INNOVATING TODAY TO SERVE TOMORROW

CONFERENCE PROGRAM
APRIL 29- MAY 1, 2024

Yakima Convention Center
10 N 8th Street, Yakima, WA

WASHINGTON STATE ENVIRONMENTAL HEALTH ASSOCIATION
70TH ANNUAL EDUCATIONAL CONFERENCE

SUSTAINING MEMBERS

Thank you!

Sustaining members support WSEHA's goals and objectives, like putting on this annual educational conference! We appreciate their support very much and extend our sincerest gratitude.

GCHD
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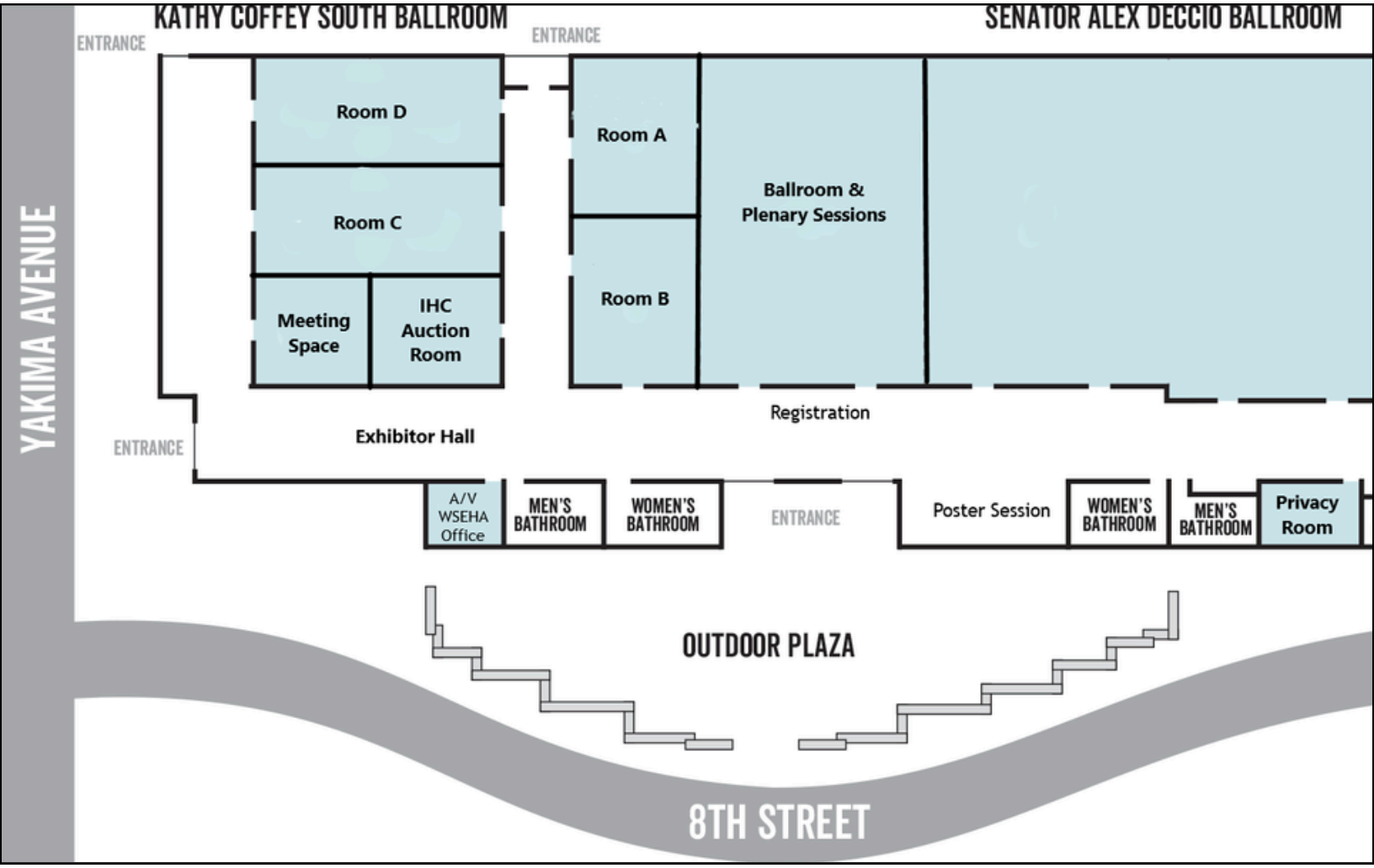
WASHINGTON STATE PUBLIC HEALTH ASSOCIATION

FIND YOUR WAY AROUND
Yakima Convention Center



MESSAGE FROM THE CONFERENCE CHAIRS

Katie Lott & Anne Moen

Welcome to Yakima and the Washington State Environmental Health Association's 70th Annual Education Conference. We are excited for you to learn, get involved and connect!

Choose from a wide range of sessions to learn about innovative efforts from colleges around the state.

Make a new friend or connect with an old one at one of our planned social events.

Bid on items in the International Health Committee silent auction.

Thank you to all the volunteers who worked hard to bring you an educational and interactive conference.

Visit the 2024 conference website for more details. We look forward to connecting with you.

Enjoy the conference!
Katie Lott and Anne Moen, Conference Co-Chairs

MESSAGE FROM THE WSEHA PRESIDENT

Susan Shelton

Welcome to the Washington state Environmental Health Association's 70th Annual Education Conference. It's great to see you and so many knowledgeable and energetic colleagues working to improve environmental public health in our state. If this is your first time attending AEC, please push your comfort zone while you're here and introduce yourself to others, ask questions during sessions, join conversations during breaks, participate in social activities, and build your experiences and connections. If you have been to an AEC before, thank you for coming back -- we're eager to hear more of your work and public health experiences so please be sure to speak up and reach out.

Whether this is your first or fifth conference, I know you'll enjoy this year's Innovating Today to Serve Tomorrow. The agenda is a collection of plenaries, sessions, fieldtrips, and exhibitors reflecting the broad spectrum of our roles in environmental health. The presenters are stellar, excited, and ready to share great information. Many of the presentations feature work in the Yakima area and I hope you also enjoy the central Washington emphasis. Thank you to our hosts at the Yakima Health District for their work in public health and for providing local connections, planning guidance, and enthusiastic input for this year's conference.

Once you've settled in at the conference, your first and frequent trip should be to visit the International Health Committee's Recipient for 2024: Clean Water for Haiti. Learn more about their current activities, their life-saving work with biosand filtration, and ways to help support their public health efforts -- including potentially bidding on a raffle basket or silent auction item.

And, as we all work to expand our comfort zones and continue to grow Environmental Health, please help me thank everyone that volunteered to make this a fantastic fellowship and learning event. Our conference co-chairs, Katie Lott and Anne Moen, and WSEHA Executive Secretary Megan McNelly spearheaded multiple months of planning and frequently moving parts while each committee chair and volunteer endlessly provided valuable contributions to bring the conference to life. Know also that the AEC Planning Committee will be eager to have your passion, energy, and love for environmental health represented in next year's AEC - please volunteer and join the 71st AEC Planning Committee to bring the conference to western Washington in 2025!

Susan

CONFERENCE AGENDA, MONDAY, APRIL 29

Time	Before the sessions	Location
9:00 am - 12:00 pm	TRAINING: Injury, Illness, & Lifesaving at Water Recreation Facilities	Room C
10:00 am - 12:00 pm	FIELD TRIP: Playground visit	Kiwanis Park
10:00 am - 12:00 pm	DROP-IN WORKSHOP: On-Site Sewage System Design Review	Room B
11 am	Registration opens	Registration hallway
12:00 - 1:30 pm	Lunch & welcome comments *Nancy Bernard, WSEHA President* *Katie Lott & Anne Moen, AEC Chairs* Keynote Speakers *Lauren Jenks, Washington State Department of Health* *Dr. Shah, Secretary of Health, Department of Health* International Health Award Recipient *Leslie Rolling, Clean Water for Haiti*	Ballroom

Time	Room A	Room B	Room C	Room D
2:00 - 2:50 pm **Session 1**	Are we a profession? *Chuck Treser, UW (Emeritus)*	Introducing Freshwater Bacteria Monitoring Program at PHS&KC *Jun Naotsuka, PHSKC*	PM2.5 and CO_2 air monitoring in child care facilities using low-cost sensors *Orly Stampfer, DOH*	Microbiology of wastewater *Justin Hartmann, DOH*
2:50 - 3:10 pm	Break and networking			
3:10 - 4:00 pm **Session 2**	Hosting funded internships through NEPHIP and the UW DEOHS Hatlen Awards *Dan Poux, UW* *Tania Busch Isaksen, UW* *Emily Hovis, UW*	Environmental public health surveillance of freshwater harmful algal blooms in Washington state using drone technology *Joey Teresi, UW*	Developing guidance for protecting children and youth during wildfire smoke events *Julie Fox, DOH*	Nitrogen Treatment: LOSS vs OSS *Andrew Jones, DOH*
4:10 - 5:00 pm **Session 3**	Workforce development- Environmental public health and the strategic skills *Jeff Ketchel, DOH*	Cyanotoxin production in Spanaway Lake, Pierce County, Washington *William Hobbs, Ecology*	School Environmental Health and Safety Program sharing *Nancy Bernard, DOH* *Scott Reynolds, DOH* *Alexandra Boris, DOH*	LOSS compliance- Then and now *Maggie Kipple, DOH*
5:00 - 7:00 pm	Monday Evening Social & poster session in the Ballroom			

AGENDA, TUESDAY (PART 1), APRIL 30

Time	Before the sessions	Location
7:00 am	Registration opens	Registration hallway
7:00 - 8:00 am	Breakfast	Ballroom
7:00 - 8:00 am	Washington State Board of Registered Sanitarians Annual Meeting	Meeting space
8:00 - 9:40 am	Welcome comments NEHA update *Bill Emminger, National Environmental Health Association* Storytelling in the Washington policy landscape *Megan Moore, Washington State Public Health Association* 2023 Snake River HAB response *Maddie Lucas, Whitman County Public Health*	Ballroom

Time	Room A	Room B	Room C	Room D
10:00 - 10:50 am **Session 4**	Kitsap Public Health District response to king tide flooding in 2022 *Anne Moen, KPHD* *Kimberly Jones, KPHD*	Developing a food rescue ecosystem map in Washington state *Emily Hovis, UW*	A breath of fresh air: Environmental health team tackles indoor air and ventilation during the Covid pandemic *Terrance Mayers, PHSKC* *Ricardo Settles, PHSKC* *Ayantu Hajikedir, PHSKC* *Sumaya Aden, PHSKC*	"Growing" DOH support for Pollution Identification & Correction Programs: Leveraging federal & state resources to reduce marine fecal pollution in the Puget Sound *Lea Shields, DOH* *Scott Chernoff, DOH*
11:05 - 11:55 am **Session 5**	Is recycling working? An analysis of recycling facilities in King County *Fanny Silverio Gonzalez, PHSKC* *Yolanda Pon, PHSKC*	Animals, water, equipment, and workers: Efforts to keep Washington state produce safe for consumers *Connie Fisk, WSDA*	Exploring the efficacy of low-cost air sensors and D.I.Y. box fan filter units as interventions during wildfire smoke events *Iz Berrang, UW* *Hannah McKinley, UW* *Katelin Teigen, UW* *Anna Reed, UW*	Improving water quality, public health, & community resilience through a collaborative OSS funding program *Seth Elsen, Ecology* *Roger Parker, DOH* *Desiree Sideroff, Craft3*
12:00 - 1:20 pm	Lunch WSEHA awards Lower Yakima Valley groundwater management area *Lisa Freund, Yakima County* *Sheryl Howe, DOH* *Melanie Redding, Ecology* *Kyrre Flege, WSDA* *Shawn McGee, Yakima*			Ballroom

AGENDA, TUESDAY (PART 2), APRIL 30

Time	Room A	Room B	Room C	Room D
2:40 - 3:30 pm **Session 6**	Continuing operation during boil water orders *Kait Wolterstorff, Yakima* *Andy Wilson, Yakima*	Cookies and Cream: Foodborne Illness Outbreaks & Lessons Learned *Meelay Tellier, DOH*	Helping your community with indoor air quality and mold resources from DOH *Ali Boris, DOH*	Kitsap Public Health District's multifaceted approach to managing septic system inventory *Eric Evans, KPHD*
3:30 - 3:55 pm	Break and networking			
4:00 - 4:50 pm **Session 7**	Environmental Public Health & Legislative Session 101 *Jaime Bodden, WSALPHO* *Joe Laxson, DOH*	Standardization procedures for retail food safety inspectors *David Engelskirchen, WSDA*	The power of partnerships: Building a wildfire preparedness program *Cindy Haverkamp, TPCHD*	The Savvy Septic Program: Promoting maintenance and repair of septic systems to improve water quality in Snohomish County through financial assistance and education *Calissa Leren, SCHD*
4:50 pm- Finished	Raffle basket winner announcement & auction winner item pick-up			IHC Auction Room
SOCIAL EVENTS				
5:00 - 9:00 pm	Social @ Bale Breaker • *"Little Hopper" shuttle service available* • *4th Annual Cornhole Tournament (sign-up)* • *Network & relax*		Click here for details (wseha.org)	

Don't forget to visit the silent auction in the auction room! Auction/raffle closes Tuesday at 3:55 pm!

CONFERENCE AGENDA, WEDNESDAY, MAY 1

Time	Before the sessions	Location
7:00 am	Registration opens	Registration hallway
7:00 - 8:15 am	Breakfast	Ballroom
7:00 - 8:00 am	Washington state Environmental Health Association Board Meeting	Meeting room
7:00 - 8:00 am	OSS Program Breakfast	Room B
8:15 - 9:30 am	Opening remarks Change in WSEHA President Environmental health & homelessness *Colin Maloney, DOH*	Ballroom

Time	Room A	Room B	Room C	Room D
9:45 - 10:35 am **Session 8**	Private detention facilities *Soleil Muniz, DOH* *Nina Helpling, DOH*	Lessons learned from elevated bacteria levels investigation in Minter Bay portion of the Henderson Bay commercial shellfish growing area *Tanya Truong, TPCHD* *Meghan Whidden, TPCHD*	Addressing environmental health problems using a One Health approach (part I) *Liz Dykstra, Marnie Boardman, Ceclia Welch, DOH*	Revision of the on-site sewage rule, Chapter 246-272A WAC *Jeremy Simmons, DOH*
10:45 - 11:35 am **Session 9**	Strengthening collaborative partnerships for environmental health improvement and community resilience in King County *Fanaye Amsalu, PHSKC* *Ashley Bullock, PHSKC*	Yes- Let's talk juice and meat HACCP: Guidance manual and sample applications *Susan Shelton, DOH*	Addressing environmental health problems using a One Health approach (part II) Tracie Barry, Beth Lorence, Barb Morrissey, Elinor Fanning, DOH	On-site septic rule revision- Property transfer inspections (panel) *Jeremy Simmons, DOH* *Doug Jones, PHSKC* *Randall Olsen, TPCHD* *Charese Gainor, Skagit* *Eric Evans, Kitsap* *Janine Reed, Clallam*
11:45 am - 12:30 pm	Lunch Closing remarks			Ballroom
1:00 - 2:30 pm	FIELD TRIP: School health and safety @ Davis High School			212 S 6th Ave.

THE SOCIAL STUFF
What you need to know

Monday Evening Social @ Yakima Convention Center
5-7 pm

Please join us in the Ballroom of the Yakima Convention Center following sessions. The social will feature a poster learning session, light appetizers, beverages, and live music. This is a great way to unwind while networking with colleagues.

Tuesday night @ Bale Breaker Brewing Company
5-9 pm

Free transportation to and from the Yakima Convention Center (YCC) and most local hotels to Bale Breaker Brewing Company is provided by WSEHA.

- ***Tipping your driver is encouraged!***
- @ YCC: Wait at the Little Hopper sandwich board for a ride.
- Look for the van with their logo (see left) and wave them down.
- Flash your conference badge.
- Little Hopper will run 5-10 pm.
- Make sure your hotel is a drop-off site via the QR code below & going to the map.

The 4th Annual Cornhole Tournament is back by popular demand! Signup (required) below. Other games are available, or just hang out with old friends and new friends.

Sign-up for
the cornhole tournament

Buen Taco food truck is scheduled to make an appearance. Check out Bale Breaker's website for their tap menu. They are located at 1801 Birchfield Road.

Want to check out other places around town? Click below for a map of other ideas/options.

See local food &
points of interest around town

GET INVOLVED
Other meetings you may want to check out

Washington State Board of Registered Sanitarians

Tuesday, 7- 8 am

Board meeting

Sit in on a WSBRS board meeting! This organization works to upgrade the profession of environmental health by registering sanitarians. They also help registered sanitarians maintain their credential by ensuring sanitarians keep up with the required number of continuous education credits. This is all to safeguard health and property and to protect public welfare.

Learn more at wsbrs.org.

Washington State Environmental Health Association

Wednesday, 7- 8 am

Board meeting

Join WSEHA's board for a meeting! WSEHA does so much for the environmental health profession, from putting on annual educational conferences to posting open environmental health job opportunities to providing scholarships for deserving students. Their passionate board members would love to meet you and hear any input you may have.

Learn more at wseha.org.

OSS Program Breakfast

Wednesday, 7- 8 am

Meet and greet

Grab your breakfast then head over to Room B, where On-Site Sewage Program staff from the Washingston State Department of Health and local health jurisdictions can meet and network.

ABOUT YOUR SESSIONS

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Session	Abstracts and speaker biographies or description
Room C Injury, illness, & lifesaving at WRF	High-quality pool operations reduce the probability of illness and injury. In this presentation, we will present the current state of injury/illness data in Washington and the nation. Then we will provide some practical inspection related tips to prevent illness and injury at Water Recreation Facilities with a focus on injury prevention and lifeguard operations. Learn about lifeguard plans, lifeguard zone development and zone certification, lifeguard response testing, in-service training, pre-service training and more! **Dave DeLong** has worked in health and safety for 36 years with a varied EH background that includes supervising local health programs for Pools/Schools/Noise control/Zoonotic disease and Camps. Dave also has the unique experience of working at a large YMCA association as Executive Director of Safety and Risk Management and he has worked as a policy advisor to the State Board of Health. Dave is currently the Water Recreation Program Lead at Department of Health. **Alyssa Payne** has worked in public health since 2015 starting as an Environmental Health Specialist at Clark County Public Health. Alyssa has worked in several programs with main responsibilities including the regulation and enforcement of permitted water recreation facilities and seasonal monitoring of designated natural swimming areas. At DOH, Alyssa is continuing her work in their Water Recreation Program and is excited to present data collected from local health partners. **Justin Law:** I am honored and thrilled to be a presenter at the 2024 AEC. My public health career began in Savannah, Georgia as an environmental health specialist in 2009. Since then, I have worked for local and state health departments in various environmental health programs in Georgia, North Carolina, and Washington state. My current position at DOH is plan review lead in the water recreation program. I look forward to connecting and partnering with you all.
Kiwanis Park Playground field trip	A drop test demonstration will be performed by NW Playground to demonstrate how field testing is used to measure the impact attenuation of playground surface material. NW Playground will also discuss the process of field testing with various surface materials common to playgrounds. This is a great opportunity for CPSI's and others involved with inspection of playgrounds to observe and learn about essential field testing to assure playground safety. **Nancy Bernard, MPH, REHS, CPSI** manages the WSDOH Indoor Air Quality and School Environmental Health and Safety Programs, providing technical assistance, resources, and training for local health jurisdiction and K-12 school staff. Areas addressed include IAQ, wildfire smoke, asthma triggers, integrated pest management, noise control, lighting, communicable and zoonotic diseases, cleaning, disinfection, playgrounds, lab, art, and shop safety, hazardous materials, and school design. Nancy served on the Lake Washington School District Board of Directors 1997-2017.
Room B OSS Design Review Drop-In Workshop	Join Roger Parker, Technical Assistance Lead for onsite septic systems (OSS)in the Washington state Department of Health's (DOH) Wastewater Management Section, to review OSS designs and troubleshoot common issues to ensure compliance with Chapter 246-272A WAC. This pre-conference work session will consist of a short presentation followed by an open discussion. Roger will have a variety of designs to share for review, but feel free to bring your own! The focus of the session will cover general permitting requirements and critical design elements, including site and soil evaluations, system types, and operations and maintenance requirements. Roger will also discuss how OSS designs will be impacted by the rule revision.

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Session	Abstracts and speaker biographies or description
Room B (Continued)	**Roger Parker** has worked for the Washington state Department of Health since 2020 as the Technical Assistance Lead for the Onsite Septic (OSS) Program in the Wastewater Management Section. Prior to working at DOH, he was with Jefferson County's Health Department for 6 years in a number of environmental health programs, including solid waste and OSS. When not working on keeping sewage in its place, Roger hangs out with his kids and cats or can be found working on his truck.
Welcome comments	**Umair A. Shah, MD, MPH,** was appointed Secretary of Health for the great State of Washington by Governor Jay Inslee in December 2020. He is the first Asian-American physician of South Asian descent to serve in this leadership role in the history of Washington, home to over 7.6 million people. His appointment came at a difficult time amid the severe winter wave of COVID-19 and only a few days after arrival of vaccines into the state. In assuming this leadership position at the nationally respected Washington State Department of Health, Dr. Shah made the transition from fighting the pandemic on the front lines of response in Texas as Executive Director and Local Health Authority for Harris County Public Health (HCPH) – serving the nation's 3rd largest county with nearly five million people. Dr. Shah earned his BA (philosophy) from Vanderbilt University; his MD from the University of Toledo Health Science Center; and completed an Internal Medicine Residency, Primary Care/General Medicine Fellowship, & MPH (management), at the University of Texas Health Science Center in Houston. He also completed a global health policy internship at World Health Organization headquarters in Switzerland. Upon completing training, Dr. Shah began a distinguished twenty-year career as an emergency department physician at Houston's Michael DeBakey VA Medical Center. Following his passion, he started his formal public health journey in 2003 as Chief Medical Officer at Galveston County's Health District before joining HCPH to oversee its clinical health system and infectious disease portfolio. Under his leadership, the agency won numerous national awards including Local Health Department of the Year from the National Association of County and City Health Officials (NACCHO), representing the nation's 3,000 local health departments. Dr. Shah has held several leadership positions with respected entities like the Association for State and Territorial Health Officials; National Academies of Sciences, Engineering, and Medicine; U.S. Centers for Disease Control & Prevention; American Public Health Association (APHA); Trust for America's Health; Network for Public Health Law; Texas Medical Association; and served as president of NACCHO (and its Texas affiliate). He has testified before the U.S. Congress, the state legislatures of both Texas and Washington, and responded to a multitude of large-scale emergencies both domestically and globally. For his work, he has received numerous awards including the distinguished Milton and Ruth Roemer Prize for creativity in public health; APHA's Public Service Award for Outstanding Service in Emergency Health; and the NACDS Foundation's Excellence in Patient Care Award. One of his more lighthearted recognitions was being named 'Ten Real Houstonians We'll Need the Most in the Zombie Apocalypse'. Over his career, Dr. Shah has been a clinician, innovator, educator, and leader in health. He has been a champion for underserved communities, at the intersection of health and healthcare, while charting a fresh course in health by centering on the cornerstone values of equity, innovation, and engagement.

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Session	Abstracts and speaker biographies or description
Welcome comments	**Lauren Jenks, MPH, CHES,** (she/her) is Assistant Secretary for Environmental Public Health at the Washington State Department of Health. She has had a 20-year career at the Department of Health, and, prior to that served as a Prevention Specialist for the Centers for Disease Control and Prevention. Lauren currently teaches Public Health Practice in the online MPH program at the University of Washington. She is on the board of the Washington State Public Health Association, and she represents the Association on the Governing Council of APHA. Lauren grew up in Pennsylvania and graduated from The Pennsylvania State University. She has her MPH from Temple University and a graduate certificate in Science Writing from Johns Hopkins University. She lives in Olympia with her spouse and two teenagers. **Leslie Rolling** has been working with Clean Water for Haiti for 20 years, with the bulk of that time spent living in Haiti full time as she and her husband Chris, along with their two children, ran the day-to-day operations of the organization. Over the years Leslie has been the administrative push behind much of Clean Water for Haiti's work. In late 2022 the Rollings had to move their family out of Haiti for good because of the insecurity, and Leslie transitioned into the role as Executive Director for the US and Canada offices. She daily works to support their team in Haiti so the filter program can continue to be a reliable resource for Haitian families and clean water. Clean Water for Haiti started in 2001 with the goal of providing Haitians with access to clean water through the building and installing of biosand water filters. In 2003 Chris Rolling took on the role as Executive Director and transitioned the organization from a small business model that wasn't working to a subsidized program model where families pay a small co-pay equivalent to about $5 US for their filters. Leslie joined the staff team in 2005, and together they created what is now CWH's incredibly effective filter program. Clean Water for Haiti has now installed over 45,000 filters, with each filter providing a household with enough safe drinking water each day to meet all of their cooking, drinking, and bathing needs. Through the filter follow up that happens over a period of 5 years, Clean Water for Haiti is able to provide support and maintenance to filter owners, while tracking how many filters are still in use over time. Before the recent insecurity crisis that has drastically limited movement in the country, over 95% of CWH's filters were still in use after the first year, and over 80% were still being used 5 years after installation. Through the filter program Clean Water for Haiti is providing full time employment to local Haitians and purchases the bulk of their production materials in the local market, supporting the local economy. In late 2022 the when Rollings had to leave Haiti because of the insecurity, they handed over leadership to Johnson Alexandre, a long-time colleague who has done an amazing job as the new Executive Director for Haiti. Under his leadership the organization is continuing to be effective in very difficult times for the country.
Session 1: Room A Are we a profession?	We have been called the invisible profession. If those of us who work in the field of Environmental Public Health are invisible, then are we truly a profession? This session will examine the question of whether we are a profession or an amalgamation of various trades. The presentation will consider the hallmark of the generally recognized professions and whether or not those of us who practice within the field of Environmental Public Health met the same standards as these other professions. And, if we are a profession, why we do not enjoy the same recognition and respect as the other generally recognized professions do. The presentation will suggest that we, as professionals, have confused our job titles with that of our profession, and in doing so have confused the public and possibly ourselves. The discussion will explore the question of how did we get here and how can we collectively change this dynamic?

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Session	Abstracts and speaker biographies or description
Session 1: Room A (Continued)	Following 3 years in the US Army and 10 years with a local health department, **Chuck Treser** was recruited to join the Environmental Health faculty at the University of Washington to lead a project developing a system for assuring the continuing competencies of EH practitioners. At the UW, as a senior lecturer, he worked with undergraduate EH students to ensure graduates have a solid educational base for either continuing graduate work or for employment in government, nonprofit, or private organizations. He taught the introductory Environmental Health Course for close to forty years as well as the Zoonotic and Vector-borne Disease and Environmental Health Administrative Law and Process courses, and supervised the internships of undergraduate students at various agencies. His long career has garnered him several lifetime achievement awards including the WSEHA's Outstanding Sanitarian Award, WSPHA's Tom Drummey Award and the APHA Environment Section's Distinguished Service Award. Since retirement (sort of) as Principal Lecturer Emeritus he remains active serving as the Executive Director of the Association of Environmental Health Academic Programs (AEHAP). In this capacity, he represents AEHAP on the Environmental Health & Equity Collaborative and the Nation Environmental Health Partnership Council – two organizations funded by CDC to provide guidance to the National Center for Environmental Health. He is also active in the American Academy of Sanitarians.
Session 1: Room B Introducing Freshwater Beach Monitoring Program at PHS&KC	This presentation will introduce PHSKC's Freshwater Beach Monitoring Program. It will go over topics such as the legal authority and regulatory framework, water quality standards and monitoring standards, bacteriological protocol PHSKC uses, responding to sewage spill incidents, partners and stakeholders, and communication strategies for beach advisories. **Jun Naotsuka** is a MS graduate of Oregon State University. He started his career as an Environmental Health Specialist in 2005 at Kitsap Public Health District in its Food Safety and Living Environment Program. He later had the opportunity to serve as the lead plan reviewer for Washington State Department of Health Water Recreation Program, and in 2017 he became the Water Recreation Program Lead at DOH. Since 2022, he has been working as the Beach Safety and Sewage Monitoring Lead at Public Health Seattle & King County working on issues related to bathing beaches including sewage spills, bacteria, toxic algae, and recreational shellfish.
Session 1: Room C PM2.5 and CO_2 air monitoring in child care facilities using low-cost sensors	The Washington State Department of Health (DOH) collaborated with Tacoma-Pierce County Health Department (TPCHD) on a project to develop a protocol to use low-cost air quality sensors to collect air quality measurements in schools and child care facilities. Our goal was to develop a protocol that is practical and informs decision-making. We used low-cost sensors to collect fine particulate matter (PM2.5) and carbon dioxide (CO_2) measurements at four child care facilities. We monitored PM2.5 indoors and outdoors over several months, including a period of wildfire smoke at two of the facilities. We monitored CO_2 indoors over two 1-week periods. During this presentation, we will review PM2.5 and CO_2 data from the four child care facilities, and discuss our lessons learned in collecting and using data from low-cost sensors. **Orly Stampfer** is an Indoor Air Quality Epidemiologist with the Climate and Health Section at the Washington state Department of Health. They received an MPH and PhD in Environmental and Occupational Health from the University of Washington. Orly currently focuses on strategies to monitor indoor and outdoor air pollution using low-cost sensors, with the goal of promoting healthy indoor air quality.

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Session	Abstracts and speaker biographies or description
Session 1: Room D Microbiology of wastewater	Have you ever wondered how a septic system actually treats wastewater? Do you know where materials entering a septic system ultimately end up? Join Justin Hartmann, a soil scientist with the Washington state Department of Health's Wastewater Management Section, to learn about the microbiology of wastewater in an onsite septic system (OSS). He will discuss the basics of microbial functions as the wastewater moves through the septic system. You'll learn some interesting facts about what goes into a septic system, some biochemistry, and how microbes deal with nutrient inputs. He will take you through the inlet baffle, slosh you around in the septic tank, and accompany you out into the drainfield, through the soil, and into the groundwater where you'll come out recharged and ready to apply your newfound knowledge to your OSS work. **Justin Hartmann** is a Certified Professional Soil Scientist working in the Washington state Department of Health's (DOH) Wastewater Management Section. He has a Bachelor of Science in Soil Science, a Master of Science in Marine Chemistry, and a graduate certificate in biostatistics. He started his career as a soil scientist working for a small onsite septic design firm in Oregon. Before coming to DOH, he worked as a Registered Sanitarian at local health jurisdictions in Oregon and Washington and as a licensed onsite septic system designer.
Session 2: Room A Hosting funded internships through NEPHIP and the UW DEOHS Hatlen Awards	The CDC's Water, Food, and Environmental Health Services Branch is providing funding to support up to 50 environmental health student internships at state, tribal, local, and territorial environmental public health agencies each year. In addition, the University of Washington Department of Environmental & Occupational Health Sciences (DEOHS) is providing 1-2 scholarships through the Hatlen Awards to fund summer internships in rural WA. This presentation will feature representatives from health departments that have hosted interns through NEPHIP and the UW DEOHS Hatlen Awards, who will share strategies for successfully hosting interns. **Dan Poux** (he/him) is the the Manager of Experiential Learning & Career Services for the Department of Environmental & Occupational Health Sciences in the UW School of Public Health. Dan has worked at UW since 2015, first as an Academic Adviser and later as a Career Coach. He joined DEOHS in July 2022, and supports undergraduate and graduate students and alumni as they prepare to apply for internships and jobs after graduation. **Tania Busch Isaksen** is Teaching Professor and Undergraduate Program Coordinator for the UW Department of Environmental & Occupational Health Sciences (DEOHS). In addition to her teaching and administrative responsibilities, she maintains an active, practice-based research portfolio focused on public health outcomes associated with extreme heat and wildfire smoke exposures; risk communication methods; climate change-related public health adaptation planning and response, and sustainable materials management. Tania has over 25 years of environmental public health experience working in local public, private, and academic settings. **Emily Hovis** is an Assistant Teaching Professor in the UW Department of Environmental & Occupational Health Sciences. She is an environmental health professional with experience in public education, food safety and environmental compliance. Emily currently serves as the coordinator for the food safety subject matter expert group for the Washington state food waste prevention plan (Use Food Well Washington) that aims to reduce food waste by 50% by 2030.

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Session	Abstracts and speaker biographies or description
Session 2: Room B Environmental public health surveillance of freshwater harmful algal blooms in Washington state using drone technology	Freshwater harmful algal blooms (HABs) pose a significant public health threat to the world's freshwater supply, including potable drinking water, recreation, and subsistence-based and sport fishing. Excessive accumulations of freshwater cyanobacteria can produce biotoxins that result in adverse health outcomes, including dermatologic, gastrointestinal, respiratory, and neurologic symptoms. Moreover, incidence of toxic blooms in recreational water bodies and resultant human exposure to toxins will increase with a warming climate, necessitating novel methods to characterize blooms and communicate risk. Remotely piloted drones can be an effective tool for environmental monitoring of smaller-scale freshwater bodies. We used drone aerial imaging to monitor for changing concentrations of chlorophyll-a from July through October 2023 in an urbanized lake in western Washington that experiences HABs. Surface water samples were collected to validate chlorophyll-a concentrations estimated from the drone imagery. The results of this study will be used to assess the effectiveness of incorporating drones as a supplemental monitoring tool for freshwater HABs in smaller lakes and to record the barriers and facilitators associated with this drone application. **Joey Teresi** is a current masters student in the Department of Environmental and Occupational Health Sciences at the University of Washington. His research interests include understanding the effects of climate change on our natural resources and public health outcomes, water resource management, and sustainable communities. Prior to attending UW, he was employed in the environmental consulting industry where he performed hazardous building material inspections, abatement and remediation oversight, and groundwater compliance monitoring. In 2018, he received a BA in Geology and Environmental Studies from Augustana College (IL), where he completed research projects investigating highly eroded streams and downstream water quality in an urbanized watershed and the legacy of lead-based paint hazards in at-risk neighborhoods.
Session 2: Room C Developing guidance for protecting children and youth during wildfire smoke events	Climate change is extending the length of wildfire season, which is more frequently overlapping with the start of school for children. Wildfire smoke from wildfires impacts the ability to be outside and have outdoor activities. This is particularly important for children in school or child care during summer months. CDC recommends children and youth 6-17 years old exercise an hour or more every day as an important part of health, and some states have requirements on minimum outdoor activity/active play in child care programs with an exception for extreme weather. Safe outdoor play when smoke levels are high, especially for days or weeks, requires precautions. Children are more sensitive to health effects from breathing in PM2.5 because they breathe in more air than adults for their body weight, and the respiratory system develops until about age 21. The Washington state Department of Health (WA DOH) developed the Washington Children and Youth Activities Guide for Air Quality, which includes public health recommendations to protect children and youth (18 years and younger) from fine particle air pollution (PM2.5) in wildfire smoke. This guide applies to school, child care, athletic practices and games, before and after school programs, camps, field trips, and other outdoor programming and activities. Decisions to limit, modify, or cancel children's outdoor activities for air quality are challenging when weighing social and mental health benefits of those activities, especially after the COVID-19 pandemic. They also involve many stakeholders including public health jurisdictions, schools, athletic directors, and nurses. This presentation will walk through considerations in making these decisions and how WA DOH developed this guidance, including an extensive stakeholder engagement process with school partners to achieve buy in and alignment. We will seek feedback and input to improve the guide for the future. **Julie Fox** is the Air Quality Supervisor at the Washington state Department of Health within the Climate and Health Section. Her air pollution work includes investigating health impacts, developing health recommendations for reducing exposures, and providing technical support and education to internal and external partners. With the rise of wildfires throughout the Pacific Northwest over the last several years, many of Julie's efforts have focused on protecting health from wildfire smoke exposures both outside and indoors.

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Session 2: Room D Nitrogen treatment: LOSS vs OSS	Nitrogen has become a major concern for Washington's drinking water. Throughout the state, nitrogen levels have been rising. In some cases, nearing or exceeding the 10 mg/L limits for safe drinking water. Onsite sewage systems are a major contributor of excess nitrogen, and a huge focus for the industry. Nitrogen evaluation and treatment requirements differ depending on the size and jurisdiction of the onsite system. This presentation will discuss the differences in how nitrogen is handled between LHJ regulated OSS, and DOH regulated LOSS. **Andrew Jones** is the Large Onsite Sewage System & Reclaimed Water Supervisor for the WA State Department of Health. He has a master's degree from UW, and over 8 years of experience as an onsite regulator and environmental engineer.
Session 3: Room A Workforce development-Environmental public health and the strategic skills	In the post pandemic environment, all of public health stands at a crossroads. Washington state is in an optimal position to innovate the governmental public health system due to its strong and sustainable investments in Foundational Public Health Services. As the system innovates, the public health workforce must innovate as well. The traditional specialized skills of Communicable Disease Control, Epidemiology, Chronic Disease & Injury Prevention, Maternal & Child Health, Health Education, and Environmental Public Health need to innovate as well by inclusion of the Strategic Skills. The Strategic Skills include Systems Thinking, Change Management, Persuasive Communication, Data Analytics, Problem Solving, Diversity and Inclusion, Resource Management, and Policy Engagement. Environmental public health professionals and students should pursue these Strategic Skills in addition to EPH science and practice. Environmental public health professionals of all programs or supervisory levels working to improve delivery of Foundational Public Health Services can learn to think and act strategically through learning and promotion of these skillsets. **Jeff Ketchel** is the Director of Foundational Public Health Services at the Washington state Department of Health. He possesses an MA in Policy Studies from the University of Washington and is a registered sanitarian. Jeff is a graduate of the CDC's Environmental Public Health Leadership Institute and Harvard University's National Preparedness Leadership Initiative Executive Education Program. He has worked in public health in Washington state for over 29 years and was previously the executive director of the Washington state Public Health Association and administrator of the Snohomish and Grant County Health Districts. Jeff has served as president of the Washington state Association of Local Public Health Officials and chair of the Washington state Board of Registered Sanitarians.
Session 3: Room B Cyanotoxin production in Spanaway Lake, Pierce County, Washington	Cyanobacteria (or blue-green algae) are common in many inland waters worldwide. A number of planktonic cyanobacteria species can produce toxins with potential human health and pet/wildlife impacts. Spanaway Lake in Pierce County (Washington) has a long history of cyanobacterial blooms. Here, I present an overview of two studies that investigated the presence and persistence of cyanobacteria and toxin production over different timescales. Emerging qPCR methods were employed in both studies to understand the presence of genes that produce the toxins. In addition, in situ fluorometric methods were used to understand the seasonal dynamics of the cyanobacteria bloom and production of toxins. **Will Hobbs** is a senior environmental scientist with the Toxic Studies Unit in Ecology's Environmental Assessment Program. He received his B.Sc. in Physical Geography from the University of British Columbia, M.Sc. in Limnology and Environmental Science at the University of Dublin, Ireland, and his PhD in Earth and Atmospheric Sciences at the University of Alberta. Prior to joining Ecology, Will was a research scientist in freshwater and paleo-ecology at the University of Nebraska, University of Minnesota and the Science Museum of Minnesota. With Ecology, Will works primarily on targeted source identification studies for toxic contaminants in freshwater and the monitoring and investigation of cyanotoxins in lakes and rivers.

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Session 3: Room C School Environmental Health and Safety Program sharing	A time for Local Health Jurisdiction School Environmental Health and Safety programs to discuss their programs and share successes and challenges. Please bring examples of working with schools and local building officials, addressing interpretation of the codes and standards, and other program issues. We will also discuss updates to the DOH/OSPI K-12 Health and Safety Guide. **Nancy Bernard, MPH, REHS, CPSI** manages the WSDOH Indoor Air Quality and School Environmental Health and Safety Programs, providing technical assistance, resources, and training for local health jurisdiction and K-12 school staff. Areas addressed include IAQ, wildfire smoke, asthma triggers, integrated pest management, noise control, lighting, communicable and zoonotic diseases, cleaning, disinfection, playgrounds, lab, art, and shop safety, hazardous materials, and school design. Nancy served on the Lake Washington School District Board of Directors 1997-2017. **Scott Reynolds** has a BS in Environmental Health from W. Carolina University and an MPH from the University of South Florida. He was an Environmental Health Officer for several years with US Public Health Service, serving with Indian Health Service, at duty stations in Alaska and Arizona, and has worked at Cowlitz County Health Department and worked several years at Chelan-Douglas Health District. **Ali Boris (she/her)** is an Indoor Air Quality Specialist with Washington DOH. She has a B.A. from Knox College in environmental studies and chemistry, an M.S. from Portland State in chemistry, and a Ph.D. from Colorado State in atmospheric science, with a focus on outdoor air quality and particulate matter composition. She also worked with the California Air Resources Board. Ali works to provide technical assistance and resources for Washington residents, local health, and school partners on Indoor Air Quality issues.
Session 3: Room D LOSS compliance- Then and now	This will be a presentation on large on-site sewage system (LOSS) compliance management. The LOSS program is responsible for regulating and permitting onsite sewage systems. I will describe challenges that our program has faced and how we are resolving them to protect the environmental health of the State. There will also be discussion about how the LOSS compliance role has evolved with the growth of our program. This topic is relevant since we work with the local health jurisdictions that are facing similar issues with compliance. **Maggie Kipple:** I graduated from Western Washington University with a Bachelor of Arts degree in Business Administration. I've been with the Washington state Department of Health's Wastewater Management Section since December 2019 and am currently the Large Onsite Septic System (LOSS) Compliance Manager. I oversee compliance for LOSS owners and operators and work with local health jurisdictions to ensure their operations are protective of public and environmental health.

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Tuesday morning plenary Storytelling in the Washington policy landscape	Policy can be abstract, technical, and confusing; but it doesn't have to be. Changing policy really just comes down to telling the stories of your life and work. Understanding the context in which you tell your story can help you be heard by decision-makers. In this session we will talk about the different levels of bureaucracies in which most Washington State environmental public health workers interact. We will also talk about systems that truly need your stories from the ground. Lastly, we will explain how professionals can change systems for the better by participating in policy-making processes. **Megan Moore** joined the WSPHA as the Executive Director in 2023. She has broad experience in both the private sector and in governmental public health, including at the Local and State levels. Prior to her career in public Health, she worked in the field of Physical Therapy and Rehabilitation for ten years. Megan was on the WSPHA Board for nearly three years as the policy committee chair prior to her time as Executive Director. Her passion is teaching professionals, community members, and youth how to use their voice in decision-making processes.
Tuesday morning plenary session 2023 Snake River HAB response	In September 2023, Whitman County Public Health received reports of a visible algal bloom along the Snake River in Whitman County. Subsequent water samples sent to the state laboratory confirmed the presence of algal toxins at multiple locations along the river. In response, Whitman County Public Health posted warning signs in the affected areas and issued a Health Advisory. High toxin levels were consistently detected in samples until January 2024 when the advisory was lifted. The large-scale bloom gained national attention and received significant media coverage, prompting the involvement of multiple state and federal agencies in the response efforts. **Maddy Lucas** graduated from Washington state University in 2020 with a bachelor's degree in chemistry. After graduating, she worked for a scientific company managing a soils lab, as well as working as a contracted botanist. She joined the team at Whitman County Public Health as an Environmental Health Technician in July 2023. In her free time, she enjoys photography and hiking to look at native plants.
Session 4: Room A Kitsap Public Health District response to king tide flooding in 2022	During the king tide flooding in 2022, several areas of Kitsap County were inundated. KPHD coordinated with Kitsap County Department of Emergency Management and Kitsap County Department of Community Development in a county-wide response to address the environmental public health concerns in the affected areas. **Anne Moen** has been with Kitsap Public Health District for 22 years. After earning her AAS in Environmental Science in 2001, she worked as a technician in the Food and Living program for nine years and then spent 10 years in Pollution Identification & Correction. In 2019, continuing her exploration of public health, she moved to the Emergency Preparedness program. In 2021, she earned her BAS in Emergency Management, and in 2023 became a Registered Sanitarian through the National Environmental Health Association. **Kimberly Jones** has been with Kitsap Public Health District since 2008. After graduating with a BS in Environmental Science, she joined the Pollution Identification and Correction team where she worked for 7 years. She earned her Onsite Wastewater Inspector Certificate of Compentency in 2015 and moved to the Drinking Water & Onsite Sewage program.

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Session 4: Room B Developing a food rescue ecosystem map in Washington state	Food loss and waste is a significant environmental issue that needs attention. According to the 2019 EPA Wasted Food Report, around 72% of wasted food from the food service industry, including restaurants and hotels, ends up in landfills, and only 3% is donated. In contrast, almost 8.9% of the population in Washington state faces food insecurity, according to Feeding America. To tackle these problems, the Use Food Well Washington Plan suggested developing and maintaining a food rescue ecosystem map for all communities in the state to help match potential donors (food businesses) with hunger relief organizations that can accept donations. Our project is the first step towards achieving this goal. The map will focus on identifying food rescue opportunities and reducing food waste based on the EPA Excess Food Opportunities Map. We aim to identify the most effective uses for the mapping tool, with special emphasis on the hunger relief sector. Check out our presentation to learn more about the project and potential opportunities for collaboration to collect food rescue and recovery information from food businesses and hunger relief organizations in your community. Together we can help turn the wasted food problem into a food insecurity solution! **Emily Hovis** is an Assistant Teaching Professor in the UW Department of Environmental & Occupational Health Sciences. She is an environmental health professional with experience in public education, food safety, and environmental compliance. Emily was the coordinator for the food safety subject matter expert group for the Washington state food waste prevention plan (Use Food Well Washington) that aims to reduce food waste by 50% by 2030, and is actively involved in food waste prevention, rescue, and recovery research in WA state. When not teaching Emily enjoys gardening, cooking, and making fermented foods for her husband James, and children, Charlotte and Calvin. You can learn more about Emily on her UW Faculty Page: https://deohs.washington.edu/faculty/emily-hovis
Session 4: Room C A breath of fresh air: Environmental health team tackles indoor air and ventilation during the Covid pandemic	The importance of indoor air quality was thrust into the limelight during the COVID-19 pandemic. To support the safe reopening of the economy in 2021, King County's Environmental Health Services (EHS) Division was catapulted into a new role: providing technical assistance on indoor air and ventilation to childcares, schools, restaurants, faith-based organizations, homeless shelter providers, adult family homes, and others. With $3.6 million dollars in federal funding, the EHS Division was able to scale up and organize a large team to provide the much-needed technical assistance. Since then, the team has provided over 2400 direct technical assistance through site visits and phone consultations, carried out multilingual community outreach with 16 community-based partners, and distributed over 9000 portable HEPA air cleaners (prioritized using an equity and risk-based tiered approach). With Covid-19 here to stay and wildfire smoke becoming ever more present in our state due to climate change, environmental health programs can continue to play an important role in providing direct assistance to communities through education and outreach, technical assistance, and resources for interventions, when available. This presentation will share about the program model, tools, evaluation findings and lessons learned from this nearly three-year effort. In addition, there will be recommendations for others who are interested in standing up a similar indoor air technical assistance program in their community.

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Session 4: Room C (Continued)	**Terrance Mayers** is a seasoned project program manager, currently spearheading the Indoor Air Quality (IAQ) program at Public Health Seattle-King County. With a project management certification from Rutgers University under his belt, Terrance brings a wealth of expertise to his role, ensuring the success of initiatives aimed at safeguarding public health. Over the span of eight years with King County, he has consistently demonstrated his commitment to excellence and innovation. Beyond his professional endeavors, Terrance is also an esteemed elected official, serving as a dedicated school board director. His passion for both community service and effective project management drives him to make meaningful contributions in both spheres of his life. My name is **Ricardo Settles**, and I'm a true Washingtonian through and through. Raised in Seattle, I now share a cozy house with my high school sweetheart turned wife and our four rambunctious kids. We're a lively bunch, always out exploring natures playground and spending quality time together. As a University of Washington Husky, I discovered my calling in science and the endless potential to make an impact. Armed with a B.S. in molecular, cellular, and developmental biology, I dove into roles bridging my community and passions - from ensuring food safety standards to developing health education programs to protecting our precious environment. There's nothing more rewarding than using my knowledge to make a difference. Outside of work, you'll find me covered in grease from working on my project truck, pumping iron at the gym, or embarking on a new family adventure. I live for the gorgeous Pacific Northwest outdoors. But at the heart of it all is my community, and I can't wait to continue contributing to its health, education, and vitality. This is my home, and I'm driven by a desire to make it better every day. My name is **Ayantu Hajikedir** and I'm a Health and Environmental Investigator I. I graduated from the University of Washington in 2021 with a major in Environmental Health (BS). I have interned as an undergraduate community health program assistant in Neighborhood House and interned at Public Health Seattle & King County on an Air monitoring project. As part of the HEI team, I have collaborated with different sectors to empower communities to improve their indoor air quality and ventilation. **Sumaya Aden** is a Health and Environmental Investigator at Public Health – Seattle and King County. With a background in clinical care, research, and community advocacy, Sumaya is dedicated to improving air quality (IAQ) and serving vulnerable populations. Through site visits and public outreach, Sumaya works tirelessly to prevent and eliminate environmental hazards (particularly COVID and IAQ) in congregate settings. With a focus on cultural competence and effective communication, Sumaya strives to make a positive impact in the community. Outside of work, Sumaya enjoys reading, exploring new cuisines, spending time with family, and passionately supporting Seattle teams and the San Antonio Spurs.
Session 4: Room D "Growing" DOH support for Pollution Identification and Correction Programs: Leveraging federal and state resources to reduce marine fecal pollution in Puget Sound	Washington Department of Health (DOH) supports local Pollution Identification and Correction (PIC) programs in their efforts to reduce fecal bacteria pollution from preventable sources such as (but not limited to) failing on-site septic systems and improper livestock-keeping practices. Through a joint approach that combines the resources of two programs, the DOH National Estuary Program Shellfish Strategic Initiative and Shellfish Growing Areas programs work together to fund targeted investment priorities, collect and communicate marine water quality data, and identify barriers to program success that DOH can address on a regional or programmatic scale. In this presentation, the authors will provide background on PIC programs, federal shellfish marine water quality standards, and state management of shellfish growing areas in Puget Sound. We will highlight how state and local partners work together to find and fix fecal bacterial pollution sources in order to upgrade and protect the shellfish harvest classification.

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Session 4: Room D (Continued)	**Lea Shields** is an Environmental Planner in the National Estuary Program at Washington Department of Health. Lea uses she and her pronouns and is based in Bellingham, Washington, where she works to support Pollution Identification and Correction (PIC) partnerships around the Puget Sound. Lea holds a Bachelor's degree in Environmental Science from Washington State University and has 8 years of experience working with landowners in both regulatory and non-regulatory programs, building partnerships to implement water quality improvement programs. She is passionate about using positive reinforcement to achieve long-term behavior change in all aspects of life and work, and when not in her home office can usually be found exploring the woods with her German shepherd/husky Badger. **Scott Chernoff (he/him)** leads the Shellfish Water Quality Restoration Program for the Washington Department of Health's Growing Areas Section, tasked with regulating and protecting commercial and recreational shellfish harvest in the Puget Sound. He protects public health by classifying shellfish harvest areas and works closely with Pollution Identification and Correction (PIC) programs, sharing up-to-date marine water quality data the helps support local efforts to find and fix freshwater sources of nonpoint fecal pollution and protect commercial shellfish harvest in the Puget Sound.
Session 5: Room A Is recycling working? An analysis of recycling facilities in King County	The Solid Waste team in Environmental Health inspects and works with facilities that receive solid waste to ensure it's processed in a way that protects public health and the environment. King County has more material & recovery facilities than most counties in the state. Over the last couple of years, inspectors have noticed significant issues within the recycling industry, including recyclability of materials, contamination and the improper storage of material caused by several factors. In response, they've worked with facilities and otehr agencies to address observed issues. Each of these issues is complex, and requires thoughtful, intentional, and collaborative solutions. **Fanny Silverio** is the permitted facilities lead for Public Health-Seattle & King County. She also inspected solid waste facilities in Snohomish County. **Yolanda Pon** is the supervisor for the Solid Waste team at Public Health Seattle & King County. She has been in the industry for 30 years and has an in-depth perspective of Solid Waste operations and issues in the State.
Session 5: Room B Animals, water, equipment, and workers: Efforts to keep Washington state produce safe for consumers	The Food Safety Modernization Act (FSMA) Produce Safety Rule, published in 2015, contains the first federal regulatory standards for production, harvest, and handling of fresh produce, in an effort to prevent microbial contamination and reduce foodborne illnesses. The Washington State Department of Agriculture (WSDA) Produce Safety Program helps Washington's produce growers and packers understand and comply with this rule. In this presentation, the program's manager Connie Fisk will provide a brief overview of FSMA Produce Safety Rule requirements and highlight program efforts to support Washington's produce industry, to keep produce safe for consumers. **Connie Fisk** is the Produce Safety Program Manager at the Washington State Department of Agriculture (WSDA), a Produce Safety Alliance (PSA) Trainer-of-Trainers, and a former commercial fruit and vegetable production Extension Educator. In her role at WSDA, she supervises the team responsible for implementing the Food Safety Modernization Act (FSMA) Produce Safety Rule in Washington State. She works to continuously improve the state's Produce Safety Program, presents at industry conferences and university courses on produce safety topics, and advocates for Washington's produce growers and packers in national conversations. Prior to joining WSDA in 2021, Connie served as the Northwest Regional Extension Associate for the PSA, where she co-authored the latest version of the PSA Grower Training curriculum and multiple fact sheets and electronic educational resources to help growers understand how to bring their farms into compliance with the requirements of the FSMA Produce Safety Rule.

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Session 5: Room C Exploring the efficacy of low-cost air sensors and D.I.Y. box fan filter units as interventions during wildfire smoke events	As climate change exacerbates the frequency and magnitude of wildfire events, community health is increasingly threatened by wildfire smoke (WFS). Communities of color and low-income communities are disproportionately affected, as these populations are already overburdened by exposure to traffic and industrial emissions, and the resulting negative health impacts. Limited research efforts have explored the efficacy of having access to geographically-proximal air quality data and individual air filtration interventions on reducing WFS risk at the household level. While promising, affordability and accessibility to these interventions remain barriers for many communities. The University of Washington collaborated with Public Health Seattle & King County and Clean Air Methow on a series of pilot studies to improve indoor air quality during WFS events. These projects aimed to characterize the use of low-cost indoor PurpleAir sensors and building occupant activities, including the use of portable air cleaners, such as a D.I.Y. box fan filter unit. Participants completed a series of digital surveys, including an enrollment survey with questions related to building occupancy use and risk perception around WFS exposure, weekly activity logs, and a WFS event survey with questions designed to assess the efficacy of these air quality interventions. Survey data were combined with PM2.5 exposure data from both indoor air sensors and nearby outdoor sensors. Findings from these studies will inform future pilots, intervention strategies, and translation to other communities. This presentation will examine the efficacy of low-cost sensors and portable air cleaning interventions at both characterizing and improving indoor air quality during WFS events in two pilot communities. **Iz Berrang** is a graduate student in the School of Public Health in the Community-Oriented Public Health Practice program, which employs a problem-based learning approach to assess population health needs and address health disparities. She is interested in social and environmental justice, community-driven, action-oriented research, and prioritizing health equity in the face of increasing wildfire smoke and extreme heat events. **Hannah McKinley** is a fourth year undergraduate in the Department of Environmental & Occupational Health Sciences, also minoring in Public Policy. She is currently interning with Public Health Seattle & King County, working on air quality and intervention pilot studies. Her research interests are food system sustainability, wildfire smoke exposure, air quality monitoring, human behavior, and environmental policies. After graduating with a BS in Environmental Health and a minor in Public Policy, she plans to pursue an MPH in Environmental Health and an MPA in Public Policy. **Katelin Teigen** is a first year doctoral student in the Department of Environmental & Occupational Health Sciences. Her research interests include climate and health, air quality modeling, environmental epidemiology, community engagement, and environmental justice. She anticipates using mixed methods, including big data analytics and community engagement strategies, in her dissertation to better mitigate the adverse health impacts of climate change and specifically of exposure to wildfire events. Prior to coming to UW, she earned her MPH in Environmental Health at Boston University School of Public Health, during which she investigated the mental health impacts of climate change and extreme heat. **Anna Reed** is a research coordinator with the Collaborative on Extreme Event Resilience. Her research interests include community resilience to climate change, environmental justice, and community-engaged research and policy development. She has training and experience in a variety of public health research methods in qualitative and quantitative data collection and analysis, including conducting semi-structured interviews and focus groups, survey administration, and content analysis. Prior to pursuing her MPH at UW's Community-Oriented Public Health Practice program, Anna worked in various corners of the food system, including on small farms and in garden and cooking education, where she taught hands-on gardening skills and developed food justice and climate literacy curricula.

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Session 5: Room D Improving water quality, public health, and community resilience through a collaborative OSS funding program	Failing on-site sewage systems pose numerous dangers to human health, water quality, and our aquatic resources. Replacing a failing septic system can cost upwards of $30,000, which many homeowners cannot afford. To address this growing issue, Ecology, DOH, local health jurisdictions, and non-profit lender Craft3 have partnered to provide affordable loans to repair or replace failing systems. Over the last seven years, more than 1,500 projects have been completed statewide. This session will provide an overview of the program, followed by a panel with local health partners on how this program has provided benefits to water quality, public health, residents, and the community as a whole. **Seth Elsen** leads a team focused on wastewater technical and financial assistance with the Washington Department of Ecology's Water Quality Program. He manages a number of projects and programs across the state to improve water quality and build community resilience. He holds undergraduate degrees from the University of Minnesota, Morris, and a master's in natural resources from Utah State University. **Roger Parker** has worked for the Washington State Department of Health for just under 3 years. Roger's role is the Technical Assistance Lead for onsite sewage systems. Before coming to the Department of Health, he worked for 6 years at a small local health jurisdiction in a number of programs that included solid waste and onsite. When not working on keeping sewage in its place, Roger hangs out with this kids and cats, or is found working on his truck. **Desiree Sideroff** leads Craft3's consumer lending team and oversees partnerships, product design, and lending. She is particularly proud that Craft3 has created innovative loan programs that make meaningful improvements in the daily lives of many people and also influences public policy and sets a national example. Desiree joined Craft3 in 2010, bringing deep experience and expertise in community organizing, economic development and community planning, including a Master's in Urban Studies and Planning from MIT. Currently raising two young children, she enjoys photography and art in her free time.
Tuesday afternoon plenary Lower Yakima Valley groundwater management area	The Lower Yakima Valley Groundwater Management Are - Implementation Update. Six members of the implementation committee will discuss their roles to protect groundwater from further nitrate loading and to improve public health outcomes in the region. We'll provide a brief overview of the history of actions in the LYV GWMA and the recent environmental justice grant Yakima Health District received and how that work will be starting in the community next fall. **Lisa Freund** oversees all aspects of the 100-employee workforce that provides multiple customer-facing services: land use, zoning, building and fire permits, utilities, two County landfills and recycling, Flood Control Zone District, GIS and water resources. Lisa serves on the Lower Yakima Valley Groundwater Management Area (LYV GWMA) Implementation Committee. Lisa directs all of Public Service's outreach efforts and special County projects on behalf of the Board of Yakima County Commissioners. Lisa leads the Safe Water initiative for Yakima County that is currently providing outreach, education, testing and alternative water for private and shared wells in the lower Yakima Valley.

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Tuesday afternoon plenary (Continued)	**Kyrre Flege** manages the Washington State Department of Agriculture's Dairy Nutrient Management Program and supports the boots-on-the-ground field work required to fulfill DNMP's mission: to protect surface and groundwater from livestock related pollution and support a vital and viable dairy community. He joined DNMP in 2014 as the first National Estuary Program Pollution Identification and Correction (PIC) inspector based out of Lynden, WA. Since then, he's been working with dairy farmers across Washington to support use of manure as fertilizer, promote good nutrient management and prevent water pollution. Kyrre holds a B.A in Environmental Resources Management from Western Washington University and lives in the Olympia area. **Sheryl Howe** is a hydrogeologist in the Office of Drinking Water who currently works as Project Coordinator for the LYV GWMA. In this role she works under the direction of the Implementation Committee to develop and manage oversight of the GWMA Groundwater Management Plan. Coordinates, schedules, and leads monthly implementation meetings and post meeting minutes and presentations to the GWMA website. Coordinates, manages, and leverages efforts between agencies to ensure consistency with program goals and researches and identifies potential funding sources for state and local agencies, writes proposals, and administers grants and or funds raised. **Shawn Magee** started at the Yakima Health District in 2016 as an Environmental Health Specialist and has worked in all of the Environmental Health programs. In 2019, Shawn became the Director of Environmental Health and has been working heavily in groundwater quality and drinking water quality issues. Shawn focuses on working in partnership with other agencies and communities to bring long-term solutions to current groundwater and drinking water issues. **Melanie Redding** is a licensed hydrogeologist with thirty-seven years of experience working in groundwater quality protection. She received her B.S. degree in Environmental Geology from Beloit College in Wisconsin. Previously she worked for the Arizona Department of Environmental Quality, and since 1991 has worked for the Washington State Department of Ecology in the Water Quality and Environmental Assessment Programs. Melanie has been providing technical assistance in the Lower Yakima Valley since 2010. She was part of the Groundwater Management Area (GWMA) planning efforts and is now leading the research efforts with the Ambient Groundwater Monitoring Network, and the Land Use and Groundwater research project. These efforts are designed to provide credible data so the community can make positive changes to improve groundwater quality.
Session 6: Room A Continuing operation during boil water orders	Drinking water emergencies, including boil water advisories, are becoming more common. Over the past three years, the Yakima Health District (YHD) has responded to three separate municipal water system E. coli emergencies. This session will provide an overview of Yakima County's recent E. coli emergencies and lessons learned, YHD's response, and resources available to public water systems. **Kait Wolterstorff**, RS, is the Environmental Health Program Manager at the Yakima Health District. Prior to taking on her current role, Kait held leadership positions in Food Safety and Drinking Water at YHD, and has prior experience in emergency management. During her time with YHD, she has assisted in the response to E. coli incidents for both water systems and food establishments. She is passionate about effecting change in her community through risk communication and relationship building. **Andy Wilson** is the Local Emergency Response Coordinator for the Yakima Health District. He has 8-years prior experience with hazardous materials as a compliance inspector and spill responder. He has assisted in prior responses such as the Mosier Train Derailment, ammonia releases, illicit drug lab cleanups, and E. Coli boil water incidents. Andy feels that developing relationships at the local level to assist in planning and preparedness is a key element to an all-hazards approach to community preparedness.

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Session 6: Room B Cookies and Cream: Foodborne Illness Outbreaks & Lessons Learned	This session will take a deep dive into last year's two outbreaks in Washington linked to commercially-prepared cookie dough and insanitary frozen dessert machines. We'll discuss the case investigations, environmental assessment techniques, work with partners, and lessons learned. **Waimon "Meelay" Tellier, MPH,** is a Foodborne and Enteric Disease Epidemiologist for the Washington State Department of Health Office of Communicable Disease Epidemiology and the foodborne illness outbreak coordinator for the department's Food Safety Program. Meelay attended Northern Illinois University, where she earned her Bachelor of Science in Public Health, concentrating in Environmental Health and Emergency Preparedness. Meelay earned her Master of Public Health with certifications in Epidemiology and Health Education and Promotion from Benedictine University. She has a diverse background in environmental health, community health, and communicable disease epidemiology and has strong program development, training, and quality improvement experience.
Session 6: Room C Helping your community with indoor air quality and mold resources from Washington DOH	We spend most of our days in indoor environments, which means the air we breathe in our homes and workspaces has a big impact on our health. The Washington Department of Health (Washington DOH) has many resources to assist you and your community with indoor air quality concerns. The School Environmental Health & Safety and Indoor Air Quality Program has resources for residents, schools, and local health partners. Learn about the tools Washington DOH has available to help you navigate concerns with mold cleanup, landlord and tenant mold issues, asbestos, pesticides, and more. We will cover updates to key resources on best practices such as the mold help line and the Healthy Homes website. Also, we will highlight newly created resources on topics such as safe cleaning practices in your home, ventilation, and school environments. **Ali Boris (she/her)** is an Indoor Air Quality Specialist with Washington DOH. She works to provide technical assistance and resources for Washington residents, local health, and school partners on Indoor Air Quality issues. Ali has a background in environmental studies, chemistry, and atmospheric science, with a focus on outdoor air quality and particulate matter composition.
Session 6: Room D Kitsap Public Health District's multifaceted approach to managing septic system inventory	Kitsap County Public Health District (KPHD) has long been a pioneer in comprehensive septic system management, employing a multifaceted approach to ensure the well-being of communities and the environment. This presentation explores the extensive methods employed by KPHD over the decades to guarantee the effective maintenance of septic systems, and data illustrating the inventory coverage each approach provides. The discussion will begin by delving into the alternative system maintenance program, a proactive initiative designed to support septic system upkeep. This program stands as a testament to KPHD's commitment to preventive measures, employing skilled contractors to maintain septic systems, ensuring they operate at peak efficiency. The time of sale septic evaluation represents another crucial facet of KPHD's strategy. By integrating septic system assessments into property transactions, KPHD has successfully enforced adherence to maintenance and system use standards during property transfers, not only fortifying the longevity and functionality of septic systems but informing future homeowners of what they may need to know about their septic systems use options. Like the time of sale evaluation process, when any other application is submitted to KPHD, that includes properties use of a septic system, KPHD ensures that the inspection and use of the septic system being done in accordance with its issued septic permit.

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Session 6: Room D (Continued)	KPHD utilizes its Water Quality Program to quickly respond to deficient pump reports and public nuisance complaints to support KPHD's integrated approach. Complaints and deficient pump inspection reports are promptly responded to, assuring timely attention. In addition to complaint response, the KPHD Water Quality Program leverages individual site surveys, to gain valuable insights into the state of septic systems, allowing for targeted interventions and educational opportunities to promote overall system health. In conclusion, Kitsap County Public Health's decades-long commitment to managing its septic system inventory exemplifies a comprehensive and proactive approach. By integrating programs such as alternative system maintenance, time of sale evaluations and other application driven reviews, pump report and complaint response, and individual site surveys, KPHD has set a benchmark for effective, community-oriented septic system management. **Eric Evans** is a seasoned professional with over 28 years of experience in public health, currently serving as the Assistant Division Director at Kitsap Public Health. Throughout his career, Eric has excelled in various field and management roles, making significant contributions to programs spanning food safety, drinking water quality, and onsite sewage management. His expertise and dedication have been instrumental in safeguarding the health and well-being of the Kitsap community.
Session 7: Room A Environmental Public Health & Legislative Session 101	Today's presentation will provide an overview of Washington's legislative process and how bills affecting environmental public health are reviewed in the state. Joe and Jaime will discuss activities preparing for each session, how bills are reviewed, and how budget impacts are estimated. The session will also highlight the 2024 legislative session and review expectations for 2025. **Jaime Bodden** is the managing director with Washington State Association of Local Public Health Officials. As health officer/director, Jaime managed and oversaw the operations of a local health department. Additionally, Jaime has experience in community engagement, health promotion, global health, and health policy. She holds Master degrees in Social Work and Public Health from Washington University in St. Louis. **Joe Laxson** is the policy director within the Division of Environmental Public Health at Washington State Department of Health. His team leads legislative affairs, FPHS efforts, rule making activities for the division and works to reduce exposures to environmental hazards through legislative action, setting policy goals, and facilitating rulemaking projects. Prior to working at DOH, Joe worked at both Clark County and Island County in EPH programs. He holds a bachelors in Community Health Education from Portland State University and a Masters in Public Administration from the University of Washington.
Session 7: Room B Standardization procedures for retail food safety inspectors	Food safety regulatory staff must have the knowledge, skills, and ability to adequately perform their required duties. Today's presentation will review FDA's 5-step training and standardization process to achieve, maintain, and evaluate the required level of competency. We will also briefly discuss Washington's standardization process and available tools designed for standardization to the state's retail food code, WAC 246-215. **David Engelskirchen** is the FDA Retail Food Specialist for WA, NV, and 3 US Pacific Island Territories (American Samoa, the Northern Mariana Islands and Guam). Prior to his current position with the FDA, David was a Food Inspection Specialist and Sr Food Safety Officer with the US Army Veterinary Service, retiring as Chief Warrant Officer Five with more than 36 years active military service. He has been an FDA Retail Food Specialist since 2014 and is assigned to the Tacoma, WA Resident post. He is a NEHA Certified Professional-Food Safety, with BS degrees in Vocational Education from Southern Illinois University and in Food Science from the University of Wisconsin. He also holds an MA degree in Education from Central Michigan University.

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Session 7: Room C The power of partnerships: Building a wildfire response program	Building on partnerships with the WA Department of Health, Pierce Conservation District, the Puget Sound Asthma Coalition, and the National Environmental Health Association's National Environmental Public Health Internship Program, the Tacoma-Pierce County Health Department has been able to build a robust wildfire and wildfire smoke program in a very short time. Join us as we discuss how to develop partnerships for increased impact, how to combine campaigns for greater outreach, and how to leverage success into even greater success with state and federal grants. My name is **Cindy Haverkamp** and I am the Climate Justice Coordinator for the Tacoma-Pierce County Health Department. In this role, I develop plans and policies to protect the community from the effects of climate change. I graduated from Seattle University's School of Theology and Ministry in 2018 with a master's degree in transformational leadership. As a former public school teacher, I use my background in humanities to help people understand and value their role in our beautiful and fragile ecosystem. I have also served as a parks planner for Pierce County Parks and as Board Vice Chair for two local environmental organizations – the Pierce Conservation District, and the Chambers Clover Creek Watershed Council. In my free time, I hike and camp everywhere as often as possible, sing in a local women's choir, and try out new recipes using whatever my garden produces.
Session 7: Room D The Savvy Septic Program: Promoting maintenance and repair of septic systems to improve water quality in Snohomish County through financial assistance and education	Since 2015, Snohomish County's Savvy Septic Program has existed to empower residential septic system owners to participate in a collective Puget Sound water quality solution by reducing financial barriers to necessary septic system replacement and increasing awareness around the impact of failing septic systems. This program has been primarily funded by the Washington State Department of Health and the Washington State Department of Ecology. This vital program offers rebates to Snohomish County homeowners for septic inspections, pumping, risers, and minor repairs to incentivize maintenance activities. We also offer septic repair and replacement grants to low-income homeowners in Snohomish County to reduce public health hazards and improve water quality. In addition to rebates and grants, we provide homeowners with an online workshop to learn about septic system care and maintenance. During our previous grant funding period from 2018 to 2023, we awarded 552 rebates and 17 repair grants. As the program continues to grow and gather more data, we intend to analyze the correlation between the quantity of rebates awarded and the percentage of homeowners performing regular septic system maintenance activities to ensure that the program is effectively increasing the rate of maintenance in Snohomish County. **Calissa Leren** is a Healthy Communities Specialist and Project Coordinator for the Snohomish County Health Department. She has a bachelor's degree in health science from Arizona State University and prior experience as a Health Educator for Snohomish County. As a Project Coordinator for the Savvy Septic Program, she has played a large role in updating and developing the program's standards and processes, acquiring funding for the program, processing grants and rebates for homeowners, and ensuring the program is promoting improved water quality and public health.
Wednesday morning plenary Environmental health & homelessness	There has been considerable growth in the number of people experiencing homelessness in the state of Washington over the last decade. The 2022 annual Point-in-Time Count identified nearly 25,000 people in the state who were homeless, though a review of administrative data indicates that this number may be closer to 160,000. Homelessness poses significant health risks to people without homes, such as risks from extreme heat, extreme cold, and exposure to poor air quality due to wildfire smoke and other pollutants. Other environmental hazards exist, including those stemming from inadequate bathroom access, exposure to rodents and other pests, and respiratory illness due to overcrowding and generally poor conditions in congregate living facilities.

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Wednesday morning plenary (Continued)	The Washington State Department of Health aims to support local health departments in addressing these challenges, by facilitating connections to peers and experts across the state, providing guidance documents, and advocating for increased resources. These efforts are currently supported through Foundational Public Health Services funding. **Colin Maloney (they/them pronouns)** is the manager of a relatively new program at the Washington State Department of Health that has been created to support Local Health Jurisdictions address environmental health issues associated with homelessness. Prior to joining the Environmental Health Division, Colin worked at DOH as part of the COVID response, working with LHJs and community partners in supporting access to testing. Before joining DOH, they worked primarily with people experiencing homelessness in a variety of capacities. They worked with homeless young people in Portland, Oregon in shelters, doing Harm Reduction outreach, and providing case management. They also managed a Permanent Supportive Housing program in Seattle, providing apartment for people who had been chronically homeless and lived with disabilities. They now live in Tacoma with their spouse and three silly cats.
Session 8: Room A Private detention facilities	The 2023 Legislature passed Second Substitute House Bill 1470 (2SHB 1470), Chapter 419, Laws of 2023, Regular Session amending Chapter 70.395 RCW, giving the Department of Health (department) access to ensure private detention facilities comply with measurable standards providing sanitary, hygienic, and safe conditions for detained persons. Join us as we go through what this new law amendment entails and discover the ways in which you too can be part of defining and implementing this law. **Soleil Muñiz** is a gender-and-sexual-based violence specialist who has worked in anti-trafficking, child protection, and immigration protection. Her past work experience includes working with an international organization in Morocco, and doing child protection with a Native tribe in Alaska prior to moving to Washington State where she fell in love with the state and decided this would be her permanent home. When she is not working hard, Soleil can be found playing and going on trips with her exuberant dog- Étienne, and her incredibly adventurous cat- Cousteau. **Nina Helpling:** I have worked in the public health industry for 15 yrs. First as an operations manager at a private environmental laboratory testing waste water, drinking water, soils, and sludges. I started worked for the Washington State Department of Health in 2014 in the Office of Drinking Water as the Laboratory Liaison to bridge the gap between the Department of Health, state drinking water laboratories, and the Washington State Department of Ecology. In 2020 I started in the Office of the Assistant Secretary as a rules coordinator for the division of Environmental Public Health.
Session 8: Room B Lessons learned from elevated bacteria levels investigation in Minter Bay portion of the Henderson Bay commercial shellfish growing area	Minterbrook Oyster Company was contacted as a site to be used as a Septic Social for Minter Bay as part of our Centennial Grant from the Department of Ecology. But after some Health Department Septic Database investigation along with elevated bacteria levels in marine water samples from our annual sampling efforts, it was determined that there was a suspected illicit discharge and direct discharge into Minter Bay. Shellfish are filter-feeders and, they are not safe to consume when they grow in water with elevated bacteria levels. Coordination between several WA State Agencies and ongoing communication with the septic professionals and septic owner along with on the on the ground investigative tools was crucial in the identification of the failing septic. It was found that not only was the failing septic contributing to elevated bacteria levels but also the discharge of gray water processes and potential chemical discharges.

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Session 8: Room B (Continued)	Vital tools used in this site investigation included dye tracing tests, bacteria sampling as well as frequent meetings and coordination with partners, and a detailed inspection and understanding of the processes and discharge points. At this time, TPCHD is still coordinating with the Department of Health Shellfish program and Food Program, Department of Ecology, TPCHD Food Safety program, and Minterbrook Oyster Company in an effort to facilitate the repair and shore up the internal processes to support improved water quality for food safety and human health. **Tanya Truong** is an Environmental Health Specialist at the Tacoma-Pierce County Health Department. As a field lead, she is responsible for collecting samples, recording field information, conducting site investigations and dye tests to determine water quality impacts from septic systems. Prior to joining Water Quality program, she worked as a food safety inspector and had experience conducting investigations and communicating with the community about public health and safety. Tanya is a Registered Environmental Health Specialist and an active member of the National Environmental Health Association (NEHA). Outside of work, Tanya enjoys learning new languages, doing outdoor activities with friends, and reading. **Meghan Whidden** is the program manager for Water Quality & Protection at Tacoma-Pierce County Health Department. Prior to becoming the program manager, Meghan worked as an Environmental health Supervisor in the On-site Sewage & Drinking Water Resources program for three years. She also worked for Reedy Creek Improvement District for six years and the Florida Department of Health for 12 years. Most of her career experiences is in water recreation and on-site sewage program areas. Meghan is currently part of the National Environmental Health Association Leadership Academy – a year-long environmental health leadership program focused on building leadership and management skills. She aspires to be a graduate student of environmental sciences or public health. Meghan loves traveling and outdoors. She often spends her time hiking, kayaking, camping, or just reading a book on the back porch. While she very much enjoys living in Washington, she misses southern food. Her family sends her shipments several times a year to keep her in ample supply of grits!
Session 8: Room C Addressing Environmental Health Problems Using a One Health Approach (pt 1)	In an era impacted by climatic shifts, extreme weather events, and population growth, we can expect an array of emergent risks to the health of humans, animals, and the environment. Applying a One Health lens provides a platform for tackling these challenges. But what does that look like? This panel will explore how to operationalize a One Health approach to environmental health practice. **Dr. Liz Dykstra** is the Public Health Entomologist for the Washington State Department of Health. She provides leadership and subject matter expertise on vector-borne diseases and arthropods of public health importance for the state. Dykstra is also an adjunct associate professor in the Department of Entomology at Washington State University and an affiliate faculty member with the School of Public Health, University of Washington. Earlier in her career, she served as a Peace Corps Volunteer in Senegal, West Africa. She recently retired from the U.S. Navy following a 26-year career as an active duty and reserve entomologist. **Marnie Boardman** is a Public Health Advisor with the Climate & Health Section at the Washington State Department of Health. She supports an expanding Community of Practice in the public health system that works to prepare for and mitigate the health impacts of climate change. She and her colleagues work to connect public health partners to the data, tools, interventions and collaborators needed to increase the health and equity of communities in a changing future.

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Session 8: Room C continued	**Cecilia Welch** is a Climate & Water Epidemiologist for the Washington State Department of Health and provides coordination, data analysis, and technical assistance around freshwater harmful algal blooms (HABs) and associated cyanotoxins. Previous to her current role, she worked as an environmental engineer in the Office of Drinking Water at DOH after obtaining a dual-Master's degree in environmental engineering and public health from the University of Washington.
Session 8: Room D Revision of the on-site sewage rule, Chapter 246-272A WAC	The department (DOH) conducted a routine review of WAC 246-272A, in 2017. In 2018, the State Board of Health directed the department to develop proposed revisions to the WAC. The department convened a committee of experts and impacted parties to develop recommendations and proposed revisions. This process was interrupted and delayed by the department's and local health jurisdictions' response to the COVID pandemic. The proposed new rule adds several new requirements and options, including a requirement that all OSS are inspected at time of property transfer, new options for smaller lots if the OSS provides nitrogen treatment, and a requirement that most proprietary treatment devices are field tested. This talk will briefly review the on-site rule review and revision process and will provide a high-level summary of the most important changes to the rule. **Jeremy Simmons** leads the Wastewater Management section at DOH. He earned a Bachelor's of Environmental Science from the University of Colorado and has several years of experience working on environmental, environmental health, and public health issues with private industry, local health, and state health agencies.
Session 9: Room A Strengthening collaborative partnerships for environmental health improvement and community resilience in King County	The presentation aims to explore and advocate for enhanced collaborative partnerships focused on environmental health improvement and community resilience within King County. Recognizing the interconnectedness of environmental factors and community well-being, the presentation will delve into strategies in fostering stronger alliances among stakeholders, including, community-based organizations, government agencies, Non-Profit organizations, and local communities. Key topics include leveraging shared resources, promoting sustainable community-based practices, and developing innovative solutions to address environmental health challenges. Through case studies and collaborative success stories, participants will gain insights into effective models for fostering community resilience and advancing environmental justice initiatives. The presentation seeks to inspire and empower attendees to actively engage in building partnerships that contribute to a healthier and more resilient future for King County. **Soleil Muñiz** is a gender-and-sexual-based violence specialist who has worked in anti-trafficking, child protection, and immigration protection. Her past work experience includes working with an international organization in Morocco, and doing child protection with a Native tribe in Alaska prior to moving to Washington State where she fell in love with the state and decided this would be her permanent home. When she is not working hard, Soleil can be found playing and going on trips with her exuberant dog- Étienne, and her incredibly adventurous cat- Cousteau. **Nina Helpling** have worked in the public health industry for 15 yrs. First as an operations manager at a private environmental laboratory testing waste water, drinking water, soils, and sludges. I started worked for the Washington State Department of Health in 2014 in the Office of Drinking Water as the Laboratory Liaison to bridge the gap between the Department of Health, state drinking water laboratories, and the Washington State Department of Ecology. In 2020 I started in the Office of the Assistant Secretary as a rules coordinator for the division of Environmental Public Health.

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Session 9: Room B Yes- Let's talk juice and meat HACCP: Guidance manual and sample applications	It's finally here! DOH's Retail Food HACCP Toolkit: Guidance Manual & Sample Applications. The toolkit is designed for regulators and explains the risks associated with specialized processes such as food preservation, reduced oxygen packaging, sprouting, molluscan shellfish, and other advanced food processing activities. The manual also includes suggested control, monitoring, and verification measures. Today's presentation will introduce the Toolkit and explain how it addresses the top 10 questions asked about retail HACCP. **Susan Shelton** is a public health advisor with the Washington State Department of Health Food Safety Program. She has been in public health at the state and local level since 2000 and worked as an educator, inspector, and program supervisor. She is currently technical lead for retail program standards, produce safety, multi-location consistency, and the state food service rule revision and interpretation. Susan has a Bachelor of Science in Biology from Eastern Washington University.
Session 9: Room C Addressing Environmental Health Problems Using a One Health Approach (pt 2)	In an era impacted by climatic shifts, extreme weather events, and population growth, we can expect an array of emergent risks to the health of humans, animals, and the environment. Applying a One Health lens provides a platform for tackling these challenges. But what does that look like? This panel will explore how to operationalize a One Health approach to environmental health practice. - Shellfish: Healthy in the Sea, Healthy on Your Plate. Lessons Learned from Viewing Shellfish Surveillance for Vibrio and Marine HABs Through a One Health Lens - Opportunities for a One Health Approach for PFAS in Livestock and 6PPD in Fish - Panel Q&A Beth Lorence is the Washington State Department of Health Vibrio Lead and Illness Prevention Coordinator. She has over 13 years in the public health field, with an undergraduate in microbiology, working specifically with Vibrio bacteria, and a master's in public health from University of Texas, Houston. She came to DOH from Washington State Department of Agriculture. Previous roles also include research coordinator for MD Anderson Cancer Center, environmental science specialist in the office of drinking water within Montana Department of Environmental Quality, and a Health Inspector for the City of New York. Tracie Barry is the Marine Biotoxin Specialist for the Washington State Department of Health, bringing a decade of marine harmful algal bloom research to the agency. Tracie also supports shellfish related illness investigations and Vibrio surveillance and has dipped her toes into freshwater HAB monitoring. As a born and raised coastal Washingtonian and avid clam digger, Tracie is passionate about marine ecosystems and the communities that rely on them. Dr. Elinor Fanning is a toxicologist at the Washington State Department of Health. Her work includes developing chemical action plans in partnership with the Department of Ecology to reduce human exposure to priority chemicals and evaluating health impacts and disproportionate exposure to chemicals in manufactured consumer products. Dr. Fanning received her masters in cell and molecular biology and doctorate in Environmental Health Sciences from University of California at Berkeley. Prior to work at DOH she served as a toxicologist at the California Office of Environmental Health Hazard Assessment where she assessed health impacts of fuels, supported development of public health goals for drinking water, and screened candidate chemicals for carcinogenic properties.

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Session 9: Room C **(continued)**	**Barbara Morrissey** is a senior toxicologist with the Washington Department of Health, Office of Environmental Public Health Sciences. She is a lead scientist for DOH on addressing perfluoroalkyl substances (PFAS) in drinking water and at contaminated sites. She developed values for State Action Levels for 5 PFAS in drinking water, adopted by the Washington State Board of Health in October 2021. She is a science advisor to the DOH policy team and supports risk communication on PFAS.
Session 9: Room D Onsite septic rule revision-Property transfer inspections (panel)	Onsite septic regulations, Chapter 246-272A WAC, are currently in the revision process. Part of the revision includes "property transfer inspections" (PTI) when the property is sold, or the deed is transferred. Beginning January 2027, local health jurisdictions must implement a program to ensure compliance with these requirements. Join staff from the Washington State Department of Health's (DOH) Wastewater Management Section and representatives from local health jurisdictions that have already implemented a PTI program to discuss the details of this new requirement. The panel will provide in-depth information about the requirement, share issues they faced developing the program in their county, and offer valuable insight for counties preparing to develop their own programs. Come prepared with your questions and ready to learn more about this requirement. **Jeremy Simmons** leads the Wastewater Management section at DOH. He earned a Bachelor's of Environmental Science from the University of Colorado and has several years of experience working on environmental, environmental health, and public health issues with private industry, local health, and state health agencies. **Randall Olsen, RS,** is an Environmental Health Specialist Supervisor with Tacoma-Pierce County Health Department. He has overseen the Property Transfer Inspection Program there since 2017. Randall has worked in the onsite sewage industry since 1990 for five different LHJ's and in the private sector as a designer. **Janine Reed** began her career in Environmental Health in 1998 working for Seattle King County Public/Environmental Health in the Hazardous Waste program. In 1999 she was hired by Clallam County Environmental Health in the Onsite Program. Janine helped develop and launch the highly successful Septics 101 program which has been a model for other counties in developing their own O&M educational programs. Janine and crew were also a part of the local EH group that developed the Septic 101 and Septic 201 videos that are currently hosted by DOH. After many years attempting to gather funding to support the O&M program for Clallam County Janine helped convince local BOH members that fees collected will help homeowners prevent costly failures by encouraging inspection compliance. In her 25 years of working in Onsite for Clallam County Environmental Health septic system operation and maintenance has been the main focus of her work and she remains dedicated to protecting public health by helpiing prevent septic system failure by promoting septic system maintenance.

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Session	Abstracts and speaker biographies or description
Session 9: Room D (Continued)	**Charese Gainor** is a Western Washington University graduate with a Bachelor's degree in Cellular & Molecular Biology. After graduating Charese worked in an environmental laboratory analyzing drinking water, wastewater, surface waters, and foods/solids. She later went out on to work for the Washington State Department of Health, Office of Drinking Water where she was the Coliform Program Manager in the Southwest Regional Office. She oversaw and implemented the Revised Total Coliform rule as well as worked with the disinfection and water facilities programs. Charese recently moved to work with Skagit County Public Health in Environment Health as the Drinking Water and OSS Lead. **Eric Evans** is a seasoned professional with over 28 years of experience in public health, currently serving as the Assistant Division Director at Kitsap Public Health. Throughout his career, Eric has excelled in various field and management roles, making significant contributions to programs spanning food safety, drinking water quality, and onsite sewage management. His expertise and dedication have been instrumental in safeguarding the health and well-being of the Kitsap community. **Doug Jones** has worked in the field of Environmental Health since 1990 starting in the Food program at Bremerton-Kitsap Health District. He later branched out into the Recreational Shellfish program and Surface Water Quality Management program. In 2000, he began at Public Health Seattle & King County in 2000, working in the Food and Facilities program before transferring to the Tacoma Smelter Plume program to collect soil samples for lead and arsenic testing with a 100 lb. jackhammer (ah, youth!). He also worked in the Local Hazardous Waste Management program (LHWMP) where he pioneered inspections of Household Hazardous Waste collection facilities, the solid waste program where he pioneered inspection of recycling collection events, and the Noise program, issuing noise variance permits for construction projects and reviewing noise impact studies. He transferred to the On-Site sewage System (OSS) program in 2010 where he developed the online OSS Inspection report web portal and continues working in the OSS Operation and Maintenance program.
School field trip Davis High School 212 S 6th Ave in Yakima	DOH will lead a visit to tour the science and art classrooms at Davis High School. During this time, we will collaborate as a group to discuss environmental health concerns at science and art classrooms. LHJ staff of all experience levels and others involved with inspecting, investigating, or assuring health and safety at schools are welcome and encouraged to attend and participate.

POSTER SESSIONS

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Poster	Abstracts and speaker biographies
Erin Dahl, DOH Data systems for wastewater epidemiology	The Washington Wastewater-Based Epidemiology Program (WAWBE) was developed in October 2021 to support public health decision-making and monitor community spread of COVID-19. Wastewater epidemiology continues to provide impactful data on COVID-19 in the community, and WAWBE has expanded to monitor influenza, respiratory syncytial virus (RSV) and Mpox targets. Samples collected at wastewater treatment plants are sent to viral labs for sample testing, to determine target concentration. Additionally, samples are sequenced to identify SARS-CoV-2 variants circulating in the community. To store these results and other relevant wastewater data, WAWBE developed flexible, scalable data systems through the utilization of tools such as the Research Electronic DataCapture (REDCap) secure web application. REDCap data projects include capture of relevant fields pertaining to wastewater treatment plants, wastewater treatment plant labs, viral labs, and wastewater sample data. Automated python scripts help facilitate REDCap data imports and exports, while daily R scripts analyze data and automate reporting to local health jurisdictions (LHJs). Data pipeline and analysis code is stored in GitHub repositories to manage version control, improve documentation of data analysis methods, and share code with LHJs. Overall, WAWBE data systems are well connected and designed to support sustained program growth. Utilizing REDCap, GitHub, and data pipeline tools vastly improves data systems, providing timely data for decision-making. WAWBE data systems model the value of these tools for other programs with collaborative data needs.
Anna Reed, UW Spokane Extreme Heat Risk Intervention Stakeholder Synthesis Symposium	Background – Heat is the primary cause of weather-related mortality in the United States. The 2021 Heat Dome that struck the Northwest highlighted this susceptibility, as 100 heat-related deaths were recorded in Washington State during the 7-day period of unprecedented extreme heat between June 26th and July 2nd. This impact was felt even in some of the more acclimatized parts of the state, like Spokane County, where 19 heat-related deaths were reported. As extreme heat events are expected to become more frequent and last longer due to human-caused climate change, creating and sustaining heat-resilient communities is an urgent public health priority. Objectives – On 6 June 2023, Gonzaga University, in partnership with the University of Washington, hosted the Spokane Extreme Heat Risk Intervention Stakeholder Synthesis Symposium in Spokane, WA. The goals of the symposium were to debrief from recent heat events, identify existing extreme heat risk reduction interventions used in the region, and characterize remaining practice-relevant research priorities. Further, the symposium sought to elucidate perceived system barriers and facilitators to implementing heat-exposure reduction interventions for at-risk groups. Methods – The one-day symposium convened 45 stakeholders including representatives of local agencies, organizations, communities, and tribal organizations. Symposium participants engaged in small group discussions using the World Café MethodTM to identify existing interventions and characterize remaining practice-relevant research priorities. Notes from each discussion were coded using a content analysis approach. Discussion – Symposium participants identified facilitators and barriers to heat resilience throughout the broader Spokane community, as well as solutions. We present these findings by practice topic, including risk communication, intervention, collaboration, policy, and research. In addition, we utilize the Socio-Ecological Model as a conceptual framework to illustrate the complex interplay of factors that govern an individual's experience of, and ability to respond to, an extreme heat event. This model acknowledges that a heat resilient community is part of a larger system and that heat resilience requires risk reduction strategies appropriate at each level of influence (i.e., individual, relationships/community, organizations, government, and society).

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Poster	Abstracts
Katie Fellows, PHSKC Evaluating metal cookware as a global source of lead exposure	We previously demonstrated that aluminum cookware brought from Afghanistan by resettled families as well as some aluminum cookware available for purchase in the United States represent a previously unrecognized source of lead exposure. However, the extent to which this cookware represents a source of lead exposure to other United States residents is unclear. Therefore, we tested additional cookware for lead content and its propensity to leach lead and other toxic metals. We screened an additional 28 pieces of aluminum cookware and five brass items for lead content using an X-ray fluorescence (XRF) analyzer and used our leachate method to estimate the amount of lead that migrates into food. We also tested 17 additional stainless steel items to determine whether they would be safer alternatives. Many aluminum cookware products contained in excess of 100 parts per million (ppm) of lead. Many also leached enough lead under simulated cooking and storage conditions to exceed recommended dietary limits. One hindalium appam pan (an Indian frying pan/wok) leached sufficient lead to exceed the childhood limit by 1400-fold. Brass cookpots from India also yielded high lead levels, with one exceeding the childhood limit by over 1200-fold. In contrast, stainless steel cookware leached much lower levels of lead. Aluminum and brass cookware widely available in the United States is likely contributing to lead exposures in all segments of the United States population and is a potentially important source globally. Stainless steel cookware is a safer alternative.
Noel Xia, UW Share pantry and community refrigerator user survey results	This poster highlights our study of share pantry operators in Washington state. Share pantries are generally small, unattended, open-access food sharing areas that use a “take what you need, leave what you can” concept, meaning they are supplied by donations from members of the local community. More than 300 current or former share pantry operators were contacted to participate in an online survey focused on operator demographics and operations. 62 survey responses were received in Autumn 2023. The majority (95.2%) of the panties are located outdoors, open 24/7, and allow community drop off food donations. More than half of the panties are operated by an individual. Most of the organization or group that were operating the pantries are churches, school, university groups, neighbors, advocacy services. Most (87%) of the pantries do not have a fridge/freezer section. More than half of the operators visit the pantry site more than 4 times a week. Only half of the respondents indicated that they post guidance on appropriate/ safe donations. Visit our poster to learn more!
Kendall Billig, DOH Wastewater-Based epidemiology in correctional facilities: A practical application	Wastewater-based epidemiology is an increasingly useful tool for assessing the level of pathogen circulation in a community, particularly in settings where testing rates are low and case ascertainment becomes difficult. After testing and masking requirements for congregate housing settings were lifted in the state of Washington, healthcare staff at the Washington State Department of Corrections (DOC) became interested in wastewater testing as an alternative for assessing COVID-19 levels in DOC facilities. During August of 2022, DOC began a pilot program implementing onsite real-time wastewater testing for SARS-CoV-2 at two of their correctional facilities. Following the success of this program, wastewater testing was quickly expanded to nine more correctional facilities across the state of Washington. However, due to time constraints and lack of staff capacity, DOC was largely unable to interpret and use their wastewater results to inform policy and guidance. In February of 2023, DOC reached out to the Washington Wastewater Based Epidemiology (WAWBE) team at the Washington State Department of Health (DOH), seeking collaboration and support in their data analysis efforts. Over the course of 2023, DOC and DOH staff met to discuss adjustments to data visualizations, feedback from correctional staff, and desired outcomes. This collaboration between DOC and DOH resulted in clearer data visualizations and the development of a series of viral “thresholds” which would lead DOC healthcare staff to issue alerts and guidance to the staff and incarcerated individuals at participating correctional facilities. Washington DOC’s implementation of wastewater-based epidemiology for COVID-19 is an example of how an environmental surveillance system can inform public health action when other surveillance options are limited.

ABOUT YOUR SESSIONS

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Poster	Abstracts
Malia McArtar, UW Comparing urban rodent survey methodologies in Seattle	Seattle is known to be infested with invasive rodents such as the Norway rat or the roof rat; both of which are considered public health nuisances, causing damage to the built environment, carrying zoonotic diseases, and causing overall mental unrest as a communal species. This project collected community-level data using two urban rodent survey (URS) methodologies: The Centers for Disease Control (CDC) URS methodology, which focuses on identifying causative conditions for rodents, and a newer method, Indexing, which focuses on active rodent surveillance. We surveyed census tracts spanning the University of Washington Seattle campus, UDistrict, and Ravenna neighborhoods using both URS methodologies. We then assessed the effectiveness and efficiency of both methods in determining the severity of rodent infestation within these communities.. The data collected was used to inform a URS classroom model for ENVH 442, Zoonotic Diseases and their Control, offered by the Department of Environmental and Occupational Health and Safety at the University of Washington Seattle. In addition, this project was shared with the Public Health Seattle & King County Rodent Control Program, to help inform their work on active rodent surveillance in the city of Seattle.
Sonya Jampel, PHSKC Evaluation of syndromic surveillance's role in local smoke-related preparedness and response in King County, WA	BACKGROUND: Wildfire smoke has been increasing in King County, Washington requiring new surveillance to track health concerns. The Washington State syndromic surveillance system (Rapid Health Information NetwOrk, RHINO) collects near-real-time data from healthcare settings and can be utilized to track smoke-related visits (SRVs). Since there is no standard definition specific to wildfire smoke-related visits (WSRVs), jurisdictions use variations of a definition designed to capture all SRVs. These definitions vary from capturing fire and smoke inhalation, asthma and other difficulty breathing, air quality related respiratory illness, or all respiratory visits. We assessed the performance of a SRV definition using four diagnosis codes to identify SRVs and WSRVs to emergency departments (EDs) and urgent cares (UCs) in King County. METHODS: Our SRV definition identified visits with any of these diagnosis codes: respiratory conditions due to smoke inhalation (J70.5), toxic effect of smoke (T59.81), exposure to smoke in uncontrolled fire, not building or structure (X01.1), exposure to other specified smoke, fire, flames (X08.8). We completed descriptive analyses to compare SRVs in EDs and UCs from January 2019 – October 2023 in King County. We sampled half of the ED visits captured by the definition in 2020-2022, all the ED visits in two selected months with active wildfires (September 2020 and October 2022), and all UC visits. Visit records were manually reviewed and classified as probable, undetermined, or unrelated to smoke and wildfire smoke. We calculated the positive predictive value (PPV) of the definition for SRVs and identified possible WSRVs which relied on free text fields mentioning wildfire. RESULTS: The definition identified 749 ED visits in 21 facilities and 108 UC visits in 32 facilities in King County. The proportion of visits with each diagnosis code differed between ED visits and UC visits: J70.5 (38.6% v. 33.3%), T59.81 (62.3% v. 53.7%), X01.1 (0.4% v. 0.9%), X08.8 (18.2% v. 14.1%). ED visits compared to UC visits had a higher percentage of males (58.2% v. 42.6%), White patients (61.8% v. 51.9%) and non-Hispanic patients (81.2% v. 69.4%). In EDs, the definition had a lower estimated PPV for SRVs annually (73.8%) compared to during selected active wildfire months (81.3%). Of all visits identified by the definition, a lower percentage appeared to be explicitly WSRVs annually (3.1%) compared to during selected active wildfire months (23.4%). In UCs, the definition had a PPV of 87.0% for SRVs, and 1.9% of visits were explicitly WSRVs. Visits captured by the definition that were SRVs and not WSRVs included motor vehicle crashes, house fires, battery explosions, smoking and worker injury.

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Poster	Abstracts
Sonya Jampel, PHSKC (Continued)	DISCUSSION: Including UC visits in syndromic surveillance expands the population of SRVs captured. The SRV definition appears effective in its design to capture SRVs, but many of these visits may not be WSRVs or do not include enough information to determine. Jurisdictions should consider the limitations of using a SRV definition to track WSRVs. Effective tracking of WSRVs could help improve weather emergency preparedness and response efforts in real-time. New extreme weather-related diagnosis codes should be considered as these events become more common.
Barbara Morrissey, DOH Investigation of PFAS in home-raised livestock	Per- and poly-fluoroalkyl substances (PFAS) are currently impacting 100's of drinking water wells across our state, including in rural areas. The same well water that people drink is often used to water livestock raised for personal consumption. Studies in other states and countries have shown that livestock with dietary exposure to PFAS can have contaminated meat, milk, and eggs. Residents in two rural communities with PFAS-contaminated well water (East Selah, Yakima County and West Plains, Spokane County) asked the WA Department of Health (WDOH) to further evaluate the safety of consuming their home-raised livestock. In response, WDOH partnered with the United States Department of Agriculture to offer testing for 16 PFAS in livestock and livestock products in late 2023. Eighteen samples of beef and poultry meat, backyard eggs, and bovine serum were collected from 11 families that volunteered samples for this evaluation. Results indicate that backyard chicken eggs frequently had detectable levels of PFOS and PFHxS even when exposure from drinking water was low. We did not observe PFAS in 4 beef samples collected but did observe PFOS and PFHxS in serum of 5 live cows. These same two PFAS were observed in 2 meat samples from poultry raised with over 250 ppt PFOS and PFHxS in their drinking water. The highest levels of PFOS and PFHxS in eggs and bovine serum were from animals with the highest drinking water exposure. WDOH derived safe consumption advice and provided each participating household with their test results, our food safety advice, and recommendations for how to reduce PFAS exposure in their livestock products.

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NSF International nsf.org	DEPARTMENT OF ECOLOGY State of Washington ecology.wa.gov
HS GOVTECH™ hsgovtech.com	tyler technologies tylertech.com

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ENVIRONMENTAL & OCCUPATIONAL HEALTH SCIENCES SCHOOL OF PUBLIC HEALTH UNIVERSITY of WASHINGTON deohs.washington.edu	Washington State Department of HEALTH doh.wa.gov
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