

WASHINGTON STATE
Academy of Sciences
Science in the Service of Washington State

Science in Support of Local Decision Making for COVID-19

The Role of COVID-19 Testing in Helping Businesses Operate:
A Dialogue with the Tri-Cities Business Community

Event Highlights
December 8, 2020

About the Washington State Academy of Sciences

The Washington State Academy of Sciences (WSAS) is a not-for-profit organization of more than 300 elected members who are nationally recognized for their scientific and technical expertise. All members of the National Academies of Sciences, Engineering and Medicine who reside in Washington State are invited to join; others are elected in recognition of their scientific and technical contributions to our nation and their desire to contribute their expertise to inform issues in Washington State.

Our Mission

WSAS provides expert scientific and engineering assessments to inform public policy making and works to increase the impact of research in Washington State. Our Value to Washington WSAS mobilizes the expertise of our members, plus our network of partners, to provide independent, non-advocate scientific and engineering assessments of issues that impact the citizens, government, and businesses of Washington State.

Our Approach

We accomplish our mission by drawing on our statewide pool of distinguished members, state government officials, and other key stakeholders and experts to address critical issues facing Washington State. We organize and conduct multidisciplinary roundtable discussions, workshops, and symposia to assess risks, identify technological opportunities, and define critical research gaps. Our use of peer review ensures the studies we conduct, programs and projects we evaluate, and reports we provide are scientifically and technically sound and unbiased resources for informing the development of Washington State policy.

Learn more about WSAS at www.washacad.org

Washington State Academy of Sciences

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About Pacific Northwest National Laboratory

Pacific Northwest National Laboratory is one of the 17 United States Department of Energy national laboratories. PNNL's interdisciplinary teams advance solutions to many of America's most pressing issues in energy, the environment, and national security through advances in basic and applied science. Founded in 1965, PNNL employs approximately 5,000 staff and has an annual budget of more than \$1 billion. The main campus is in Richland, WA; with additional campuses in Sequim, Seattle, Portland (OR), and Maryland.

Learn more about PNNL at www.pnnl.gov

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Overview

In a public event on December 8, 2020, the Washington State Academy of Sciences (WSAS) and the Pacific Northwest National Laboratory (PNNL) co-hosted a dialogue in which scientists and business leaders from the Tri-Cities community came together to discuss the question, “What is the role of COVID-19 testing in helping businesses operate during the pandemic?”

The Tri-Cities region sits at the confluence of the Columbia, Snake, and Yakima rivers in south central Washington. With a total population estimated at about 300,000, it encompasses the cities and surrounding areas of Kennewick, Pasco, and Richland in Benton and Franklin Counties. In addition to being the home of PNNL, the Tri-Cities economy is anchored in high-tech manufacturing firms, environmental and engineering companies, food growers and processors, service industry, and government.¹

The region has been hard hit by the COVID-19 pandemic, including surges in infection rates and struggles with industry-specific outbreaks, and by the social and economic repercussions of the response. Local government officials, business leaders, service providers, educators, and citizens have all faced difficult decisions and tradeoffs and have navigated differences in perspectives, sometimes highly charged and politicized, on how best to both protect the health of the community and sustain economic viability.

To elucidate the role of testing as one tool for pandemic management, the conversation at this event covered the types of COVID-19 tests that are available and how they work, what kind of tests are useful for which situations, why getting results from some tests takes longer than others, how testing fits in with other measures in response to the pandemic, and the need for clear, trusted, and transparent information about COVID-19. The event was joined by a viewing audience of more than 135 online attendees from a variety of backgrounds, including scientists, local business owners and business groups, community organizations, public health officials, and other members of the community.

The dialogue was an opportunity to leverage both the expertise and resources of WSAS and PNNL and the knowledge and experiences of the business community and other constituencies in the Tri-Cities area. Together, these perspectives yielded actionable insights to help navigate the COVID-19 pandemic in ways that minimize the harm to both public health and the economy. WSAS intends for this event to be the first in a series that can be made available in response to the needs of local decisionmakers in communities across Washington State.

The event started off with remarks from the host organizations, including WSAS President Dr. Roger Myers, PNNL Director Dr. Steven Ashby, and a guest appearance from the US Department of Energy’s Director of the Office of Science, Dr. Chris Fall. The dialog was moderated by WSAS Board Member Dr. Howard Frumkin, who was joined by the following panelists from both the business and scientific communities: Dr. LoAnn Ayers (United Way of Benton & Franklin Counties), Carlos Martinez (Dura-Shine Clean), Eric Pearson (Community First Bank), Frank Harrill (Schweitzer Engineering Laboratories), Dr. Kristin Omberg (PNNL), Dr. David Hansen (Western Washington University), and Dr. Amy Person (Benton-Franklin Health District). David Reeploeg of TRIDEC provided final remarks to close out the session.

¹ See <http://www.trytricitysites.org> for a demographic profile of the Tri-Cities region.

Several community partners helped to inform and advertise this event, including TRIDEC, Tri-City Regional Chamber of Commerce, Tri-Cities Hispanic Chamber of Commerce, Columbia Basin Badger Club, Benton-Franklin Community Health Alliance, Coalition for a Healthy Benton City, KEY Connection, and Pasco Discovery Coalition.

More information about the event, including a full recording and additional resources about the topic, can be accessed on the WSAS website [here](#).

Purpose

The COVID-19 pandemic has had widespread effects throughout every aspect of life and society. The response to the pandemic has required leaders in every sector—in and out of government and at national, state and local levels—to take in information and assess options and tradeoffs to make decisions.

Recognizing how challenging that can be in the face of a constantly evolving situation within which considerable scientific, economic, social, and political tensions have emerged, the purpose of this event was to interpret and apply the best available scientific information to directly assist with questions and decisions that are being navigated in local communities on a daily basis.

The goals of the event were to:

- Help scientific advisors understand how they can inform and assist with the complex issues, considerations, and tradeoffs navigated by local leaders.
- Help local decision makers access and interpret available scientific information.
- Help a public audience understand the considerations that underlie key decisions and the science that can inform them.
- Capture experiences in science-informed decision making to share within and across local communities.
- Contribute to the local COVID-19 response and recovery.

Design

The design of the event began with an open-ended process to identify pressing current questions related to decisions being made locally in the Tri-Cities pandemic response, and to determine which of these would be well-suited to grapple with through dialogue between local leaders and experts in science and technology. Rather than calling upon such experts to primarily convey information and advice around a given topic, an interactive dialogue format was selected as a way to enable joint exploration of key questions, drawing upon multiple types of knowledge and expertise.

The final content, format, and audience for the event were developed jointly with local decision makers, community leaders, and participating scientists. To enable this process, TRIDEC, a development council with the mission to improve the economic health of the Tri-Cities area, generously agreed to collaborate with WSAS and PNNL as a core local thought partner on the design of the event and as a liaison to other organizations and leaders in the Tri-Cities community. Additional planning conversations with other local

business organizations, local community service providers, and the local public health district included engagement with Tri-City Regional Chamber of Commerce, Tri-Cities Hispanic Chamber of Commerce, Columbia Basin Badger Club, Benton-Franklin Community Health Alliance, and three local coalitions from the Washington State Health Care Authority's Community Prevention and Wellness Initiative (Coalition for a Healthy Benton City, KEY Connection, and Pasco Discovery Coalition).

A common theme that emerged across these engagements was the profound disruption to businesses and the challenges of trying to sustain the economy while protecting the health of the community. Within this, questions about testing for COVID-19 emerged as an area where greater access to and understanding of the underlying science and its implications could assist with decisions being made. To operate safely during the pandemic, businesses rely on knowing as much as possible about the risk of exposure, infection, and transmission among their employees and customers. However, many businesses may be uncertain about how to use and interpret COVID-19 testing in a way that best serves their employees and communities.

Once the topic was identified, WSAS, PNNL, TRIDEC, and other community partners contributed to identifying and inviting appropriate panelists to represent the experiences and insights of leaders in a range of business contexts and those with subject matter expertise in areas of basic and clinical science, public health, and implementation related to COVID-19 testing. The local partners who helped inform the planning also assisted in publicizing the event through their existing avenues in the Tri-Cities community.

Setting the Stage

To set the stage for the conversation, the event started with welcoming remarks from the co-hosting organizations to describe the context for their interest in supporting a dialogue event of this kind. This was followed by brief framing remarks from the facilitator and opening remarks with questions for discussion posed by each panelist. The panelists each told a compelling story of how COVID-19 has affected their work and how they have responded.

Hosts

Roger Myers, PhD, President, WSAS. WSAS was founded as a nonprofit entity that brings together government, academic, and industry expertise to offer independent advice on issues that affect Washington State. By facilitating this webinar, WSAS hopes to initiate a "factual discussion that will help the business community use the best science toward our shared purpose of reducing harm to the economic vitality and health in our state." A broader goal is to inspire analogous discussions statewide.

Steve Ashby, PhD, Director, PNNL. PNNL employs approximately 5,000 highly trained personnel who focus on advancing scientific discovery, energy sustainability, and national security. National laboratories serve as a reserve of scientific and technical expertise that can quickly adapt and respond in times of crisis. For example, PNNL has played a key role in advancing our scientific understanding of previous pandemics, such as the Zika and Ebola outbreaks. In response to the COVID-19 pandemic, PNNL quickly pivoted its resources and currently has more than 50 relevant ongoing research projects, including collaboration with all 17 U.S. Department of Energy (DOE) national laboratories under the National Virtual Biotechnology Laboratory. PNNL also proactively made available, for wider use, its expertise on and facilities for COVID-19 testing and

ultra-low-temperature vaccine storage. PNNL is proud to serve as a resource for scientific information and highly engaged partner locally, regionally, and throughout Washington State.

Chris Fall, Director, MBA, PhD, Office of Science, U.S. DOE. In addition to its science and technology work, the DOE focuses on “what it means for our laboratories to be good neighbors” and good employers, advances STEM education and training for students, helps the economies of their regions, and provides assistance during crises. For example, the DOE provides advice on how workers in light industry—i.e., workers who must be in close proximity—can operate safely. In response to COVID-19, the DOE organized all national labs to work collaboratively, such as on computer modeling of virus dispersion in confined spaces.

Facilitator

Howard Frumkin, MD, DrPh, Professor Emeritus, University of Washington School of Public Health. All of the webinar panelists and attendees likely agree that “we want to get our schools open, our businesses operating, our intensive care units emptied out—as soon and as safely as we can.” There are many COVID topics that are pertinent to achieving that. This webinar focuses on testing because it can be challenging to understand, especially given the evolving science. The main emphasis in this dialogue is on practical aspects of COVID-19 testing as a tool to help businesses. WSAS wants to help everyone use the best available science to make the best possible COVID-19 decisions, and hopes this webinar is the first of many similar dialogues statewide.

Panelists

Eric Pearson, MBA, CEO, Community First Bank; Chair, TRIDEC. The bank has ~120 employees. It’s an essential business and therefore has remained open. Thus, they made decisions on how to operate from the beginning of the pandemic. They tried various strategies and “made some mistakes along the way.” Pearson sees first-hand the importance of COVID-19 testing on businesses that can’t rely exclusively on virtual work. He is particularly eager to learn more about the common question, “How can we come together to get folks back and operating under restrictions safely”?

Carlos Martinez, CEO, Dura-Shine Clean. Martinez’ company, which focuses on sanitation and disinfection, has had a “roller coaster ride.” Nevertheless, they’re committed to supporting other businesses during the pandemic. They may be the only business in the Tri-Cities to be certified in sanitizing and disinfecting for viruses. Martinez emphasizes that “we’re here to help,” and to keep everyone safe and healthy—employees and customers alike. He’s especially interested in how quickly various COVID-19 tests are processed, and the differences between the tests.

“From the get-go, we had to pivot like everybody else and try to figure things out.”

- Carlos Martinez, Dura-Shine Clean

Dr. LoAnn Ayers, MBA, EdD, President, United Way of Benton and Franklin Counties. Every day, Ayers interacts with many businesses and non-profits. From conversations with public and private organizations, she notes a common question: “When are we cleared to serve...and to be served?” This is foundational to issues such as personal risk tradeoffs, when to be tested, and personal privacy. Volunteers, employees, clients, customers, and patients can benefit from clear answers.

Frank Harrill, MSIT, Vice President of Security, Schweitzer Engineering Laboratories. The company has headquarters in Pullman and employs several thousand people in Washington State and Idaho, and others across the world. Harrill is “anxious to share lessons learned” over the course of conducting about 3000 onsite antigen and PCR COVID-19 tests, in partnership with Washington State University and local public health agency collaborators.

Kristin Omberg, PhD, Chemist, PNNL. Omberg ordinarily leads a human pathogen research group in the context of national security. During the pandemic, her lab pivoted to COVID-19 testing. PNNL conducts ~100 tests per week for its employees. Omberg’s group also collaborates with government agencies to ensure proper supply of diagnostic tests and to evaluate their performance, feasibility, and quality assurance. She is amazed that in the past 7 months, for COVID-19 diagnostics, the U.S. Food and Drug Administration has authorized hundreds of tests. To put this in perspective, there are only ~20 authorized tests for the flu. Omberg says, “I have a PhD in chemistry, and I find all the different tests to be confusing.” She is eager to clear up confusion on COVID-19 testing, learn how testing and test results can help businesses, and how scientists can best work with businesses statewide.

David Hansen, MD, Associate Medical Director, Western Washington University Student Health Center. The university closed in the spring and reopened on a hybrid basis in the fall. They developed a testing program, and to overcome comparatively fewer resources for processing, instituted a partnership for approximately 250 to 600 COVID-19 tests per day. The university tested 13,000 students in the first 10 weeks of reopening and obtained 32 positive results. Hansen notes the university’s primary challenges, which differ for student versus employee needs, as privacy and delays in testing. “Students can be put into an isolation and quarantine space and they can study virtually or remotely,” but delays in testing are more challenging for critical employees.

Amy Person, MS, MD, Health Officer, Benton–Franklin and Klickitat Health Districts. Acknowledging that “COVID has upended public health,” the Health District’s role is to support the resiliency and health of the community. This focus includes the disease itself, but also the economic, social, and emotional aspects of the community’s recovery. How to translate data—e.g., why some people choose to not get tested—into actionable information is an ongoing challenge. Person is especially interested in how members of the community accept information over the course of the COVID-19 pandemic; for example, is the perception that “things change because we’re not telling the truth, or do things change because the science is evolving”?

“It’s not just about the communicable disease, but about the economic, social, and emotional recovery, and how all of those interact.”

- Dr. Amy Person, Benton–Franklin and Klickitat Health Districts

Highlights from the Dialogue

Following the opening remarks, an expertly facilitated conversation incorporated both the questions posed by the panelists as well as questions submitted by the viewing audience. Through the questions and their responses, the panelists identified important COVID-19 testing challenges faced by their organizations and the community at large and shared their knowledge and experience to help illustrate and clarify several key issues.

Panelists emphasized the following:

- Clarifying what kinds of COVID-19 tests are available, and which should be used in different situations, such as clearing employees to return to work.
 - PCR tests— which detect the genetic material of the virus—can take around 6 hours to run. The time to receive results from a lab is affected by how many tests the lab is currently processing; this testing capacity is limited almost everywhere in the nation. PCR tests are useful for people who are asymptomatic. These tests can give a positive result for people 5 or more days after exposure to the virus—before symptoms appear. PCR tests are not useful to clear those who had been infected as virus-free, because the tests can give positive results for months after people are no longer transmitting the virus.
 - Antigen tests— which detect a protein the virus produces —take 10 to 15 minutes to run. Test throughput—the number of tests that can be run per day—is low. These tests are good for confirming the virus within the first 7 days of symptoms but are less effective than PCR tests at reliably detecting as positive all individuals with a COVID-19 infection, so they are not as useful for clearing someone who has been exposed but is not symptomatic.
 - Antibody tests— which detect antibodies produced by the immune system in response to the virus—show whether a person has had an infection. The speed of testing is limited not just by laboratory capacity but also by the time required to obtain a blood draw. These tests can cross-react with other viruses. As a result, accuracy is a challenge, and the U.S. FDA has revoked authorization for many antibody tests.
- Considerations for how to implement testing in a workplace setting.
 - Testing turnaround time is critical for rapid isolation for those who test positive; businesses can't wait several days for test results.
 - In some cases, someone might be approved to continue essential work during a quarantine period; however this does not mean the person has a "free pass" on activities outside of work that may spread COVID-19.
 - Better understanding of testing and clearer standards have helped improve employee compliance and minimize the challenges of blanket measures, such as sending a large group of people home from work for a full 14-day quarantine because of contact with one positive COVID-19 case.
 - A combination of tests can be useful, such as onsite antigen tests for rapid results with follow up on positives using PCR tests.

- To reduce costs when testing for screening and surveillance purposes, some labs can do PCR tests in pooled batches, with separate individual samples then tested for diagnostic purposes only from the batches that have a positive result.
- Businesses may not need to find the “best” test; rather they can seek one that is good enough for the intended use and that can be implemented at a manageable cost.

“Identifying what to do when we have positives is about limiting transmission at the same time as we try to maintain economic viability.”

-Dr. Amy Person, Benton–Franklin and Klickitat Health Districts

- Mitigating financial hardship
 - Standard workplace testing protocols developed by experts can lessen unnecessary quarantine and mitigate financial hardship on businesses and employees.
 - Support is needed to help ensure that COVID-19-infected or exposed employees aren’t affected financially by mandated isolation and quarantine periods.
 - A realistic and compassionate response to a positive case improves compliance with business and state mandates.

“For small businesses, the ability to cover work and care for their employees’ economic needs is an ongoing challenge.”

-Dr. LoAnn Ayers, United Way of Benton and Franklin Counties

- Providing more clear information about testing
 - An informational grid for employers would help clarify the types of tests available and how businesses can use them for decisions such as whether an employee is cleared for work.
 - Testing labs are required to identify the test they used in their test report and to explain the result. However, it could help business decisions to have more up-front information about what type of test is being offered at a testing site to better match which tests employees should seek when, such as testing an employee currently experiencing symptoms versus testing exposed but asymptomatic employees.
 - It’s important to establish clear standards on testing privacy.
 - Some misunderstandings need to be dispelled, such as the idea that a COVID-19 is a “forever test”—in fact, if you test negative once, you can still contract the virus in the future.
- Placing testing in the context of the whole pandemic response.
 - The virus response is still a “juggling act” and testing alone is not enough to operate businesses safely; multiple layers of prevention and control measures are needed.
 - Proactive and aggressive scale up of testing could help improve the economy, but it will be ineffective without public cooperation with other COVID-19 measures.
 - For example, there is a need to combine scale up of contact tracing with testing, whether through more certified contact tracers who can interview positive individuals or potentially

with the assistance of the Washington State contact app, given that people don't necessarily know or remember everyone with whom they've recently interacted.

- The introduction of vaccines will not change the need for scaled-up COVID-19 testing, likely necessitating a gradual "phase in / phase out" approach until vaccines are prevalent.
- Importance of clear public communication about the pandemic.
 - The "duct tape and rubber bands" approach of early in the pandemic was a challenge, especially given that public trust is fragile.
 - Reliable and trusted sources of COVID-19 guidance are critical.
 - The U.S. CDC and local health departments, and also employers, faith-based sources, and other leaders can help convey that information broadly to the community.
 - All persons of influence have a responsibility to keep up to date with the evolving science.

"Every local area is different, and so your local health department really has the best insight to how to answer questions."

-Dr. David Hansen, Western Washington University

Conclusion

The dialogue was an opportunity to leverage both the expertise and resources of WSAS and PNNL and the knowledge and experiences of the business community and other constituencies in the Tri-Cities area. Together, these perspectives yielded actionable insights that can help navigate the COVID-19 pandemic in ways that minimize the harm to both public health and the economy.

The event was attended by an online audience of more than 135, with an average time in attendance that matched the entire duration of the event. The attendees came from a variety of backgrounds and context. The business sector was represented along the entire continuum, from small locally owned businesses to leaders from larger industries in the region as well as business-serving organizations. In addition, the audience included scientists both local and from across the state as well as community organizations and other members of the community. In a survey of the viewing audience requesting feedback on the event, the 33 respondents universally described the event as useful and relevant, and nearly all stated an interest in attending similar events on other topics. They expressed appreciation for the breadth of knowledge on the panel, the quality of the information shared, and the variety of perspectives included.

The close partnership among WSAS and two local organizations, PNNL and TRIDEC, along with the further outreach and engagement with other community partners, enabled the selection of a meaningful, timely and productive topic for discussion. Together with the reach of the WSAS network, this enabled the identification of well-matched panelists who could hold a conversation that represented the community's experience and informed the community's needs. The application of responsive and inclusive principles for engagement and facilitation in the planning and the event itself created the conditions for a respectful, dispassionate dialogue among external and local perspectives, providing not just information but a constructive way of approaching tough issues with weighty social and political implications.

WSAS has a distinct capability to facilitate scientific contributions to decision making by drawing on diverse and balanced scientific perspectives in ways that take into account the multiple, complex considerations decision makers must weigh and balance. This event was a pilot for doing so at a local level. As an outcome from this event, WSAS intends to further develop the engagement and co-design processes and the event format into a replicable approach for providing greater science-for-policy discourse at the local level. This approach will then be applied in an ongoing event series that would be made available in response to the needs of local decisionmakers across Washington State, covering topics both within and beyond the current pandemic management and recovery.

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