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United States Senate Committee on Health, Education, Labor, and Pensions
"The Path Forward: Building on Lessons Learned from the COVID-19 Pandemic"
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Testimony of

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Let me start by expressing my sincere gratitude to Committee Chair Patty Murray, Ranking Member Richard Burr, and distinguished members of the Committee, for the opportunity to appear before the Senate Committee on Health, Education, Labor, and Pensions to discuss lessons learned from the COVID-19 pandemic to innovate public health.

The COVID-19 pandemic is the most significant public health emergency in the last century. More than 600,000 Americans have lost their lives to COVID-19[1], which is approximately the same population as Baltimore.[2] To quote Chair Murray, "[w]e have to make sure we learn from this history and take action so we never repeat it. This crisis has cost too much, has taken too many lives, for us to do anything less."[3] And to quote Ranking Member Burr, "[t]he window to update our public health and medical preparedness policies is now."[3] In America, we can do anything if we do it together.

Speaking on behalf of my colleagues in public health at the state and local level, thank you for the time and energy being devoted by this Committee to craft bipartisan policies to strengthen our public health infrastructure and invest in preparedness now to prevent and better prepare for future public health threats. As you know, to date, the state of

[1] Source: https://covid.cdc.gov/covid-data-tracker/#datatracker-home (Accessed July 21, 2021)
[2] Source: https://www.census.gov/data/tables/time-series/demo/popest/2010s-total-cities-and-towns.html (Accessed July 21, 2021)
[3] https://www.help.senate.gov/hearings/the-path-forward-a-federal-perspective-on-the-covid-19-response (Accessed July 21, 2021)

Washington has had one of the nation's most successful responses to COVID-19 under the leadership of Governor Jay Inslee, and I am proud to be a part of this response.

As the new Deputy Secretary of Innovation & Technology for the Washington state Department of Health (DOH), I was recently hired from the private sector by Dr. Umair A. Shah, Washington's Secretary of Health, to join DOH in this immensely important time in our state's history and in this new and exciting role for our agency and the people of the Washington. This is a newly created role for a newly created office that sits at the highest level of DOH executive leadership, recognizing the importance of innovation and use of technology in our public health mission. In this role, I am responsible for building and supporting innovation work across the agency (and beyond) including overseeing our existing data/informatics and health technology services areas while building the ***Innovation First*** culture of tomorrow.

Prior to my private sector role, I previously worked at Harris County Public Health (HCPH) in public service leadership serving the nation's third largest county in Texas. At HCPH, I worked with Dr. Shah in his previous role as executive director of HCPH to advance an array of innovation, data systems, and technology work building one of the best local public health departments in the nation. Our work included creating the nationally acclaimed *Public Health Innovation (PHI) Lab,* which focused on developing novel public health interventions into sustainable projects that improved the health of the community. We implemented an award-winning data warehouse used to deliver timely data for key public health decision across many domains. In my role there, I also led key areas of advancement including the Medicaid 1115 transformation waiver implementation, public health accreditation and the agency's strategic plan development. I am excited to bring my experience to DOH and work with Secretary Shah in championing his vision of applying the cornerstone values of equity, innovation, and engagement to Washington and its public health systems.

We all know that everyone, everywhere, in all communities, should be able to rely on a strong public health system that is able to support them when emergencies strike, and even beyond those emergencies - in their everyday lives. Indeed, federal legislation like Chair Murray's *Public Health Infrastructure Saves Lives Act*[4] could help make this a reality. Public health activities and services must be delivered efficiently and effectively, making the best use of innovation, technology, science, expertise, and reliance on a qualified and dedicated public health workforce that is truly valued and supported. While there have been so many uncertainties with the COVID-19 pandemic, one thing is certain: this pandemic would have played out very differently if the capacity of the public health system across this nation was better able to support the needs of communities everywhere, and if this capacity was adequately built and in place in advance of this crisis.

I come at the notion of public health innovation and technology from a different perspective than some of my colleagues because my background is grounded in project

[4] https://www.help.senate.gov/ranking/newsroom/press/murray-introduces-legislation-to-build-and-maintain-core-public-health-infrastructure-needed-to-save-lives-fight-threats-like-covid-19-

management, technology, and finance. While my experience may be different than others in the field of public health, I believe this expertise is critical to build the structures to transform our nation's aging public health ecosystem. I have worked to develop plans to guide and prioritize work to align with strategically set goals and include strong performance measures to innovate our public health systems.

The chronic underfunding of public health infrastructure is well documented, as well as examples of outdated technology that have hamstrung local, state, and federal public health responses to the COVID-19 pandemic.[5] And yet, we have heard many stories about how Americans came together, rose to the challenge, and persevered. In my own journey, I transitioned from the field of public health during the pandemic last year, but stayed connected to what was happening in the field and then rejoined to apply my expertise in the process of rebuilding what is necessary to advance our work. I want to highlight some of the progress we have made to improve public health systems in Washington state that exemplify structures and principles we can learn from and share some additional concepts I recommend the Committee consider as it looks ahead.

Examples of Success – the Washington Experience

1. **WA HEALTH** (Washington's Healthcare and Emergency Logistics Tracking Hub)

WA HEALTH was developed as a public-private partnership with our health care system and Microsoft to provide actionable data for public health and medical preparedness.[6] WA HEALTH data categories were aligned with U.S. Department of Health and Human Services (HHS) hospital reporting requirements.[7] WA HEALTH is a testament to what we can accomplish through public-private partnerships and innovation. DOH had to overcome several hurdles to operationalize WA HEALTH.

The first hurdle was the lack of digital bridges between public health and health system electronic health records (EHRs). EHRs are generally not built to send data to public health systems automatically. Likewise, few public health departments participate in the U.S. Centers for Disease Control and Prevention (CDC) program to develop digital bridges due to lack of funding and capacity within health departments.[8,9] In 2009, the federal government invested $27 billion to encourage the health system to adopt EHRs,

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[5] https://www.help.senate.gov/hearings/examining-our-covid-19-response-an-update-from-the-frontlines (Accessed July 21, 2021)

[6] https://www.doh.wa.gov/ForPublicHealthandHealthcareProviders/WAHealth

[7] https://www.hhs.gov/sites/default/files/covid-19-faqs-hospitals-hospital-laboratory-acute-care-facility-data-reporting.pdf

[8] Centers for Disease Control and Prevention. 2020. *Bridging Public Health and Health Care.* Available at: https://www.cdc.gov/surveillance/projects/bridging-public-health-and-health-care-better-exchange-better-data.html (Accessed July 22, 2021)

[9] Miri, A., and D. P. O'Neill. 2020. Accelerating Data Infrastructure for COVID-19 Surveillance and Management. *Health Affairs Blog.* https://dponeill.com/2020/04/14/Accelerating-Data-Infrastructure-For-COVID-19-Surveillance-And-Management.html

but a similar investment was not made in public health and public health department needs were not considered when these systems were developed.[10]

To maintain WA HEALTH, hospital staff must run reports and send this data to the state public health data system. This is a labor-intensive solution and once the emergency goes away, it is feared that the hospital participation and associated data will likely go away as well. WA HEALTH has demonstrated the benefit of digital bridges between public health and health systems that we must build upon in a sustainable and automated way.

Going forward, it is critical that we operationalize rapidly configurable systems with the capacity to capture data quickly and share case data across states in a standardized way. To address the lack of digital bridges between public health and health system EHRs, federal funding for electronic case reporting (eCR) could (1) initiate broad-scale, secure reporting from EHRs in clinical care organizations to public health agencies across all jurisdictions; (2) support interoperable and intelligent real-time reporting from multiple sources; and, (3) eliminate paper-based reporting.

The second hurdle was the fact that data systems amongst entities such as hospitals, laboratories, and public health data systems, are not always interoperable. These data systems do not consistently rely on the same data standards (e.g. FHIR or HL7), so they cannot connect. During the COVID-19 response, DOH worked closely with hospitals to develop necessary mechanisms for exchange. Going forward, public health must ensure vendors are held responsible for standardization for transport protocols. Transfer protocols need to be built in to contracts, which need to be standardized through granting agency requirements. In today's world, interoperability is a bare necessity of a minimum viable product.

To address interoperability of data systems amongst hospitals, laboratories, and public health data systems, federal funding for areas such as syndromic surveillance and beyond should be ready to do the following: (1) expand the number of hospitals participating; (2) enhance reporting to other health system entry points such as urgent care centers; and, (3) add predictive analytics and artificial intelligence to uncover changes in the occurrence of illness and injuries.

The third hurdle was having outdated public health case management data systems. These public health data systems were not set up to rapidly add new diseases or data variables. Many of the data systems used by public health labs or in epidemiology were created decades ago – some as old as forty years ago. Often these technologies have not matured and are certainly not as mature as hospitals or private labs. For example, the data surveillance system used by Washington and other public health jurisdictions faced challenges in capacity to upgrade this critical system rapidly. In addition, when data systems are hardware bound, they are not scalable to an emergency on the scale of the COVID-19 pandemic. With the additional data variables required for federal

[10] Gold, M., & McLaughlin, C. (2016). Assessing HITECH Implementation and Lessons: 5 Years Later. *The Milbank quarterly*, *94*(3), 654–687. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5020152/

reporting of COVID-19, there was a lot of work that had to go on behind the scenes because the data systems did not align with the mission and myriad needs.

Going forward, we need sustained investment for entities to work across siloes, especially in bringing the private sector to the table to help maturate these critical public health data systems. Public health data systems must be "cloud-based" to allow for rapid scalability to respond to a host of issues including the most ominous one before us, namely a global pandemic in real-time. Funding must be systematic and sustained, while also being smart and strategic. We truly must have public health data systems that are scrappy and scalable; that are built for the 21st century.

In our state, WA HEALTH informatics and visibility were used to allocate critical medical supplies and support health care capacity. It provided decision-makers with real-time input from Washington's hospitals for staffing, emergency department availability, room availability, personal protective equipment (PPE), and other needed items for preparedness and response. When the need arose, WA HEALTH was expanded to collect data from 1,800 vaccine providers to help with our vaccine efforts. The example of WA HEALTH shows that public health has the capability to develop modernized data systems and actionable dashboards when the structures for success are aligned.

2. VACCS Center (Vaccine Action Command and Coordination System Center)

The VACCS Center is a unique public-private partnership launched in early 2021 to support efficient and equitable access to COVID-19 vaccinations across Washington[11]. VACCS is scheduled to demobilize on July 30, 2021. This effort built on a history of strong public-private partnership in the state of Washington through efforts like *Challenge Seattle*, a coalition of regional employers that worked closely with Governor Inslee to address regional challenges throughout the COVID-19 pandemic.

The VACCS Center was created by Secretary Shah as part of DOH's pandemic response, during the critical time of vaccine dissemination. Led by VACCS Center Director Dan Laster, who arrived to DOH with an array of private sector experience, the VACCS Center brought together key stakeholders within state government all the way up to the Governor's Office and extended beyond to critical partners such as health care organizations, including Kaiser Permanente and countless Washington large-scale private business partners, including Amazon, Costco, Microsoft, and Starbucks, as well as those representing community pharmacies, clinics, and others.

The VACCS Center had five complementary workstreams co-led by representatives from the public and private sectors: technology and data, communications, business processes, supply and logistics deployment, and situational awareness. Since launch, the partnership was incredibly successful, creating multiple integrated solutions to

[11] Building Public-Private Partnerships to Support Efficient and Equitable COVID-19 Vaccine Distribution, Access, and Uptake. Margolis Center for Health Policy. April 2021. https://healthpolicy.duke.edu/publications/building-public-private-partnerships-support-efficient-and-equitable-covid-19-vaccine (Accessed July 21, 2021)

address early challenges, including an enhanced vaccine locator tool, an expanded 211 Call Center, and a Vaccine Playbook for Public-Private Partnerships. An example of synergy included having partners from Starbucks visit the state-led mass vaccination sites set up in early 2021, to review and enhance process flow and the consumer experience with respect to vaccine delivery at these sites.

The VACCS Center acted as an intermediary between the public and private sectors ensuring private sector solutions are relevant to the needs of the public sector. The VACCS Center's structure worked to surface problem statements and needs, and then worked across participating organizations to identify opportunities to leverage resources and expertise. The VACCS Center served as a "translator" between sectors and matched the public sector's needs with the private sector's capabilities. This coordination structure was critical for the facilitation of meaningful and pragmatic partnerships. Not only was the VACCS Center's work recognized nationally, but it held true to its mission of ensuring that private sector solutions could be applied to public sector challenges in the area of vaccine delivery.

The VACCS Center is an excellent example of the need for engagement through public-private partnerships. The public sector is often not nimble enough to assess effectively private sector resources and match relevant offerings with state needs; however, during a public health emergency many barriers are removed in order to get to the work at hand. I hope the Committee considers ways to support states and regions to establish and sustain coordination structures to help convene public and private sector interested parties, develop solutions, and direct resources where they can have the most impact. We must have federal policies that permit flexibility in structure and incentives in place to allow state public health systems to sustain public-private partnerships once the emergency that brings the entities together passes.

3. Washington's Notifiable Disease Surveillance System

There are two ways to stop the spread of a pathogen like a flu virus, HIV, or COVID-19.[12] Hard science examines the chemistry, the biology, and the response to the immune system of the pathogen. Epidemiology looks at the circumstances surrounding a disease or outbreak. The state of Washington, like other states across the country, has worked to increase visibility and improve data system collection of demographic data for COVID-19 and other notifiable conditions, so we can better understand the circumstances surrounding a disease and respond accordingly.

When there is insufficient data, the problem remains invisible, and the initial lack of demographic data around morbidity and mortality from COVID-19 allowed some people to turn a blind eye to inequities. Standing up data systems that could handle demographic data for COVID-19 was critical to reveal the disparate toll COVID-19 was particularly taking on Washington's African-American, Native Hawaiian, Asian-

[12] Richtel, M. (2020). *An elegant defense: the extraordinary new science of the immune system: a tale in four lives.* William Morrow.

American, Pacific Islander, and Hispanic communities, amongst other groups.[13,14] HHS COVID-19 demographic data guidance provided minimum standards to states.

In Washington, we complied with both HHS guidance and Washington State Board of Health (WSBOH) notifiable condition regulations for health care providers, hospitals, and laboratories, including demographic data reporting requirements for patient race and ethnicity.[15] During the COVID-19 pandemic, we had hoped to adopt more expansive categories for race and ethnicity to understand better the populations impacted by COVID-19, but ran into technical challenges with data collection and interoperability. Gaps in data collection, analysis, and dissemination, including in key areas such as data aggregation, can mask "at-risk" populations that may be disproportionately affected by a public health threat.

In the midst of the pandemic, DOH had to enhance data systems to accept the demographic data established by HHS guidance and often had to manually go back in to add demographic data because providers did not submit the information initially or data systems were not interoperable. Since then, DOH has found ways to address these technical challenges. Additionally, DOH and WSBOH came together to engage community partners and WSBOH adopted new notifiable condition regulations which include 71 reporting categories for race and ethnicity that were community-informed and incorporated standards established by the U.S. Office of Management and Budget and HHS Office of Minority Health.[16]

Through ongoing community engagement processes, additional demographic variables were identified that must be prioritized in future policy making, including but not limited to Tribal affiliation, disability status, and housing status. Getting these data categories correct requires meaningful engagement with a variety of communities, which takes time, resources, and trust. We must continue to develop frameworks for more equitable engagement and collaboration in order to promote health and achieve health equity for all of our communities.

We know when dealing with health, a person's environment, physical, social, and emotional needs, all contribute to their immediate and future resiliency. Understanding these social determinant variables are crucial to decision making. Data reporting for variables that reflect the social determinants of health is less mature and certainly not inter-connected as it should be. Moving forward, we absolutely need to be specific with the standards for housing, food insecurity, and other social determinant variables to get meaningful and usable data. Data governance will be critical. In addition, data related to social determinants is often being collected downstream in other disparate data

[13] Arias, E., Tejada-Vera, B., Ahmad, F., & Kochanek, K. D. (2021). Provisional Life Expectancy Estimates for 2020.
[14] https://www.doh.wa.gov/Portals/1/Documents/1600/coronavirus/data-tables/COVID-19MorbidityMortalityRaceEthnicityLanguageWAState.pdf
[15] https://sboh.wa.gov/News/Articles/ID/2856/Board-Adopts-Fourth-Emergency-Rule-to-Extend-COVID-19-Reporting-Requirements
[16] https://sboh.wa.gov/Rulemaking/CurrentRulesandActivity/NotifiableConditions

systems.Data is being siloed, and we need to create public health data systems that reduce duplication of efforts or match the data to improve outcomes.

In 2021, the Washington State legislature passed House Bill 1272 that includes requirements for hospitals to submit patient discharge information to DOH that identify the patient's race, ethnicity, gender identity, sexual orientation, preferred language, any disability, and zip code of primary residence.[17] Both the public and decision-makers demand informatics and information about community health and well-being. I believe we must develop data systems that provide the same level of protection from a variety of threats whether infectious disease in nature such as a pandemic, or chronic disease related, or environmental in nature, regardless of where you live, who you are, or what your income is, because of our experience expanding reporting requirements and our ability to implement structures for public-private partnership and community engagement.

The issue of standardizing demographic data reporting practices is a challenge across the U.S.[18] Currently, demographic categories and definitions differ between states.[19] To understand the population's health, we need data systems that reflect the public we serve. To identify these demographic categories, state and local public health must be at the table because ultimately, we know our communities best.

Federal funding to support a national notifiable disease surveillance system would improve: (1) data security across the infrastructure; (2) automated electronic receipt of data (existing and new data sources); (3) integrated, real-time analytics of data from multiple sources (clinical, lab, epidemiologic); and, (4) seamless, efficient communication and sharing of robust data to and from health care providers to public health agencies and onto CDC.

To date, Washington's DOH has received approximately $120 million in federal COVID-19 funds for data systems to support critical efforts such as disease surveillance and reporting, testing, case investigation and contact tracing, and vaccine distribution. Through 14 response missions and 38 data system projects, we have invested in a public health "cloud" environment, engaged countless vendor partners in development and modernization of essential infrastructure and systems, brought in new tools and resources, and ultimately identified over a hundred staff members to be trained to support these new capabilities. Essential costs include new equipment, cloud hosting, software licensing and maintenance. Without systematic and sustained funding, we will not be able to keep the forward progress made to innovate public health.

[17] https://app.leg.wa.gov/billsummary?BillNumber=1272&Year=2021&Initiative=false

[18] Blauer, B. (2021) *Data disarray damages COVID-19 response, expert says*. The Hub. https://hub.jhu.edu/2021/06/17/beth-blauer-data-disarray-in-covid-reporting/

Looking Ahead – A Long Journey

The stories above reflect some of the successes we have had in Washington while simultaneously protecting the public from the COVID-19 pandemic in one of the nation's most successful responses. They reflect DOH's cornerstone values of **equity, innovation, engagement** in practice. While these efforts are noteworthy, we know even after we are through this crisis, our work is far from over. We require investments, strategies and structures in place at every level of government to strengthen our public health systems to use sequencing technology efficiently and effectively, modernize data systems to track the spread of diseases and monitor the success of key initiatives such as vaccination efforts, standing up of testing and contact tracing to stop disease outbreaks, build partnerships in hard to reach communities, and build trust as communicators to fight misinformation.

Looking ahead, we must think about ways to innovate data management, systems changes, and operational strategies to create a modern 21st century governmental public health system that we can all be proud of and rely on during times of emergency and beyond.

1. Data Management

Significant work is needed to innovate public health data management, including governance and consensus-based standards. Prior to COVID-19, most people saw the systems that collected data and governance of that data as singular, but as we moved in to COVID-19 and cloud-based analytics, data and systems are increasingly being separated. When data is housed outside of the original data system, we need optimal governance to protect people's privacy and the security of this data while leveraging these insights to protect our communities. With these shifts, all levels of public health will require an equally strong and supported workforce that can help navigate and lead on these critical issues.

Meanwhile, numerous organizations are developing public health data standards and technical roadmaps, including the Office of the National Coordinator for Health Information (ONC) and the Healthcare Information and Management Systems Society (HIMSS). They are working on the technical side of data systems. I believe we will need an equal focus on how to operationalize these standards. There are significantly different maturity levels for data systems across our federated public health ecosystem. As I follow the work of these technical groups on data standards, I believe we will need a substantial investment in resources to operationalize these standards and move forward from a long-term sustainability standpoint. I believe that most state, territory, local and Tribal public health entities may struggle with the organizational systems change needed to implement these vital frameworks and standards. We must consider new mechanisms for funding, incubating, and maturing all levels of the system.

2. Systems Change

Federal funding in public health data systems and infrastructure needs to move away from programmatic siloed funding to enterprise-wide systems and shareable systems. We need to set aside pre-conceived expectations for how funds flow into these programs to build a 21st century governmental public health system that is connected, resilient, adaptable, and sustainable – a 'pandemic-ready' system that can help us solve problems before they happen and reduce the harm caused by the problems that do happen.

Currently most federal funding channels provide for specific programs (e.g. immunization or STD prevention). The Public Health Emergency Preparedness cooperative agreement funding is used to create infrastructure to respond to emergencies, including capacity and supply. When we go into a public health emergency response, there is not always alignment between this programmatic funding and the emergency response needs. During an emergency, one must work with each program to realign personnel and IT systems, so it is hard to pivot. Programmatically siloed funding for data infrastructure and data systems creates barriers for innovation and barriers for emergency response.

In addition to a shift towards investment in enterprise-wide systems and shareable systems, I believe we should consider funding and support that brings multiple states together to form regional innovation hubs. There is regional variance in both capacity and capabilities across America, as well as gaps in systems and workforce. The most efficient path to address this complexity is through regional innovation hubs.

Placing the responsibility and decision making at the regional level can best shepherd this modernization for the immediate and future needs of the impacted communities. These regional centers could bring together federal, state, local, and Tribal governmental agencies in partnership with community stakeholders, academia, and private sector partners to innovate the way public health is delivered to their communities. These regional hubs should have the ability to direct and redirect resources while being held accountable for maturing the systems and demonstrating outcomes.

One of the primary tenants of this type of approach would be having a federal presence in the regional innovation hub that that can communicate, bridge, and coordinate the myriad federal agencies and programs that fund and support public health. The decentralization of the decision making will align public health at all levels to be nimble, cost effective, and outcome oriented.

The reality is that there are regional differences in all aspects of community, health, resources, challenges, opportunities, and types of emergencies we face. Our federal system provides ample opportunity for taking risks in our work with respect to innovation. Regional innovation hubs could provide a "laboratory" structure to implement public health data infrastructure strategically for the 21st century. Thanks to robust visualization tools, we have all been able to see the geographic uniqueness of this pandemic. After witnessing the pain and suffering COVID-19 has caused, we have an

opportunity to acknowledge that uniqueness with a federal approach that recognizes, embraces, and supports those unique regional public health needs.

Operational Strategies

Data modernization is not just about the technologies, it requires operational strategies to implement successfully. More funding alone will not bring public health data systems in to the 21st century. State, territorial, local, and Tribal public health agencies will need increased organizational operational capacity, modernized enterprise IT architecture, and a culture of innovation to build the ***Innovation First*** culture of tomorrow. I hope the examples and concepts shared throughout my testimony capture these operational strategies.

We will only be able to build a 21st century governmental public health system if we have the workforce to do it. During the COVID-19 pandemic, as many public health entities across the nation, DOH had to expand its own workforce rapidly. This translated into the hiring of over 500 staff members and the contracting of over 500 additional personnel, including for work in laboratory settings, case investigation and contact tracing, surveillance and informatics, outbreak response, public affairs/communications, diagnostic testing, and incident management command and control for dealing with the logistics of testing, contact tracing, PPE distribution and vaccinations. This “just in time” building of capacity in the midst of a crisis is no rational way of preparing our nation for future emergencies.

Technology’s potential can only be realized if public health agencies are equipped to harness it. We must have systematic and sustained funding to increase salary caps to recruit and retain optimal staff and create new jobs in the public and private sector across jurisdictions, new curricula, professional development, post-graduate fellowships, and on-the-job training. Funding would help the public health system achieve full capacity to understand and securely integrate health data to: (1) provide more complete, accurate, and timely population-level monitoring; (2) ensure optimal health security through robust public health surveillance to prevent death and disease; (3) move data to action by driving policy and practice to accelerate health improvement; (4) reduce provider reporting burden; and, (5) bolster and maintain cybersecurity. The growth and retention of the public health workforce should contain a specific focus on diversity - racial, ethnic and beyond - to address issues of trust, confidence, and representation of the diversity of the residents served by the public health agency in both rural and urban areas. The very health, well-being, and resiliency of that workforce must also be maintained and supported.

Congress should explore alternative funding models to ensure predictable and sustained funding over the next decade. These funding models could potentially be outside of discretionary appropriations and provided through a “public health infrastructure fund” approach, which is a critical component of Chair Murray’s *Public Health Infrastructure Saves Lives Act*. Rather than constraining states by defining what types of occupations and how many individuals should be employed, workforce dollars

should be flexibly administered to states either via block grants or an alternative mechanism for use in hiring the public health professionals and experts needed to meet both the current and future workforce needs of the jurisdiction. Ensuring key flexibility is critical to enabling public health agencies to recruit and retain staff.

Conclusion: The Future Is Achievable

Moving forward, I am excited by what innovation and technology can bring to the issues at hand within public health and beyond. I recommend the following for further policy consideration by the U.S. Senate Committee on Health, Education, Labor, and Pensions, to improve our nation's public health system:

1. **Coordinate policies, consensus-based standards, decision-making, and invest in enterprise-level IT and data infrastructure** that supports cloud-based platforms, shared cross disease systems and real-time data automation. This includes closer integration of state and federal partners including the CDC to develop interoperable systems that allow for efficient data exchange and the development of more timely, efficient and effective automated reporting systems to report results to state (and local) health agencies.

2. **Create a system-wide environment of structured innovation** that modernizes public health systems and enables new public-private partnerships with healthcare providers, private sector, and other entities to create new tools that serve communities, patients, and consumers.

3. **Create regional innovation hubs for systems modernization** that allow for states to achieve economies of scale, small enough to develop data standards to collect data that is meaningful to communities, engage and leverage private sector expertise located in the region and enable a unified federal voice that can be nimble within a localized structure that actually operationalize state and local public health systems/data modernization efforts that are accountable.

In closing, COVID-19 is the challenge of our lifetime, but it is also a watershed event to improve the health and well-being of all individuals through more robust, smart, and sustained investment in our public health system. There are critical investments that need to be made and innovative policies that should be considered to meaningfully modernize our public health system. On behalf of our state and my colleagues at ASTHO and across the public health system in this nation (and beyond), we stand ready to work with you to begin the process of innovatively investing in public health. It is what our nation needs and what our nation requires to move forward successfully.

Thank you for holding this hearing to discuss lessons learned from the COVID-19 pandemic as this Committee develops legislation to define the vision and capabilities for a 21st century governmental public health system that promotes health, prevents disease, and protects all communities across the country.