King County

1200 King County
Courthouse
516 Third Avenue
Seattle, WA 98104

Meeting Agenda
Board of Health

Metropolitan King County Councilmembers:
Jeanne Kohl-Welles, Chair
Kathy Lambert, Joe McDermott, Vice Chair
Alternate: Rod Dembowski

Seattle City Councilmembers:
Sally Bagshaw, Vice Chair; Debora Juarez, Teresa Mosqueda; Alternate: Bruce Harrell

Sound Cities Association Members:
Angela Birney, Vice Chair; Susan Honda
Alternates: David Baker; Krystal Marx

Health Professionals: Bill Daniell, MD; Christopher Delecki, DDS, MBA, MPH, Vice Chair
Non-Voting: Butch de Castro, PhD, MSN/MPH, RN, FAAN

Director, Seattle-King County
Department of Public Health: Patty Hayes

Staff: Susie Levy, Board Administrator (206) 263-8328

1:00 PM | **Thursday, November 21, 2019** | **Room 1001**

To show a PDF of the written materials for an agenda item, click on the agenda item below.

1. **Call to Order**
2. **Roll Call**
3. **Announcement of Any Alternates Serving in Place of Regular Members**
4. **Approval of Minutes of October 17, 2019** pg 3
5. **Public Comments**
6. **Chair's Report**
7. **Director's Report**

Sign language and communication material in alternate formats can be arranged given sufficient notice (296-1000).
TDD Number 296-1024.
ASSISTIVE LISTENING DEVICES AVAILABLE IN THE COUNCIL CHAMBERS.

Briefings

8. BOH Briefing No. 19-B23 **pg 7**

Health Impacts of Climate Change

Jeff Duchin, Health Officer, Public Health — Seattle & King County
Megan Smith, Director of Climate and Energy Initiatives, Office of the King County Executive
Jamie Stroble, Climate Engagement & Community Partnerships Specialist, King County Climate Action Team
Nancy Huizar & Vera Hoang, Got Green
Niesha Fort-Brooks, Healthy King County Coalition – Built Environment Workgroup
Nourah Yonous, African Women's Business Alliance
Sameth Mell

9. Board Member Updates

10. Administrator's Report

11. Other Business

Adjournment

If you have questions or need additional information about this agenda, please call (206) 263-8328, or write to Susie Levy, Board of Health Administrator via email at slevy@kingcounty.gov

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Meeting Minutes
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Department of Public Health: Patty Hayes

Staff: Susie Levy, Board Administrator (206) 263-8328

1:00 PM | **Thursday, October 17, 2019** | **Room 1001**

DRAFT MINUTES

1. Call to Order

The meeting was called to order at 1:03 p.m.

2. Roll Call

Present: 7 - Dr. Daniell, Dr. Delecki, Ms. Kohl-Welles, Mr. McDermott, Mr. Baker, Ms. Marx and Dr. de Castro

Excused: 6 - Ms. Bagshaw, Ms. Birney, Ms. Honda, Ms. Juarez, Ms. Lambert and Ms. Mosqueda

3. Announcement of Any Alternates Serving in Place of Regular Members

Boardmembers Baker and Marx served as alternates in place of Boardmember Birney and Boardmember Honda. Boardmember de Castro was also in attendance.

4. Approval of Minutes of September 19, 2019

Boardmember Baker moved to approve the minutes of the September 19, 2019, meeting as presented. Seeing no objection, the Chair so ordered.

5. Public Comments

The following people spoke:
Kassech Zenebe
Alex Tsimerman
Marguerite Richard

6. Chair's Report

Boardmember Kohl-Welles introduced Susie Levy, the new Administrator for the Board of Health, and welcomed her to the Board of Health.

Boardmember Kohl-Welles reported that the State Board of Health adopted an emergency 120-day rule banning the sale of flavored vape products in our state. A letter in favor of the rule was submitted on behalf of the Board of Health. The Governor is expected to introduce governor-request legislation in the 2020 session to address the vaping crisis in our state.

Boardmember Kohl-Welles also announced that this year's Seattle/King County Clinic will be held February 13-16, 2020. If you are interested in volunteering, reach out to Susie Levy.

7. Director's Report

Patty Hayes, Director, Seattle-King County Department of Public Health, provided a report on the class action lawsuit filed in federal court against Juul; increases in fentanyl deaths linked to counterfeit pills; Hepatitis A outbreaks; sexually transmitted diseases and increasing stats from 2017 to 2018; and recommended that the public get flu shots before the end of October.

Briefings

8. BOH Briefing No. 19-B20

West Point Bypass July 2019

Christie True, Director, King County Department of Natural Resources and Parks; Anne Burkland, Government Relations Officer, Public Health; and Mike Haynes, Chief Operating Office for Seattle City Light provided a briefing on the West Point Bypass - July 2019.

This matter was Presented

9. BOH Briefing No. 19-B21

Environmental Health Rate update

Dylan Orr, Deputy Director, Environmental Health Division; and Mike Perez, Manager, Finance and Administrative Services, Environmental Health Division; briefed the Board on the Department's Environmental Health Rate study. This study is required by the Board of Health Code.

This matter was Presented

10. BOH Briefing No. 19-B22

Updates from Washington, D.C., Public Charge Rule

Ingrid Ulrey, Public Health's Policy Director, provided a briefing on updates from Washington, D.C., Public Charge Rule which was scheduled to go into effect on Tuesday as well as a report on the Federal Partnership on HIV.

Ms. Burkland answered questions of the Board.

This matter was Presented

11. Board Member Updates

Boardmember Delecki reported on Healthy Eating Active Living Program (HEAL) and National Rx Drug Take Back Day, October 26, 2019. Find a drop-box near you at: https://kingcountysecuremedicinereturn.org.

12. Administrator's Report

No report was given.

13. Other Business

Adjournment

The meeting was adjourned at 2:44 p.m.

If you have questions or need additional information about this agenda, please call (206) 263-8328, or write to Susan Levy, Board of Health Administrator via email at slevy@kingcounty.gov

Approved this _____ day of _____

Clerk's Signature

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BLUEPRINT

FOR ADDRESSING CLIMATE CHANGE AND HEALTH

Public Health
Seattle & King County

By Patty Hayes,
Director of Public Health – Seattle & King County

I am excited to share Public Health – Seattle & King County's *Blueprint for Addressing Climate Change and Health*. This document marks the Department's first publication related to our work in the growing field of climate change and health. Climate change is a priority for King County. Many Departments are engaged in this work, both reducing greenhouse gas emissions and preparing for climate change, and can be our partners as we move forward. This *Blueprint* builds on the *2015 King County Strategic Climate Action Plan*.

The intent of this document is to raise awareness of the importance of health in climate mitigation and adaptation planning; to articulate health impacts in climate change communication; and to describe key actions for our agency to move this work forward, acknowledging we are challenged to find the resources to fund much of the necessary work.

At Public Health, we are especially concerned with how climate change will affect the health of our residents, particularly those who are already experiencing health inequities as a result of systemic and structural racism and oppression. As an agency that works to address social determinants of health, we are acutely aware of how climate change is an additional driver that exacerbates existing inequities in health outcomes.

We also know there is opportunity, particularly related to our longstanding work engaging communities. Currently, many large initiatives like the Best Starts for Kids Levy, Communities of Opportunity, and the Veterans, Seniors and Human Services Levy focus on fostering community connections, improving health outcomes, and building on community strengths and assets. Their approach aims to transfer power back to communities to generate priorities and articulate how best to solve the challenges they are facing. Working with communities to consider climate change impacts and community preparedness and resilience, along with addressing upstream factors that lead to poor health outcomes, will enable us to contribute to building a resilient King County.

I know that our leadership and our wonderful employees are an invaluable resource in discussions, planning, and policy development related to climate change and health. By first focusing on increasing knowledge about climate change and health across Public Health, we can consider how to implement strategies related to both prevention of (mitigation) and preparedness for (adaptation) climate change impacts on King County residents and communities.

Sincerely,

Patty Hayes

> "Working with communities to consider climate change impacts and community preparedness and resilience, along with addressing upstream factors that lead to poor health outcomes, will enable us to contribute to building a resilient King County."
>
> – Patty Hayes

Public Health
Seattle & King County

BLUEPRINT *For Addressing Climate Change and Health*

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Made possible with support from the Public Health Institute and The Kresge Foundation.

EXECUTIVE SUMMARY

Climate change will increasingly impact communities. Human activities have increased the concentration of carbon dioxide and other greenhouse gases in the atmosphere causing global temperatures and sea level to rise, snow and ice to decline, and weather to become more varied and extreme, producing conditions and exposures that impact human health in many ways. Projected local impacts include more extreme heat days, more poor air quality days from larger and more frequent wildfires, and heavier and more frequent rain storms and flooding. Climate change-influenced conditions and exposures that negatively impact health are expected to increase both in frequency and severity while new conditions and exposures are also expected, such as a vector-borne disease emerging in new areas. The need for public health to address the issues of climate change is more important than ever.

Public Health – Seattle & King County (Public Health) is committed to improving equity and building community resiliency. Equity and social justice should be considered first and foremost for climate policy, planning and action. Due to existing health inequities and individual susceptibilities, certain populations in our community are more harmed by the impacts of climate change, such as children, older adults, pregnant women, those with chronic health conditions, communities of color, low-income households, and those experiencing homelessness.

The *Blueprint for Addressing Climate Change and Health* (*Blueprint*) offers a unique and necessary approach to incorporating health and equity into climate change planning across King County and provides a framework for organizing across the Public Health agency and with partners. Public Health engagement on climate change and the integration of health in local climate change planning adds value and improves outcomes, including reducing public health risks associated with climate change and creating more resilient and equitable communities. Efforts must be a shared responsibility across Public Health programs and across King County government.

HEALTH-RELATED CLIMATE CHANGE IMPACTS

SOME IN OUR COMMUNITY ARE MORE HARMED BY THE EFFECTS OF CLIMATE CHANGE

Such as:

- children,
- older adults,
- pregnant women,
- people with chronic health conditions,
- communities of color,
- low-income households,
- and those experiencing homelessness.

> "I live in Tukwila and...on the Duwamish, I see the effects [of climate change] and they are so hard to articulate, so overwhelming. Water quality is awful; the train goes through... the airplanes. From an academic point I don't know how to articulate, but from an experiential point it is awful."
>
> – Community leader

This *Blueprint* outlines core Public Health functions, strategies, and actions to develop internal expertise, analyze gaps and opportunities for prioritizing work, and build on current programs and projects. Although initial efforts to address climate change impacts on health are underway, without funding and a commitment to fully engage in meaningful community partnerships, Public Health will be unable to adequately pursue the strategies and actions identified in this document. Public Health involvement is integral to successfully planning for and mitigating climate change in our county. Now is the time to take on the work of addressing the many impacts of climate change on health and equity.

This Blueprint

HEALTH **EQUITY** **offers a unique and necessary approach to incorporating health and equity into**

King County's climate change planning

King County

and provides a framework for organizing across the agency and with partners.

Community-based organizations

Government partners

Public Health
Seattle & King County

Academia

Neighborhood residents

Healthcare partners

GUIDING PRINCIPLES

The *Blueprint* development process, and particularly stakeholder input, highlighted several overarching considerations for how Public Health can approach addressing climate change and health.

1. **Lead with Environmental Justice and Racial Equity:** Address structural inequities that create and exacerbate climate vulnerability (and other vulnerabilities) to prepare King County communities for the impacts of climate change.
2. **Promote a Health in All Policies approach:** Systematically take into account the health implications of decisions, seek synergies, and avoid harmful health impacts in order to improve population health and health equity. A community centered, heath impact focus helps people understand the connections between climate change and the various ways it impacts their daily lives.
3. **Use systems-thinking:** Planning for adaptation and mitigation of climate change is complex and requires multiple, interdependent systems and organizations to work toward common goals.
4. **Engage community in an inclusive, equitable way:** Beginning with community ensures that issues are identified and prioritized and that the community becomes the decision-maker rather than a sounding board. Combining climate science with community experience and expertise leads to better outcomes and deeper community investment in efforts.

SIX CORE FUNCTIONS AND 15 KEY STRATEGIES FOR PUBLIC HEALTH TO ADDRESS CLIMATE CHANGE AND HEALTH

1 Leadership and Organizational Capacity

1.1 Build climate and health literacy among Public Health and other King County agency leaders and employees

1.2 Build capacity to integrate climate change into Public Health and King County programs and align with equity and social justice principles

1.3 Develop Public Health leadership at the local, regional and national levels

2 Assessment, Surveillance and Research

2.1 Identify, evaluate, and prioritize key climate and health indicators and data

2.2 Develop and expand surveillance systems to monitor for and use data on climate-related health effects to provide timely information for Public Health action

2.3 Encourage and participate in practical and applicable research related to climate and health

3 Listen and Educate

3.1 Collaborate with partners through ongoing opportunities for information sharing that guides climate and health message development

3.2 Collaborate with partners to develop key messaging that addresses identified gaps in climate and health knowledge

3.3 Disseminate and exchange climate and health information with communities

4 Community Partnership Development and Capacity Building

4.1 Engage in climate and health planning that maximizes community ownership and promotes problem solving and collective action

4.2 Emphasize community resilience in Public Health partnerships that integrates climate change adaptation and mitigation and all-hazards preparedness

5 Preparedness and Response

5.1 Build capacity to effectively prepare for and respond to climate-related health emergencies

5.2 Incorporate climate projections into hazard mitigation and public health preparedness planning

6 Policy and Planning

6.1 Include climate and health considerations in policies and plans at the local, regional and national level

6.2 Promote climate-related policies and planning that promote equity and improve health

PART ONE:

Now is the Time for Public Health Action

INTRODUCTION

Climate change has become more visible with the high profile coverage of heavy rainfall and flooding, extreme heat, droughts, and destructive wildfires. The need for public health agencies to address the health issues of climate change is more important than ever, but even as the American public has become more accustomed to images of wildfire evacuees wearing particle-filtering masks or public officials warning of flooding's sewage overflows, few associate climate change directly with health. Yet these health impacts are among the most immediate and urgent consequences to individuals, capable of mobilizing the public and policy-makers to take action, and can be one of the focal points in efforts to address climate change.

The October 2017 Lancet Commission on Health and Climate Change report sees that a "comprehensive response to climate change could be the greatest global health opportunity of the 21st century," while the California Department of Health describes that, "Ensuring the opportunity for a healthy life is a deeply held American value. Research shows that describing climate change as a health issue and identifying the health benefits associated with taking action against climate change is compelling to a cross-section of the public." [1, 2] This echoes a local study and report by Puget Sound Sage and Got Green that indicates that, "The conversation on public health and climate change presents a unique opportunity to alter the public discourse on climate change: centering people and making evident the ways climate impacts will be felt."[3]

There is growing acknowledgement that public health engagement is extremely important for the integration of health considerations into local climate change planning, for both adaptation and mitigation efforts. Many strategies to decrease further climatic change have beneficial impacts on health. However, public health engagement on climate change has often been limited due to lack of dedicated funding, lack of localized research and solutions, and a need for training and building staff capacity.[4]

"Climate change is one of the most serious public health threats facing our nation. Yet few Americans are aware of the very real consequences of climate change on the health of our communities, our families, and our children."

– Georges Benjamin, Executive Director, American Public Health Association

With this national and local guidance in mind, Public Health - Seattle & King County's (Public Health) Climate Health Action Team (CHAT), King County Climate Core Team members, and Puget Sound Sage, serving as our community climate justice advisor, have collaborated to develop this *Blueprint for Addressing Climate Change and Health* (*Blueprint*). The need for a *Blueprint* was initially identified during the development of the 2015 King County Strategic Climate Action Plan (SCAP). It was determined that Public Health needed a framework for organizing across the Department and with our partners to address climate change and health with the goals of reducing public health risks associated with climate change and creating more resilient and equitable communities.

Part One of the *Blueprint* provides the overarching climate resilience context and information on climate change and health concerns of our region. Part Two outlines core Public Health functions and recommends strategies and actions to develop internal expertise, analyze gaps and opportunities to assist in prioritizing work, and build on current Public Health programs. The recommended strategies and actions should be a shared responsibility across the Department and King County. While the *Blueprint* focuses on the role of Public Health, we acknowledge that the health challenges faced by climate change require the planning and mobilization of all sectors that impact community health and well-being.

CLIMATE RESILIENCE BUILDS COMMUNITY RESILIENCE

Public Health's *Blueprint* offers a necessary approach to incorporating health and equity into climate change planning across King County by focusing on community resilience. Community resilience is the sustained ability of a community to withstand, adapt to, and recover from adversity, usually disaster-related. Resilient communities ensure both an appropriate response to stressful events and create and sustain conditions necessary for optimal health and well-being for all residents. Public Health intends to leverage existing strategies for building community resilience to increase adaptation to climate impacts and support behaviors and policies that help slow the progression of climate change. These strategies include an "all-hazards" approach to preparedness planning, investment in better risk communication, and growing community partnerships for collaboration, joint planning and problem solving.

MITIGATION refers to prevention efforts to slow, stabilize, or reverse climate change and its health impact by reducing emission of greenhouse gases or removing carbon dioxide from the atmosphere. Examples include renewable energy technology and increased use of public transportation.

ADAPTATION refers to preparedness efforts to reduce the harmful impacts of climate change on the community, from health to infrastructure, as well as taking advantage of beneficial opportunities that may arise. Examples include adapting building codes to future climate change conditions, preparing for heat emergencies, and increasing access to locally sourced foods.

RESILIENT COMMUNITIES...

ensure an appropriate response to stressful events

and create and sustain conditions necessary for optimal health and well-being for all residents.

ONE OF THE MOST CRUCIAL COMMUNITY RESILIENCE STRATEGIES IS

to promote equity and improve the health outcomes for those who are disproportionately impacted by climate change.

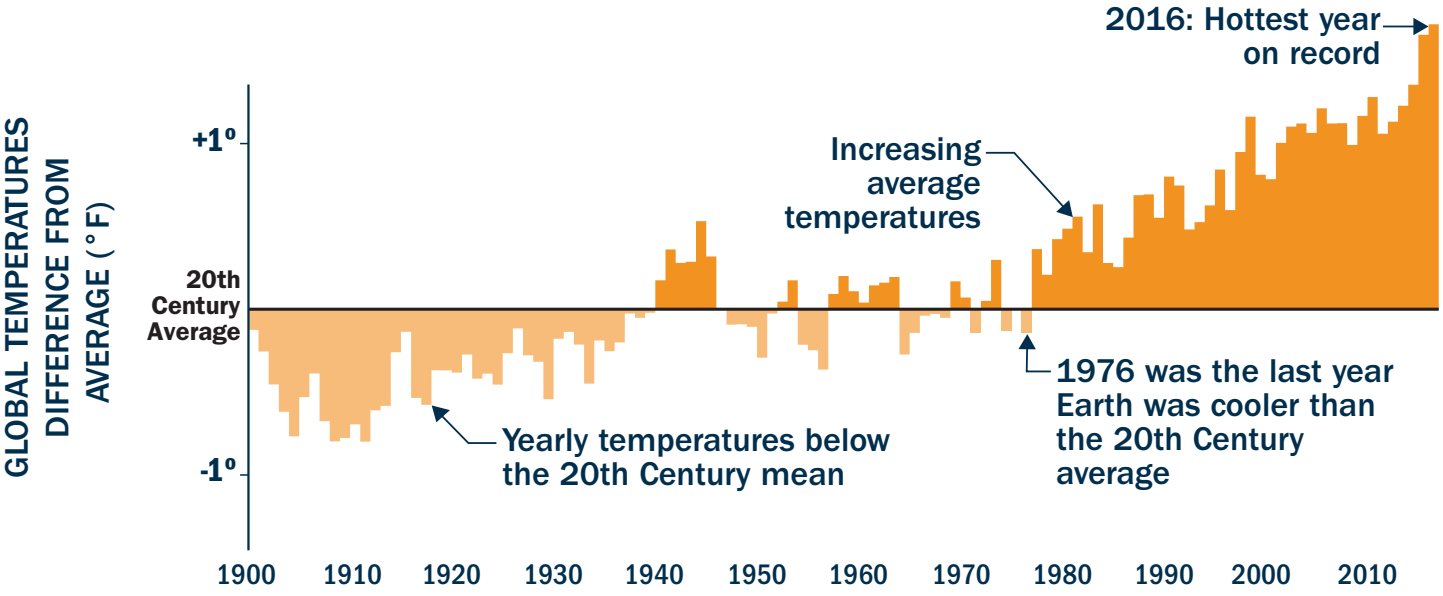
The role of addressing equity in community resilience to climate change

One of the most crucial community resilience strategies is to promote equity and improve the health outcomes for those who are disproportionately impacted by climate change. To be truly resilient to adversity, communities, cities, and counties need to address underlying issues of equity and social justice, particularly when considering historical and present-day systems of inequity and marginalization.[5, 6] For example, asthma rates are higher in poor neighborhoods due to greater exposure to environmental toxins and greenhouse gas emissions; similarly, extreme heat disproportionately injures those who cannot afford air conditioning and/or live in urban heat islands devoid of shade-producing tree canopies or green spaces.[7, 8]

CLIMATE CHANGE IN THE PUGET SOUND REGION

Human activities have increased the concentration of carbon dioxide and other greenhouse gases in the atmosphere to levels unprecedented in the past 800,000 years.[9] These levels are causing global temperatures and sea level to rise, snow and ice to decline, and weather to become more varied and extreme, such as heavy precipitation events. Global climate change has local impacts, many of which are already being documented. Washington and the Pacific Northwest have experienced long-term warming, a lengthening of the frost-free season, and more frequent nighttime heat waves. The Washington coast has experienced sea level rise, and coastal ocean acidity has increased. The glacial area and spring snowpack have

> "While resilience is a response to a looming threat, we also see it as an incredible opportunity to (re)imagine a more just future for all. Deepening local democracy and sustainably centering the communities most impacted by climate change in mitigation and adaptation planning are key to realizing this future."
>
> – Our People, Our Planet, Our Power. Got Green and Puget Sound Sage, March 2016.



declined, and peak stream flows in many rivers have shifted to earlier in the season.

Long-term changes in climate occur even though natural climate variability can result in short-term trends opposite those expected from climate change.[10] Natural variability can also serve to amplify expected climate change trends, such as in 2015 when the El Niño event served as an added factor in creating record high global and regional temperatures. Additionally, averaged data from larger geographic areas can mask variability in smaller areas, which may align with low income neighborhoods or places where people of color live and experience health inequities.

The changing climate trends affect our landscapes, waters, and communities. Community impacts include those to agriculture, infrastructure, jobs, the economy, energy production and use, land use and development, culture, recreation, healthcare systems, and human health and well-being. All predictive scenarios for the 21st century climate and beyond, based on various levels of greenhouse gas emissions, indicate continued warming. Due to past emissions of greenhouse gases, projected changes prior to mid-century are largely inevitable. However, current and future choices about greenhouse gas emissions will have a significant effect on the amount of warming and other changes that occur after the 2050s.

CLIMATE CHANGE IN THE PUGET SOUND REGION

INCREASING TEMPERATURES: Average annual air temperature is the Puget Sound region is increasing and is projected to be 5.5 degrees Fahrenheit warmer in the 2050s. The Pacific Northwest may experience an additional seven to 15 days above 95 degrees Fahrenheit by mid-century, and 18 to 42 such days by the end of the century.

OCEAN CHANGES: Sea levels in Seattle are expected to rise by 6.5 inches by 2050 and two feet by the end of the century, leading to more frequent coastal flooding with tides and storm surge. Ocean waters are becoming increasingly acidic, doing harm to marine environments, coastal fisheries, and aquaculture, including shellfish, salmon and other fish.

DECREASED SNOWPACK: The average area snowpack in the Cascades Mountains is expected to decrease 55% by the 2080s. Less snowpack results in less water for fish, agriculture, and people, and results in forests more prone to wildfires.

HEAVY RAINFALL EVENTS: The Puget Sound region is expected to experience more severe and frequent heavy rainfall events, increasing both the extent and frequency of flooding and landslides, and negatively impacting water quality. By the 2080s, the region's heaviest rain events are expected to be 22% heavier.

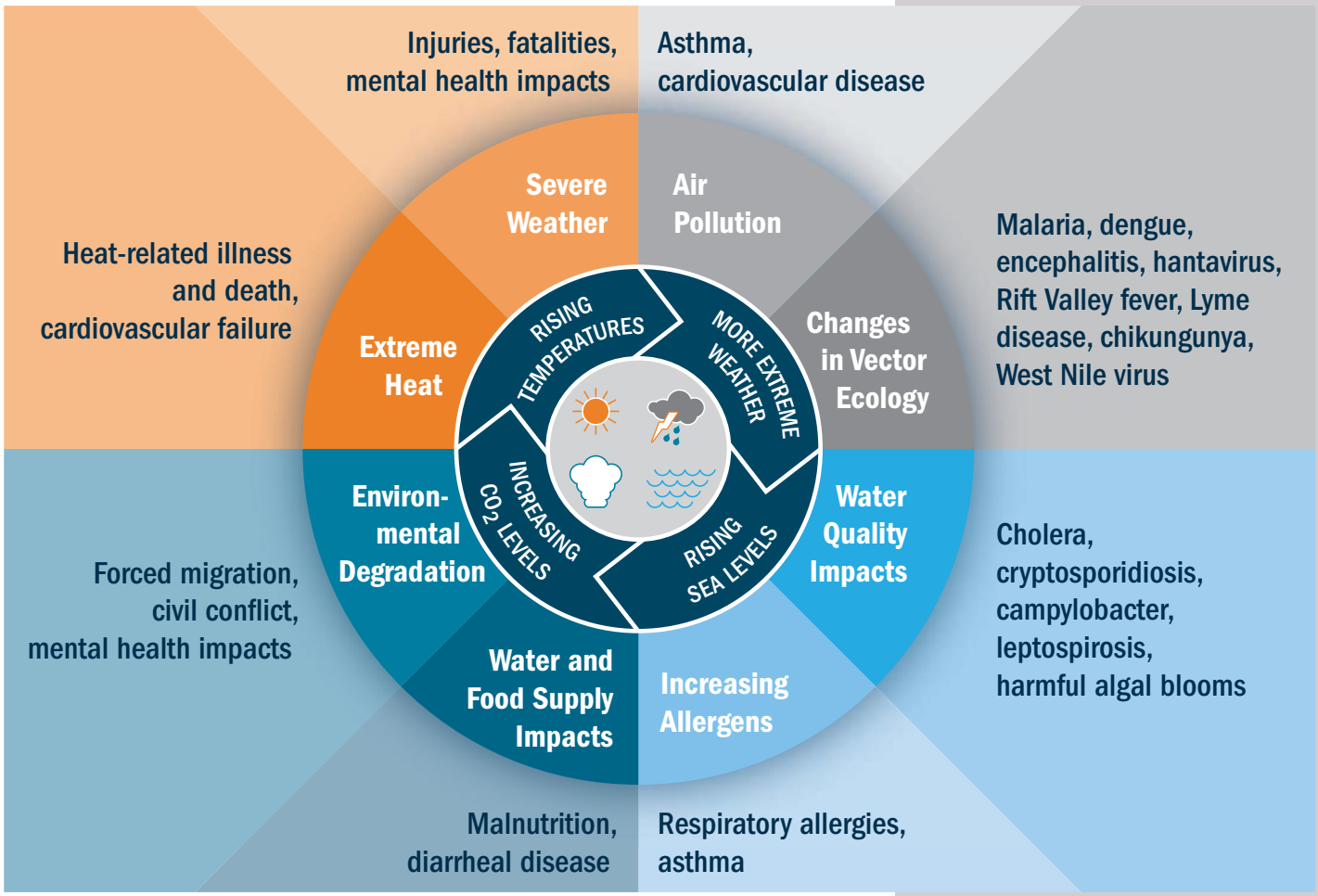
CLIMATE CHANGE: THE TOP PUBLIC HEALTH CHALLENGE OF OUR TIME

How Climate Change Impacts Health

Changing climate trends produce conditions and exposures that impact human health in many ways. These conditions and exposures include extreme heat, poor air quality, decreased food supply and quality, decreased water supply and quality, extreme weather events, increased allergens, and changes in infectious disease dynamics. How these impact human health is influenced by the surrounding social and environmental factors.

> "I don't think that most of us in public health have really grasped that breadth of issues and impacts of climate change."
>
> – Public Health Executive Team member

IMPACT OF CLIMATE CHANGE ON HUMAN HEALTH



Based on graphic from Centers for Disease Control and Prevention: **cdc.gov/climateandhealth/effects**

Disproportionate impacts

While every American is vulnerable to the health impacts associated with climate change, some residents increasingly experience a larger burden of health impacts.[11] The degree to which a person is sensitive to climate exposures depends largely on established social, political, environmental, or economic inequalities.[12] Low-income households and communities of color already bear a disproportionate burden of disease, such as higher rates of asthma, and have less access to resources and opportunities required for resiliency, such as living in flood-prone areas, less access to healthy food and quality healthcare, and greater difficulty evacuating during an emergency.[13] People living homeless and unsheltered are extremely vulnerable to health impacts associated with extreme weather events. Older adults and those with existing health conditions are more susceptible to respiratory, cardiopulmonary and other impacts from extreme heat and poor air quality, and they may be less likely to evacuate in an emergency. Children are particularly at risk as their bodies are still developing, and they experience more cumulative health effects over their lifetimes.

A public health approach to address the climate gap

The groups that will suffer the greatest impacts are also least likely to have the resources to prepare or respond. This unequal burden seems especially unjust given that these populations are the least likely to contribute to climate change.[14] This climate gap, in which low income populations and communities of color suffer disproportionately from health impacts associated with climate change, requires that equity and social justice are a priority for climate policy, planning, and action. It is important to recognize that the climate gap exists in King County neighborhoods and aligns with geographic focus areas identified in the *King County Equity and Social Justice (ESJ) Strategic Plan*, Best Starts for Kids, and Communities of Opportunity, among other Department priorities. A coordinated approach in Public Health and with partner agencies will make the most of available resources and help the Department to have a consistent interface with community partners.

Climate change mitigation has benefits to health

Public health has an important role in the design of adaptation and mitigation strategies and of a low-carbon economy. Policies and actions to reduce greenhouse gas emissions often provide benefits for health, evidence of the importance of greenhouse gas emission reduction beyond that of climate change mitigation alone.[15] Policies and planning that address mitigation strategies for household energy use, public transportation, food and agriculture, and electricity generation often have benefits for health. Examples which improve air quality and/or increase physical activity

What is the difference between weather and climate?

WEATHER is the state of the atmosphere at any given time and place, including temperature, precipitation, clouds, and wind that people experience throughout the course of a day. Severe weather conditions include hurricanes, tornadoes, blizzards, and droughts.

CLIMATE is the long-term average of the weather in a given place. While the weather can change in minutes or hours, a change in climate is something that develops over longer periods of decades to centuries. Climate is defined not only by average temperature and precipitation but also by the type, frequency, duration, and intensity of weather events such as heat waves, cold spells, storms, floods, and droughts.

What is the difference between global warming and climate change?

GLOBAL WARMING refers to the warming of the earth's surface and atmosphere due to human-caused greenhouse gas emissions.

CLIMATE CHANGE refers to all the many changes to our climate, such as changes in temperature, rainfall, and wind that result from the warming of the earth.

include increased transit use and active transportation, reduced single occupancy vehicle use, and generation of electricity from renewable or other low-carbon sources. One example is King County METRO prioritizing deployment of zero-emissions battery buses in areas of King County with poor air quality.

The recognition that climate mitigation strategies can have substantial health benefits can help to promote policy choices that are more cost effective and socially attractive. Some strategies can provide both mitigative and adaptive benefits such as urban greening and increased access to open green space that result in carbon sequestration and create conditions that promote mental and physical health and increased community resilience. For example, King County's Land Conservation Initiative uses a health and equity lens to inform priorities, including protection of urban greenspace.

SPECIFIC CLIMATE CHANGE IMPACTS ON HEALTH

Although few studies have evaluated the climate-related effects on human health within the Puget Sound region, local health impacts can be inferred using projected climate change data for the Puget Sound region and an understanding of climate and health interactions. The University of Washington's Climate Impacts Group supports this region by regularly developing a *State of Knowledge: Climate Change in Puget Sound* report that includes a section focused on climate change impacts on health.[16]

Heat-related impacts

More frequent heat waves are expected to increase heat-related illness and death, not only from heat stroke and related conditions but also from cardiovascular, respiratory, kidney, and cerebrovascular diseases. Groups most at risk for impacts include children, older adults, outdoor workers such as those in agriculture and construction, low-income households, people who are socially isolated, pregnant women, and people with chronic medical conditions, including mental health conditions. Local research conducted at the University of Washington has shown that emergency medical services (EMS) calls, hospitalizations and mortality increase for all ages with increasing heat intensity.[17, 18, 19] Other findings on heat days versus non-heat days included a significantly higher risk of hospitalization for adults age 85 and older, a higher risk of mortality for middle-aged adults with diabetes, and a higher risk of mortality for adults age 65 and older from cerebrovascular disease, mental health disease, and accidents. Urban heat islands, combined with an aging population, are

expected to increase the vulnerability of urban populations to heat-related health impacts. Additionally, drowning events may increase during extreme heat. Ways to decrease exposure to increased temperatures include air conditioning, urban design that adds more parks and green infrastructure, reflective building materials, early heat warning systems, and cooling shelters.[20]

Air quality

Most outdoor air pollutants that affect health are produced by the burning of fossil fuels, and these air pollutants both adversely affect human health and promote climate change.[21] Reducing greenhouse gas emissions not only helps to mitigate climate change but will also improve air quality, particularly to populations living close to where emissions are reduced. Low income neighborhoods and those with a higher proportion of people of color tend to be the location of significant industrial and transportation emission sources.[22]

Climate influences air quality with the following effects:

- Hotter temperatures increase ground-level ozone which is linked to asthma, bronchitis, heart attacks, and premature death.
- Wildfire smoke reduces air quality both locally and in areas downwind of fires due to particulate matter and ozone precursors. Smoke exposure increases respiratory and cardiovascular disease.[23]
- Allergens increase with more frost-free days and warmer seasonal air temperatures contributing to earlier and longer pollen seasons from allergenic plant species. Increased carbon dioxide by itself can increase production of plant-based allergens. Higher pollen concentrations and longer pollen seasons can increase allergy response and asthma episodes, diminishing productive school and work days.
- Rising temperatures along with extreme rainfall can contribute to indoor air quality problems, such as mold, and result in increased asthma-related conditions.

Water impacts

Heat can increase evaporation of bodies of water, reduce snowfall, and lead to more demand for water. Decreasing water resources also impacts the quality of water as pollutants in the water supply become more concentrated.

- Water temperature increases alter the seasonal window of growth for freshwater and marine toxin-producing harmful algae and *Vibrio* bacteria, increasing exposure to toxins and pathogens that cause a variety of illnesses.

Case Study #1:

Wildfire Smoke and Hazy Days in the Puget Sound Region, Summer 2017

Hot and dry conditions resulted in widespread wildfires that created many smoky days. Wildfire smoke contains microscopic particles that can penetrate deep into the lungs and people experience eye, nose, and throat irritation. Asthma can worsen and cause school and work absences. Exposure to particle pollution has been linked to premature death. Certain people are more at risk for having serious complications, including children; people with lung disease, respiratory infections, or heart problems; people who have previously had a heart attack or stroke; older adults; smokers; diabetics; and pregnant women. Public Health, Puget Sound Clean Air Agency, and the Washington Department of Health distributed joint messages about how to stay safe.

- Heavy precipitation and flooding events can increase waterborne disease outbreaks through introduction of pathogens into recreational waters, shellfish harvesting water, and drinking water sources.[24] Flooding can result in mold contamination in buildings.
- Extreme weather events increase the risk of failure of drinking water, wastewater, and storm water infrastructure, especially in areas with aging infrastructure.

Maintaining strong public health safeguards to reduce risk of exposure and illness are critical. These include water quality monitoring, promptly investigating waterborne illnesses, enforcing drinking water treatment standards and practices, beach closures, and issuing boil water and shellfish harvesting advisories.

Food impacts

The impacts of climate change on food production, prices, and trade for the U.S. and globally have been widely examined. A recent report, *Climate Change, Global Food Security, and the U.S. Food System*, concluded that "climate change is very likely to affect global, regional, and local food security by disrupting food availability, decreasing access to food, and making utilization more difficult."[25] Although some local food production may benefit from changes in climate, many crop yields globally are predicted to decline due to combined effects of changes in rainfall, severe weather events, and increasing competition from weeds and pests.

The nutritional value of some foods is expected to decline as elevated carbon dioxide in the atmosphere is associated with decreased plant nitrogen concentration and decreased protein in crops such as barley, sorghum, and soy. Concentrations of pathogens and toxins in foods are expected to increase. An already occurring local impact is that over 80 percent of streams surveyed in King County exceeded a salmon-safe temperature resulting in salmon mortality.[26] Warmer ocean temperatures may also result in more frequent algal blooms that can negatively affect fisheries. Creating healthy, sustainable food systems will not only benefit health but also decrease greenhouse gas emissions. This includes actions such as increasing access to and affordability of fruits and vegetables, shifting to diets that are more plant-based and less processed, promoting breastfeeding to decrease waste and energy use, and messaging ways to decrease food waste.

Vector-borne diseases

The true impact of climate change on vector-borne disease (i.e. diseases from mosquitoes, ticks, fleas) is currently unknown, but climate influences the complex interaction of the pathogen, host, and environment, often promoting emergence or reemergence

of infectious disease.[27] The geographical and seasonal distribution of vectors is changing and expected to continue to change. Ticks that carry Lyme disease and other pathogens have shown earlier seasonal activity and a northward expansion in the U.S. Rising temperatures, changing precipitation patterns, and extreme weather events are expected to change mosquito-borne disease dynamics. Disease occurrence is influenced by pathogen adaptation through genetic mutation and recombination, changes in host or vector populations, emergence in new geographical regions from international trade and travel, pathogen switching from animal to human hosts, human behavior, and various environmental factors.[28] These factors contribute to increased opportunities for infectious agents to spread more widely. Current vector-borne risks in the U.S. include diseases such as Lyme disease, West Nile virus disease, Rocky Mountain spotted fever, Zika, dengue, plague, and tularemia. In addition to changes in current vector-borne disease risks, the emergence of new vector-borne pathogens is expected to occur. Safeguards to new vector-borne disease threats include environmental vector control practices and personal protective measures.[29]

Courtesy of CA Department of Public Health

Mental health and well-being

Changes in exposure to extreme climate- or weather-related events causes and exacerbates stress and mental health disorders, with greater risk for certain populations. Wildfires, heavy rainfall, landslides, flooding, and windstorms increase stress and anxiety, displace people, and cause injuries and death. Following disasters, mental health problems increase. Some patients with mental illness are especially susceptible to heat. Suicide rates may increase with higher temperatures, dementia is a risk factor for hospitalization and death during heat waves, and certain medications for mental illness interfere with temperature regulation.[30] About 30 percent of people who are chronically homeless suffer from mental illness, and they also tend to live in areas that are more susceptible to urban heat island effects, making them vulnerable to the effects of extreme heat.

Extreme weather events

Severe weather events may damage city or county infrastructure, such as electricity, water, gas, sewer, and waste systems, producing potential disease- or injury-causing conditions. Power outages may lead to carbon monoxide poisoning due to unsafe heating practices, contaminated food from lack of refrigeration, and failure of critical durable medical equipment. Storms increase risk for injury and death from falling trees, electrical wires, and traffic crashes. Displacement of residents from severe weather events can lead to interruption of medical care for chronic health conditions. Severe weather events can lead to civil conflict and climate refugees.

PART TWO:

Developing Bold Leadership for Action

PUBLIC HEALTH APPROACH TO ADDRESSING CLIMATE CHANGE

Public Health's plan to address climate change impacts emphasizes building on current resources and integrating climate change and resilience efforts into existing programs and activities, community engagement efforts, and planning processes. Addressing climate change and health should be institutionalized across the Department, and recommended actions must be embedded into existing Public Health programming as well as new initiatives.

Similar to King County's Equity and Social Justice (ESJ) Ordinance, this approach describes integration of climate and health into the everyday work of King County staff across multiple departments and services, as well as increasing capacity as the pathway to affect real change. Additionally, as climate change will exacerbate inequities, there is opportunity for coordination across equity and social justice and climate change planning in King County. Building true resilience will require addressing underlying social, political, economic, and environmental drivers of health inequities that communities of color and other disproportionately impacted groups experience on a daily basis.

DEVELOPING THE *BLUEPRINT*

The *Blueprint* development is grounded in stakeholder input so that it reflects the values, concerns, and priorities of Public Health, partner agencies, and the community. The methods used to gather input include interviews, focus groups, and surveys. Interviews were conducted with Public Health and King County leadership (a total of 22) and with community leaders (a total of eight); two focus groups were conducted at community meetings. Online surveys were sent to a group of Public Health staff, with a total of 54 surveys completed, and disseminated through an existing communication channel of community partners, with a total of 121 surveys completed.

BLUEPRINT DEVELOPMENT

1. IN-DEPTH LITERATURE REVIEW

2. STAKEHOLDER ENGAGEMENT

Additional information regarding stakeholder engagement is available by request.

3. DOCUMENT DEVELOPMENT

From the engagement process, key themes emerged around several topic areas:

- **Knowledge:** Overall, community members and Public Health staff are aware of and concerned about climate change and believe it poses current and future risks to the health of residents, and that certain groups are at higher risk. However, they generally lack knowledge about expected and specific impacts to health. The majority of those interviewed and surveyed believe they need more education, training, and communication regarding local and regional climate change impacts and the health impacts to them and their community.

- **Priorities:** For community leaders, the priority of climate change and its impacts on health was generally lower than other issues. The most significant health issue of concern was the affordability and quality of housing for the community. Other issues considered higher priority were: food access, air quality, public transportation, affordability and availability of medical services, mental health services, homelessness, and meeting ethnic/cultural-specific care needs.

  Public Health leadership expressed varying opinions on the level of importance and priority to address climate change impacts on health in comparison to other public health needs. However, comments about priority were also in the context of better defining the local public health role and wondering how climate change work can be better resourced.

- **Roles and Actions:** Public Health should have a leadership role that needs to be strongly based on data and evidence and integrated into existing functions, programs, and policy development, including coordinated actions with other county departments and existing climate change planning.

- **Equity:** Public Health should maintain an integrated equity approach to climate change work, similar to the county's commitment and approach to equity and social justice (ESJ), with a focus on increasing preparedness and resiliency.

- **Collaboration:** Community members often do not feel connected to or included in county agency decision-making and processes. This gap can be bridged by establishing ongoing rather than episodic partnerships with community based organizations, especially with those who have established ties to the community, have cultural knowledge, and are representative of the communities.

Over 2 out of every 3 survey respondents (68%) believed climate change is mainly human caused.

2 out of every 3 survey respondents expressed they were 'very concerned' about climate change.

Over 4 out of every 5 survey respondents agreed that climate change has already impacted the health of King County's communities and residents.

Over 4 out of every 5 survey respondents believed that some people are definitely more at risk from climate change impacting their health.

Community leaders who completed the survey ranked air pollution; food and water access; and storms, flooding, and droughts as the high priority effects of climate change.

GUIDING PRINCIPLES

The *Blueprint* development process, and particularly stakeholder input, highlighted several overarching considerations for how Public Health can approach addressing climate change and health.

1. **Lead with Environmental Justice and Racial Equity:** Address structural inequities that create and exacerbate climate vulnerability (and other vulnerabilities) to prepare King County communities for the impacts of climate change.[31]

2. **Promote a Health in All Policies approach:** Systematically take into account the health implications of decisions, seek synergies, and avoid harmful health impacts in order to improve population health and health equity.[32] A community centered, heath impact focus helps people understand the connections between climate change and the various ways it impacts their daily lives.

3. **Use systems-thinking:** Planning for adaptation and mitigation of climate change is complex and requires multiple, interdependent systems, and organizations to work toward common goals.

4. **Engage community in an inclusive, equitable way:** Beginning with community ensures that issues are identified and prioritized and that the community becomes the decision-maker rather than a sounding board. Combining climate science with community experience and expertise leads to better outcomes and deeper community investment in efforts.[33, 34]

CORE FUNCTIONS

The following six core functions, built on the Foundational Public Health Capabilities[35, 36] serve as a framework to identify strategies and actions to guide Public Health's climate change work:

1. **Leadership and Organizational Capacity**
2. **Assessment, Surveillance and Research**
3. **Listen and Educate**
4. **Community Partnership Development and Capacity Building**
5. **Preparedness and Response**
6. **Policy and Planning**

These core functions are already recognized by leading public health organizations and can provide a way to address climate change and health in a coordinated way. Strategies and actions to address climate change and health often employ two or more core functions.

Public Health engagement on climate change and the integration of health in local climate change planning:

Aligning King County's Equity and Social Justice Ordinance and the integration of climate change and health into the everyday work of King County staff will decrease health inequities and build community resilience.

KEY STRATEGIES AND RECOMMENDED ACTIONS

Key strategies and actions have been identified from the stakeholder engagement process, review of other local or state public health agency climate change plans, guidance from the National Association of City and County Health Officials (NACCHO) and the Public Health Institute's Center for Climate Change & Health, and published evidence of climate impacts on health. The following table summarizes broad strategies for Public Health for the six core functions.

SIX CORE FUNCTIONS AND 15 KEY STRATEGIES FOR PUBLIC HEALTH TO ADDRESS CLIMATE CHANGE AND HEALTH

1 Leadership and Organizational Capacity

1.1 Build climate and health literacy among Public Health and other King County agency leaders and employees

1.2 Build capacity to integrate climate change into Public Health and King County programs and align with equity and social justice principles

1.3 Develop Public Health leadership at the local, regional and national levels

2 Assessment, Surveillance and Research

2.1 Identify, evaluate, and prioritize key climate and health indicators and data

2.2 Develop and expand surveillance systems to monitor for and use data on climate-related health effects to provide timely information for Public Health action

2.3 Encourage and participate in practical and applicable research related to climate and health

3 Listen and Educate

3.1 Collaborate with partners through ongoing opportunities for information sharing that guides climate and health message development

3.2 Collaborate with partners to develop key messaging that addresses identified gaps in climate and health knowledge

3.3 Disseminate and exchange climate and health information with communities

4 Community Partnership Development and Capacity Building

4.1 Engage in climate and health planning that maximizes community ownership and promotes problem solving and collective action

4.2 Emphasize community resilience in Public Health partnerships that integrates climate change adaptation and mitigation and all-hazards preparedness

5 Preparedness and Response

5.1 Build capacity to effectively prepare for and respond to climate-related health emergencies

5.2 Incorporate climate projections into hazard mitigation and public health preparedness planning

6 Policy and Planning

6.1 Include climate and health considerations in policies and plans at the local, regional and national level

6.2 Promote climate-related policies and planning that promote equity and improve health

Within these functions and strategies, there is opportunity to both leverage existing work with a climate change and health lens and undertake new actions to integrate climate change into existing programs and services. The following section highlights some current work in each core function and initial recommended actions.

1. Leadership and Organizational Capacity

To prepare for and address climate change impacts on health, it is necessary to advance the knowledge and expertise of King County leadership and staff on climate and health. Public Health staff must increase their knowledge about how to integrate climate considerations into public health practice and coordinate across sectors to promote sustainability.

RECOMMENDED ACTIONS

1.1 Build climate and health literacy among Public Health and other King County agency leaders and employees

a. Develop and deliver training to Public Health and King County staff about climate and health and opportunities to mitigate and adapt to impacts

b. Develop and equip Public Health staff with key messages regarding climate and health intersections to contribute at meetings, conferences, and other venues

1.2 Build capacity to integrate climate change into Public Health and King County programs and align with equity and social justice principles

a. Expand the Climate Health Action Team (CHAT) to include representatives from each Public Health Division and other King County programs

b. Assess how climate change affects functions of Public Health and partner with relevant programs to identify early action steps

c. Work with King County climate change program to find cross-departmental opportunities for health integration into climate actions and message development

d. Explore options for long term sustainability of Public Health climate and health actions

1.3 Develop Public Health leadership at the local, regional, and national levels

a. Continue and expand active participation in the West Coast Climate and Health Collaborative, NACCHO Global Climate Change Workgroup, and other workgroups

b. Participate in local and national conference planning to include intersections of climate, health, and community resilience

c. Seek opportunities to represent climate and health and equity concerns on commissions, councils, boards, and other committees

Examples of recent and current work

- Created the Climate Health Action Team (CHAT) and secured grant funding to initiate climate change planning, participate in national learning collaborative, and develop *Blueprint*
- Presented at multiple regional and national conferences, to the Public Health Executive Team, and to the King County Climate Leadership Team regarding current work and climate and health
- Participating in the NACCHO Climate and Health workgroup
- Participating in King County Strategic Climate Action Plan workgroup, King County's Core Climate Change Planning Team, and King County Climate Leadership Team

> "Educate public health employees so that they can make the connections between climate change and their job. Only once education happens can strategizing begin."
>
> – Public Health Executive Team member

2. Assessment, Surveillance and Research

It is necessary to gather, analyze, and share data and encourage research and evaluation to produce a clear understanding of health status, inequities, and vulnerabilities that are related to climate change impacts. Public Health collects and monitors data on many risk factors and diseases but needs to develop, evaluate, and monitor climate-related illness and deaths and factors that identify climate vulnerability and community resilience. Additionally, research on climate change impacts on health is needed to inform public health practice and to elevate the importance of health in climate change planning.

RECOMMENDED ACTIONS

2.1 Identify, evaluate, and prioritize key climate and health indicators and data

a. Conduct a gap analysis of data needs and design an acquisition method, such as including climate and resilience-related questions on the Behavioral Risk Factor Surveillance Survey (BRFSS)

b. Build on the work of current climate and health indicators, such as the Council for State and Territorial Epidemiologists Environmental Health Indicators for Climate Change

c. Support partners, such as city and county agencies, academic institutions and community groups, on GIS mapping of local climate and health indicators and establishing a climate vulnerability index

d. Establish a community resilience dashboard to track social and health equity indicators and climate change vulnerability, preparedness, and resilience-related measures

e. Integrate community resilience and climate-related indicators into existing initiatives, such as Best Starts for Kids, Communities of Opportunity, King County Land Conservation Initiative, King County Million Tree Initiative, and Veterans, Seniors and Human Services Levy

f. Provide opportunities for community input to develop indicators that identify community assets, concerns, and vulnerabilities

2.2 Develop and expand surveillance systems to monitor for and use data on climate-related health effects to provide timely information for Public Health action

a. Develop systems to routinely monitor health impacts, such as from air pollution, wildfire smoke, carbon monoxide poisoning, heat impacts and infectious disease (e.g. foodborne, waterborne, vector-borne) to inform emergency response and preparedness, such as early alert notifications

b. Develop capacity to provide timely assessment of short and long-term effects during and after extreme climate events to improve prevention and mitigation strategies for future events

Examples of recent and current work

- Worked with University of Washington researchers on analyzing the link of extreme heat events with morbidity/ mortality and emergency medical services (EMS) calls
- Monitoring and responding to shellfish pathogens and toxic algal blooms

> "We need to link assessment and action – Public Health can't be stuck 'measuring, measuring, measuring' and not a lot of time acting."
>
> – Public Health Executive Team member

2.3 Encourage and participate in practical and applicable research related to climate and health

a. Expand partnerships with organizations, such as the University of Washington's School of Public Health and Medicine and the Climate Impacts Group, to increase opportunities for Public Health to engage on local/regional climate change research and data development

b. Develop research priorities for climate, health, equity, and community resilience with academic organizations

c. Collaborate with academic partners, such as the National Oceanic and Atmospheric Administration (NOAA), on applications for funding

d. Identify projects for students and develop a Public Health network for supervising climate-related student projects

3. Listen and Educate

Communication of accessible, reliable information about climate change and health that is responsive to community concerns will be important in establishing knowledge and encouraging action. Community participation that leads to community initiated and directed action requires two-way communication systems that are leveraged and broadened so that Public Health and communities define and solve problems together.[37] Education of partners, policy makers, and health professionals about climate impacts on health, as well as the benefits associated with reducing greenhouse gas emissions, can encourage collaboration and action.[38]

RECOMMENDED ACTIONS

3.1 Collaborate with partners through ongoing opportunities for information sharing that guides climate and health message development

a. Conduct community-led research to learn about knowledge of climate and health, how to address gaps in knowledge, and how to message mitigation and adaptation actions

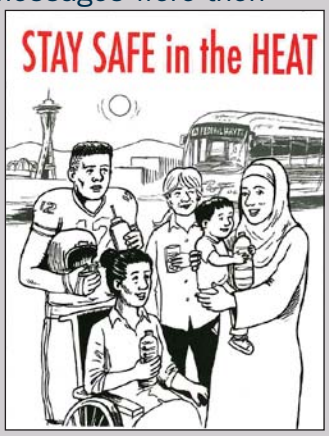
b. Convene partners to identify communication and knowledge gaps and discuss resilience strategies

c. Participate in King County Strategic Climate Action Plan (SCAP) community engagement presentations and listening sessions to inform the 2020 SCAP plan update

Case Study #2:

Engaging Seattle's International District and Rainier Valley Neighborhoods to Prevent Heat Related Illness

Climate change is expected to result in more frequent extreme heat events which are associated with heat-related illness and death; cardiovascular, respiratory, and cerebrovascular diseases; and diabetes-related illness. Groups most at risk for impacts include children, older adults, outdoor workers such as those in agriculture and construction, low-income households, people who are socially isolated, and people with chronic medical conditions such as diabetes, heart disease, respiratory disease, and mental health conditions. Urban heat islands and an aging population make urban populations vulnerable. Public Health worked with City of Seattle and Puget Sound Clean Air Agency to learn about residents' knowledge of heat-related protective strategies and to identify underlying factors of vulnerability. With University of Washington, culturally appropriate prevention messages were then developed and integrated into a comic zine that was translated into 11 languages.



3.2 Collaborate with partners to develop key messaging that addresses identified gaps in climate and health knowledge

a. Align messaging and communication strategies with key stakeholders and partners

b. Develop and translate messaging tools, such as a climate and health infographic, that can be used by Public Health and other King County agencies

c. Integrate climate change messaging into existing Public Health communications, such as extreme heat and weather event alerts

d. Develop a toolkit with resources for local decision-making to assist partners in engaging community members in climate, health, and resilience discussions

3.3 Disseminate and exchange climate and health information with communities

a. Leverage existing King County initiatives and networks, such as Best Starts for Kids, Healthcare for the Homeless Network, and Veterans, Seniors and Human Services Levy, to share key messages and encourage two-way communication regarding climate and health

b. Leverage existing community partner networks and opportunities to share key messages and encourage two-way communication regarding climate and health

c. Utilize Public Health programs to disseminate relevant climate and health messages through their activities and communication channels, such as home visits, health fairs, newsletters, listservs, and blogs

4. Community Partnership Development, Capacity Building and Mobilization

Community engagement and partnership development is a strong value and fundamental practice of Public Health, including with government agencies, academic partners, community-based organizations, climate justice advocates, community leaders, health care organizations, and private sector partners. Engaging community is grounded in the belief that the public has the right to participate and has valuable knowledge about what will work within their own communities.[39] Building community knowledge about climate, health, and equity is critical to the development of collaborative strategies that address community priorities and leverage existing strengths.[40]

Examples of recent and current work

- Published Public Health Insider blogs on climate change and health, extreme heat, air quality from wildfires, and preventing water recreation injuries

Vietnamese Senior Association meeting

> "One of the things Public Health can do is help articulate and paint [the] picture...about the ills that face them in the climate... in different languages, in different forums, in different avenues."
>
> – Community leader

RECOMMENDED ACTIONS

4.1 Engage in climate and health planning that maximizes community ownership and promotes problem solving and collective action

a. Ensure understanding and assessment of community partners' needs to best inform how Public Health can support and help strengthen community assets, capacities, and interests

b. Increase planning and collaboration across King County agencies for community engagement by identifying joint goals and responsibilities and coordinating messaging

c. Pursue grant opportunities and other funding to support community-led education, coalition building, and community-based actions

4.2 Emphasize community resilience in Public Health partnerships that integrates climate change adaptation and mitigation and all-hazards preparedness

a. Implement coordinated, community resilience-related strategies in Public Health community capacity building initiatives, such as community health boards, Best Starts for Kids, Communities of Opportunity, and Veterans, Seniors and Human Services Levy

5. Preparedness and Response

As climate change will increase the frequency and severity of weather and other events that have public health impacts, it is important to both understand the impacts of expected events and have systems in place to effectively prepare and respond. Planning and response efforts should focus on groups experiencing inequities and likely to be disproportionately impacted.

RECOMMENDED ACTIONS

5.1 Build capacity to effectively anticipate, prepare for and respond to emerging climate-related health emergencies

a. Work with partners, such as Puget Sound Clean Air Agency, Washington Departments of Health and Ecology, and Northwest Weather Service, to identify communication strategies and a concept of operations for better response to climate change-related events

b. Provide guidance to local jurisdictions on best practices related to cooling center locations, including transportation access considerations and other accessibility issues

c. Integrate climate and health messaging into public information and warning systems maintained by local offices of emergency management

d. Work with local jurisdictions to leverage neighborhood preparedness groups, such as Citizen Corps, Communication Hubs and Certified Emergency Response Teams, to increase knowledge about climate change and health impacts

Examples of recent and current work

- Worked with Climate Justice Advisors to connect to community based organization leaders on *Blueprint* development
- Launched the Somali Health Board in 2012 to increase community resilience and address health inequities
- Replicating the Community Health Board model in eight communities of color

Somali Health Board members

Examples of recent and current work

- Designed and implemented notification and warning systems for safety and health messages (e.g. Community Communication Network, Vietnamese Emergency Communication Partnership, Chinese Emergency Communication Council)
- Surveyed local emergency managers about their knowledge, beliefs and familiarity of climate change and health in partnership with King County Office of Emergency Management

5.2 Incorporate climate projections into hazard mitigation and public health preparedness planning

a. Coordinate with the Northwest Healthcare Response Network to integrate climate change planning into health care response plans and strategies

b. Support King County Office of Emergency Management in raising awareness and engaging emergency planning partners in preparing for climate change impacts

c. Collaborate with King County Climate Preparedness specialist to bring latest research on climate and health into preparedness planning.

6. Policy and Planning

While many of the most significant climate change actions require action at national and international levels, understanding impacts and responses at the local level is a necessary strategy.[41] With significant planning and policy development occurring at state, regional, and municipal levels, Public Health needs to have a prominent voice in these processes, advocating for opportunities to advance and support the incorporation of climate, health, and equity considerations.

RECOMMENDED ACTIONS

6.1 Include climate and health considerations in policies and plans at the local, regional and national level

a. Review Public Health and King County policies for consideration of climate mitigation and benefits for health, such as telecommuting, transportation and fleet policies, facility siting, resource utilization, and contracting policies

b. Integrate health considerations into governmental climate change planning, including county and city climate action plans

c. Support King County Cities Climate Collaboration (KC4) efforts and the integration of health and emergency management-related needs into goals

d. Integrate climate and health into local, county, regional, and state transportation and land use planning efforts, including to the King County Comprehensive Plan

e. Collaborate with other county departments to develop tools and resources, such as vulnerability mapping and checklists, to address climate, health, and equity in policy/plan development and implementation

6.2 Promote climate-related policies and planning that promote equity and improve health

a. Promote the inclusion of community member/organization seats on local and regional planning committees, commissions, and boards

b. Provide health and equity information to guide decision-making on climate-related policies and legislation at the local, state and national levels in partnership with King County agencies

Meeting with West African community leaders

Examples of recent and current work

- Advocating for improved access to walking and bicycling infrastructure in local land use/transportation plans, such as the King County Comprehensive Plan and City of Seattle Comprehensive Plan
- Participated in the King County Local Food Initiative to support a local food economy and improved access to local fruits and vegetables

VISION FOR IMPLEMENTATION

Public Health has had the opportunity to begin preliminary climate change and health work through involvement with *King County's Strategic Climate Action Plan* (SCAP) development, the King County Climate Leadership Team, and other projects involving partner agencies and communities. However, Department-level coordination and planning is limited, largely due to no designated resources. This *Blueprint* demonstrates the urgent need to address climate and health throughout programs, both within Public Health and across King County, and through intentional collaboration with our partners. It also provides a framework upon which to undertake actions to fill gaps identified through a stakeholder process, extensive research, and participation in conversations on the local, state, and national levels.

Public Health plans to continue working on identified immediate priorities. This initial work includes cross-departmental trainings that will further organizational capacity development, increase knowledge of the connections of climate and health, and strengthen collaborations and partnerships within Public Health and with other King County agencies. To further the work in a meaningful way, designated resources are needed to coordinate activities, build partnership efforts, and sustain staff training, as well as identify specific subject matter capacity in areas such as epidemiology, preparedness planning, community engagement, and relevant policy and plan development. With increased climate and health knowledge and through program and partner collaboration, Public Health can more fully develop and prioritize recommended actions and map out implementation of these priorities.

Public Health plans to continue working on identified immediate priorities:

Case Study #3:

Rapid Health Impact Assessment in South Park

South Park is a vibrant Seattle neighborhood with engaged and active residents and the city's only river – the Duwamish. South Park is also one of Seattle's lowest income and most ethnically diverse communities with health inequities that include lower life expectancy, poorer air quality, and higher childhood asthma hospitalizations and are a result of long-standing racial and social inequities in land use, economic, and environmental policies and decisions. Community concerns about health impacts from the location of play areas in South Park Community Center's open space prompted Public Health to conduct a Health Impact Assessment (HIA). The HIA engaged community representatives and considered air pollution, environmental noise, crime and safety, social and mental health, physical activity, heat events, and pedestrian safety. Recommendations for redevelopment that consider health and climate change impacts were developed.

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