.g., air conditioning) for low-income households. • Remove restrictions on funding (e.g., reporting requirements). • Increase tax revenue to support extreme heat and climate initiatives. • Leverage Medicaid (U.S.) and medical supplies coverage (Canada).	• Methods for scaling and funding interventions. • Ways to fund upstream initiatives for extreme heat. • Resource allocation strategies. • Quantifying cost savings.
Collaboration	
• Dedicate agency staff to build relationships with communities. • Ensure partnerships meet community needs. • Coordinate heat response across government agencies. • Collaborate with organizations not traditionally involved with emergency management. • Enact policy that facilitates community engagement (e.g., long-term, flexible policy). • Standardize heat preparedness practices across the region.	• How communities use resources to respond to heat. • Effective coordination efforts and ways to evaluate them.
Communications	
• Communicate tailored heat risk information to at-risk communities. • Educate communities on heat adaptation. • Tailor heat alerts to various audiences (e.g., practitioners, first responders, public). • Support policy that facilitates communication to the public. • Align warning systems across the region.	• Ways to effectively reach communities. • Effective strategies for risk communication. • How to leverage communication to change behavior.
Workforce Capacity	
• Train agency workforce on climate adaptation.	
Preparedness and Response Planning	
• Address social vulnerability in planning. • Consider sustainability and coordination in planning.	• Ways to collect and use relevant, equitable data for decision making.

Actions or Policies	Research Opportunities
Heat risks and health impacts	
• Assess and address local risk factors for the health effects of extreme heat. • Protect workers at risk of extreme heat exposure. • Establish regulations to proactively protect workers.	• How a community responds to and perceives heat and health. • Impacts of heat on different biological responses. • Impacts of heat on culturally relevant resources (e.g., traditional foods). • Ways to protect workers from heat exposure.

BACKGROUND

The Collaborative on Extreme Heat Events ("the Collaborative") is composed of public health practitioners serving the metropolitan areas of Seattle, WA, Portland, OR, and Vancouver, BC, and is supported by the University of Washington's Center for Disaster Resilient Communities and the Urban@UW Research to Action Collaboratory. On April 12, 2024, the Collaborative hosted a three-hour virtual workshop with:

- public health, healthcare, and Indigenous health practitioners from local and state/province agencies
- local emergency managers
- urban planners
- sustainability, climate change, and housing specialists
- public health, climate change, and built environment researchers
- community-based organizations in housing, sustainability, equity, and Indigenous/First Nations sovereignty and health

See Appendix for detailed methods. All participants (n=40) were from Washington, Oregon, and British Columbia. The aims of this workshop were to 1) foster a transdisciplinary network focused on climate and health equity, 2) identify successes, challenges, gaps, and priorities relating to extreme heat events, and 3) develop actionable recommendations and a research agenda to address current gaps and facilitate partnerships for extreme heat events. Workshop participants discussed four questions:

1. What innovations related to extreme heat (dream change) do you want to implement?
2. If you are lacking the resources to accomplish those innovations, what sort of assistance do you need?
3. What do you think you already know about extreme heat? What is still a mystery to you about how heat impacts a community?
4. What actions would be the most impactful for a community or region? What criteria are most important in prioritizing an action or research agenda addressing extreme heat?

The workshop used an adapted "World Café" structure in which participants were placed in one of eight breakout rooms grouped by sector for questions 1 and 2, and then randomly placed in a new breakout room for questions 3 and 4. Trained facilitators led the discussion in each breakout room and dedicated notetakers took detailed notes of participant discussions. This report describes the outputs of those discussions.

WORKSHOP ACTION AND RESEARCH AGENDAS

Overview

The small group discussions elicited a wide variety of both short- and long-term ideas for preparing for and responding to extreme heat events. As this workshop was designed around the principle of health equity, many of the ideas presented below are intended to foster both health and equity. The primary categories that the discussions fell under are Infrastructure, Funding, Collaboration, Communications, Workforce Capacity, Preparedness and Response Planning, and Heat Risks and Health Impacts.

Infrastructure: *The built environment and critical infrastructure systems*

Cooling and Critical Infrastructure – Actions and Policies

Transform the existing built environment into green space or cool space. Participants described converting concrete pavement to water fountains or tree canopies in spaces that the community already uses, while working to prevent gentrification from these efforts. This requires equitable planning and obtaining community buy-in. A **barrier** to these ideas was that institutions might be averse to installing cooling infrastructure.

Retrofit existing buildings for efficient and effective indoor cooling. Participants emphasized the importance of focusing on retrofitting low-income housing and shelters for cooling, which includes both active (air conditioning) and passive (shading) cooling mechanisms. These methods should also involve maintaining safe indoor air quality, especially during wildfire smoke events. **Barriers** to these solutions included the costliness of retrofitting and a lack of energy system capacity that can handle increased demand for air conditioning.

Implement building codes and enforce maximum indoor temperature limits. Participants discussed implementing new building codes that mandate retrofitting to account for extreme heat. In addition, participants discussed enacting maximum indoor temperature policy as a strategy to facilitate equitable cooling if coupled with rent protections and a free air conditioning program.

Increase access to cooling mechanisms. Participants recommended better community access to portable air cleaners, which might be more feasible than large-scale cooling systems. Furthermore, participants recommended designating portable air conditioning units as medical devices to ensure better access. Priority populations were older adults, those with limited mobility, and people experiencing homelessness.

Promote high-level policy change. Participants suggested divestment from the fossil fuel industry and investment in renewable energy to promote upstream climate mitigation.

Building for Social Connection – Actions and Policies

Design housing to support increased social connection. Participants described social isolation as a major risk factor for extreme heat morbidity and mortality. To combat this, housing (including multi-family and affordable housing) should be designed to increase social connection. This design must be appropriate for different cultures, ages, and languages. A **barrier** to this was the costliness of redesigning existing structures.

Identify and support existing community spaces to serve as resilience hubs. Participants emphasized the importance of having resilience hubs, but qualified that their usefulness is connected to their status as a pre-existing resource in the community. This means that the hubs should be used for non-cooling purposes and provide resources that are helpful for community members' everyday lives. Participants suggested providing showers and laundry facilities for community use, and ensuring that the hubs stay open at night, especially during a heat event.

The Seattle Office of Emergency Management is leading a Regional Catastrophic Planning Grant for Resilience Hubs pilot project. The goal of this is to obtain community input that will inform a network of resilience hubs across the region to ultimately build capacity and develop community-led strategies to mitigate risks.

Mandate land use for social connection. Participants recommended implementing land use policy to foster community connection, particularly through community gardens.

Research Opportunities

Air conditioning (A/C) and cooling

1. What are optimal air conditioning practices to support health?
2. What is the prevalence of A/C in the region and the use of cooling centers?
3. What are effective heat adaptation measures besides A/C?

Buildings

4. What are effective green infrastructure strategies that can be implemented by K-12 schools?
5. How do building characteristics/materials impact indoor temperatures (materials, age, type) and how much protection can buildings offer?
6. How does indoor air temperature impact sleep and mental health?
7. How can indoor air temperatures be monitored?

Land use

8. What are unintended harms of infrastructure change (e.g., gentrification) and what are strategies to reduce or mitigate them?
9. How does urban expansion impact current heat risk? How does it impact agriculture?
10. What is the difference in heat effects on health between rural and urban areas?

Impacts to systems

11. What are the effects of chronic drought on hydro-electricity, and how will this impact access to mechanical cooling?
12. What are the economic disruptions of extreme heat (e.g., lost productivity) and what are strategies to reduce or mitigate them?
13. What impact does heat have on food systems (e.g., agriculture, food safety) and what are strategies to reduce or mitigate these impacts?
14. How do different communities perceive specific infrastructure-altering interventions?

Funding: *Federal, state, and local grants and other private funding initiatives*

Funding Processes and Mechanisms – Actions and Policies

Streamline funding access. Participants discussed the complicated and often inaccessible processes that go into obtaining and distributing funding for heat mitigation, clean energy, and other climate-related programs. One proposed strategy to help with grant distribution was a "hub and spoke" model with a centralized office that can manage multiple grants and funding streams. Participants also emphasized that funding must go directly to communities. A **barrier** to this was that because the current mechanism is unjust, there must be systems-level changes to improve funding equity.

King County offers Community Climate Resilience Grants, which are available to frontline communities affected by climate injustice. The grants support both the development of new projects and expansion of existing projects.

Use sustainable funding mechanisms. Participants discussed that authentic community engagement requires time and continuity of relationships, suggesting that funding be longer term, consistent, and flexible. Funding could build capacity through grants for community organizations to train their community members in extreme heat preparedness and response. A **barrier** to sustainable funding was the current fragmentation of funding mechanisms.

Remove restrictions on funding. Increased accessibility requires fewer systemic barriers and less monitoring for funds. Participants discussed that this is critical for community organizations that often lack the capacity to go through an intensive grant application process and subsequent reporting requirements.

Multnomah County has a $10M grant program with a simple application for community-based organizations and local governments. The program requires no matching, increasing its accessibility for smaller, lower resourced organizations.

Increase tax revenue to support extreme heat and climate initiatives. Participants noted that the money for extreme heat and other climate initiatives must come from an increase in tax revenue.

Funding for Specific Programs/Initiatives – Actions and Policies

Fund community-based projects. Participants described several community-based initiatives that need more funding (e.g., increasing green space, holding social events to reduce isolation, training community members to apply for funding, mobilizing community health workers). Participants recognized that evidence-based initiatives are more likely to get funded, highlighting the importance of program evaluation to show that funding can fill critical gaps in heat mitigation. In addition, governments should provide assistance for communities to obtain stipends to implement their own initiatives. It is important to also invest in upstream and holistic socio-ecological policies that take long-term climate impacts into consideration. **Barriers** to funding community-based projects included inequities within funding mechanisms and a lack of personnel who can implement policies.

Subsidize cooling. Because acquiring and maintaining cooling mechanisms is costly, participants suggested subsidies for implementing these mechanisms. This included cost assistance for air conditioning, energy assistance for low-income households, and immediate/just-in-time utility assistance. Companies (e.g., construction, building design, insurance) must also have a financial incentive to engage in sustainability and cooling practices. A **barrier** to providing this assistance was identifying the return on investment.

Leverage Medicaid (US) and medical supplies coverage (Canada). Participants noted that Medicaid should cover the cost of equipment that protects people against extreme heat, and that policy must be in place to incentivize this assistance.

In Oregon, members of the Oregon Health Plan (Oregon Medicaid) may qualify for health-related social needs services. These cover the cost of air conditioners, heaters, air filters, mini fridges for medications, and portable power supplies.

Research Opportunities

Funding interventions

1. What are the costs and benefits to right-size all the interventions and be consistent with the health impacts?
2. What are the barriers and facilitators to scaling interventions to address community-level needs?

Sustained funding

3. What strategies are effective in increasing political will to support funding for extreme heat mitigation?

Resource allocation

4. What are optimal approaches to resource distribution to promote health equity?

Cost savings

5. What are the cost savings of preventive strategies (e.g., cooling)?
6. What is the effectiveness of specific low-cost interventions?

Collaboration: *Partnerships and two-way relationship building between agencies and organizations*

Equity and Community Partnerships – Actions and Policies

Prioritize relationship building. Participants discussed the importance of investing time and resources into community partnerships for sustainability. This includes creating space and time for government workers to build partnerships with communities. Once partnerships have been established, agencies should co-create interventions with community members and take meaningful action on these interventions. Participants stressed that there needs to be evidence for the effectiveness of community-led actions and any co-benefits that might arise. This collaboration requires continuous multi-directional information sharing and includes bringing community members into planning efforts, such as those often coordinated by emergency management. A **barrier** to this strategy is that funding often does not support long-term collaboration.

Meet communities where they are. Participants discussed the importance of knowing the communities they serve and using different methods to engage with community organizations and members due to the diversity of those affected by extreme heat. In doing so, government agencies must set appropriate expectations for what resources they can provide, while also implementing power sharing and co-development to avoid top-down approaches. In addition,

participants suggested government agencies support the implementation of multilingual community-based liaisons who are adequately resourced to do this work. Participants emphasized moving "at the speed of trust" and not at a pace unrealistic for the community.

Address social vulnerability in planning. Participants discussed the importance of incorporating social determinants of health in extreme heat planning. This included planning for social connection and transportation (such as to/from cooling centers). Participants emphasized using community priorities to inform planning efforts, and planning must be localized to better account for specific at-risk populations in the affected area. Tools like the Heat Vulnerability Index can help with this, but communities must also meaningfully participate in planning.

Enact policies that facilitate community engagement. Participants discussed the importance of community engagement, but that it can take longer than traditional top-down approaches. Policies must account for this longer timeline and provide resources to support co-creation.

Collaboration with Government and Other Sectors - Actions and Policies

Coordinate heat response across government agencies. Participants described a need for better intergovernmental relationships to help coordinate an extreme heat response. This involved emergency management, public health, sustainability offices, and transportation all working together towards a common goal. This collaboration can include information and operations management, pooling resources (rather than simply sharing them), and/or organizing around a climate justice plan. Participants also noted that it would be helpful to establish best practices and a shared action plan for heat and other hazards across these sectors and across regions. **Barriers** to governmental collaboration included a lack of role clarity among agencies and the idea that government agencies are not positioned to sufficiently address extreme heat alone.

Collaborate with sectors not traditionally involved in emergency response. Participants suggested that emergency management and public health work with utility agencies to do water pop-ups, as well as universities and the postal service for community check-ins, during an extreme heat event. Participants discussed needing better cross-sector information sharing, an activity that has often defaulted to public health. A **barrier** to cross-sector collaboration was that establishing sustained partnerships requires time and funding.

Standardize heat preparedness practices across the region. Participants described a need to standardize definitions and reporting requirements across regions, which may require codified policy change or formal agreements.

Research Opportunities

Community-based knowledge

1. What are some cultural practices in response to heat?
2. What are the community assets for adaptation? What resources do communities need/use?

Filling gaps

3. What are the necessary coordination efforts to assist with extreme heat events?
4. How can these efforts be evaluated to ensure gaps are filled?

Communications: *Information sharing between agencies, as well as agencies and communities*

Heat Education and Risk Communication – Actions and Policies

Communicate tailored heat risk information. Participants discussed the needs and challenges related to communicating heat risk to diverse audiences. Information dissemination must be timely and in multiple languages. Participants prioritized communicating risk without panic or disengagement, and having trusted community partners who can share information was noted as a helpful strategy. Other communications tools included having ready-to-go information that is culturally and linguistically relevant and setting up massive media campaigns for extreme heat.

Educate communities on heat adaptation. Participants described ways to educate communities about how they can respond to extreme heat, with an emphasis on targeting information to at-risk groups, such as older adults. This can be done through storytelling, community workshops, youth education, and messaging systems. Participants noted that specific information is important for communities to know, such as heat pump maintenance or where to find cooling resources. Information sharing should be multi-directional so that agencies can learn and adapt according to community needs. A **barrier** to heat education in the region was that people in the Pacific Northwest are not accustomed to protecting themselves from heat and do not understand the severity of extreme heat, so communicators must start with the basics.

Support policy that facilitates communication to the public. Participants noted the need for communications support, especially for highly politicized topics, such as climate change.

Hazard Alerting – Actions and Policies

Coordinate heat alerts for various audiences. Participants noted the importance of coordinated heat warnings across organizations during an extreme heat event. They also discussed needing better indicators for activating an alert, with tiered thresholds for different audiences (e.g., practitioners vs. communities). Community organizations should be equipped with threshold information to share protective action strategies with their communities. Participants also emphasized avoiding alert fatigue among audiences and mitigating misinformation on all platforms. A **barrier** to hazard alerting was the complication introduced when there are multiple hazards that have contradictory messaging, such as heat and wildfire smoke.

Align warning systems. Participants discussed that in order to ensure consistent messaging, statewide and federal communication systems must be congruent.

Research Opportunities

Reaching specific populations

1. Which communities or populations are currently being reached by public alerts? What are effective approaches to reaching communities not currently reached?
2. What are the public alerting needs of populations with limited English proficiency?
3. What are effective strategies to reach marginalized or disenfranchised populations (e.g., those living unhoused)?

Best/most effective practices

4. What are effective strategies for communicating about extreme heat to the public and to specific populations/communities?
5. How can communicators effectively and appropriately provide timely alerts and information to at-risk/BIPOC groups?
6. How can communicators effectively and appropriately communicate (linguistically and culturally) the risks of extreme heat to different communities?
7. What are appropriate thresholds to prompt public health recommendations to alter specific outdoor activities?

Behavior change

8. What are culturally- and/or community-specific motivators of behavior change?
9. How can people be motivated to avoid outdoor activities?

Workforce Capacity: *Agency workforce ability to address extreme heat and climate change*

Actions and Policies

Build climate literacy within the workforce. Participants discussed the need for agencies and organizations that are involved in extreme heat response to have a workforce with climate and health literacy. Participants acknowledged that it is not likely that there will be sufficient staff dedicated to climate change, so climate work must be embedded in all public health work. This involves training all workers on co-occurring climate-sensitive impacts (e.g., heat and foodborne illness), educating health providers on extreme heat, training first responders in public health (including social determinants of health), and training the workforce to use specific extreme heat strategies and interventions. In addition, first responders could practice collecting risk factor

information, such as the presence of air conditioning, in emergency settings. Public health agency staff can also receive training in communications, community engagement, and cooling center support, and participants suggested having community liaison positions or community health workers for this work. A **barrier** to sustainable workforce climate literacy development was the loss of institutional knowledge from turnover (heightened by the COVID-19 pandemic response).

Preparedness and Response Planning: *Planning processes among agencies to prepare for and respond to extreme heat events*

Actions and Policies

Participants stressed the importance of maintaining Indigenous sovereignty and rights in all hazard planning.

Consider sustainability and coordination in planning. Participants discussed collaborative and comprehensive planning for climate change to address future climate extremes. In addition, lessons learned from past events must inform planning for future events. Participants suggested having a centralized decision-making process for coordinated planning, with an event contingency plan in place. Roles and responsibilities must be established and consistent in the planning process. Participants also noted that agencies should engage with community-based organizations to learn how they are preparing for hazards. A **barrier** to planning for climate change was the lack of political will to sustain these efforts.

Research Opportunities

Data for decision-making

1. How can community input be integrated into decision making about resource distribution and planning for extreme heat?
2. What are common characteristics of heat islands that can be identified through systematic assessments (e.g., heat mapping)?
3. What are appropriate thresholds to prompt public health recommendations in different seasons (e.g., spring vs. summer)?

Heat Risks and Health Impacts: *At-risk populations and the health effects of extreme heat exposure*

Community Health – Actions and Policies

Understand and address local risk factors for the health effects of extreme heat. Participants described the importance of knowing what factors put community members at risk of health impacts from extreme heat so that they can be reduced or mitigated. Actions to address individual risk factors discussed include:

- Providing wearable devices so that people understand their exposure
- Training community members to make their own air filters
- Activating medic vans in different neighborhoods to quickly respond to people in need

Multnomah County deploys mobile medical vans that provide laboratory, behavioral health, and other services to various communities. This helps reduce transportation barriers to access care and brings services to those in need.

Actions to address community-level risk factors (e.g., social isolation) include:

- Implementing welfare check programs and other social connection events to promote community cohesion
- Using connections to nature as an intervention to support community recovery

Barriers to addressing community health and extreme heat included insufficient public health surveillance for extreme heat outcomes, as well as a lack of knowledge on the mental health impacts of heat events.

Occupational Health – Actions and Policies

Protect workers at risk of extreme heat exposure. Participants described the need to proactively protect both indoor and outdoor workers by improving their working conditions. Certain occupations, such as kitchen workers and agricultural workers, are at particular risk of extreme heat exposure. However, a barrier to protecting workers is the full spectrum of occupations at risk is unknown.

Establish regulations to proactively protect workers. Participants suggested implementing a paid leave program for at-risk workers during heat and smoke events. Evidence-based indoor and outdoor temperature thresholds can inform this program.

Research Opportunities

Community response (social/behavioral)

1. How do different populations perceive heat and health risk?
2. How do different populations adapt and cope during extreme heat events (g., networks, sanctuary)?
3. What contributes to individual- or community-level adaptive capacity?

Biological response

4. What are the extreme heat impacts to flora and fauna?
5. What are the benefits and drawbacks of different strategies to measure morbidity and mortality from heat?
6. What are the impacts of heat on a developing fetus?

Cascading impacts

7. How does heat affect traditional foods?
8. How does heat affect cold supply chains for medications?
9. What are the effects of concurrent disasters and what are proactive approaches to prevent them?
10. How does heat interact with air quality in its impact on human health?
11. How do hazards interact?

Occupational health

12. What are appropriate thresholds to prompt public health recommendations for outdoor workers?
13. How can employers be motivated to engage in strategies and interventions to protect workers during extreme heat events?
14. What is the extent of underreporting work-related heat injury?
15. What are the mental health effects of responders in extreme heat events?
16. What occupations are most at risk of extreme heat exposure and injury?
17. What are effective strategies for protecting workers, including particularly vulnerable workers, during extreme heat events?

CONCLUSIONS

Public health agencies and response partners across the Pacific Northwest are motivated to identify and implement equitable innovations that address the health impacts of extreme heat. Workshop participants provided valuable insights into ways the region can improve preparedness for extreme heat events, with a particular focus on health equity. Their recommendations span both short- and long-term actions and can be used by government agencies and community organizations to address current gaps in extreme heat hazard mitigation. Furthermore, academic partners can use the research questions posed during the workshop to explore heat vulnerabilities and evidence-based strategies for heat adaptation. Consistent funding, personnel, and political will are all necessary components in the execution of this action and research agenda.

APPENDIX: METHODS

Workshop Planning and Recruitment

Beginning in March 2024, each member of the Collaborative planning committee invited individuals previously involved in Collaborative work in their respective regions who represented organizations in government, community, and academia. Invitees received an email with information about the Collaborative, the previous webinars, and the workshop along with a link to register.

The planning committee developed a series of discussion questions based on key priorities from the previous webinars as well as considerations for presenting actionable steps that the region could take moving forward. The questions were grouped into two rounds, with the first round including questions 1 and 2 and the second round including questions 3 and 4:

1. What innovations related to extreme heat (dream change) do you want to implement?
2. If you are lacking the resources to accomplish those innovations, what sort of assistance do you need?
3. What do you think you already know about extreme heat? What is still a mystery to you about how heat impacts a community?
4. What actions would be the most impactful for a community or region? What criteria are most important in prioritizing an action or research agenda addressing extreme heat?

Workshop

The three-hour workshop was held over Zoom on April 12, 2024. We began the workshop with a brief introduction to the Collaborative and its activities to date. We then introduced the purpose of the workshop and described the "World Café" method employed to facilitate the discussions. The 40 attendees representing public health, emergency management, Indigenous housing and health, and sustainability were divided into eight groups for breakout sessions, and all groups were asked the same questions at the same time. Each group had one facilitator and one note-taker. The facilitators used Jamboards to note key issues that participants discussed, while the note-takers took more detailed notes on a separate document.

In the first round of questions, groups were organized by sector (e.g., local government, academia, community-based organization). We then came together as a larger group to share takeaways from this round. In the second round, groups were intentionally mixed to ensure diversity of sectors within each group. After this discussion, we came back again as a larger group and discussed takeaways from the second set of questions. Members of the planning committee then provided closing remarks and the workshop was closed.

Analysis

To begin data analysis, we cleaned the workshop notes (i.e., corrected misspelled words, clarified acronyms) and uploaded them to NVivo, a qualitative analysis software. We drafted a codebook a priori based on the workshop questions and major topics, with some codes developed inductively based on the data. “Codes” are labels assigned to points in the data that help distill and interpret the data, and a “codebook” is the list of codes with their definitions. We used the codes “research” and “practice” as high-level codes to categorize the context of the topic being discussed.

We read and reread each set of notes before applying codes. We then coded each transcript line-by-line and sometimes applied more than one code per line if appropriate. We then developed an analytic memo with a summary of the data under each code. Information was grouped based on actionable recommendations or research opportunities/questions. We drafted the report, which was reviewed by the planning committee and then by their colleagues, who provided suggestions for clarity as well as examples of initiatives taking place within each jurisdiction. After all feedback was obtained, we finalized the report for presentation at a September 2024 convening which included invitees from the Seattle, Portland, and Vancouver, BC regions.