CENTERS FOR DISEASE CONTROL AND PREVENTION

CDC Advisory Committee to the Director (ACD)

Record of the October 22, 2024 Meeting

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Advisory Committee to the Director: Record of the October 22, 2024 Meeting

The Centers for Disease Control and Prevention (CDC) convened a meeting of its Advisory Committee to the Director (ACD) on June 6, 2024 via Zoom for Government and teleconference. The agenda included presentations on: 1) global health; 2) strategic science and impact; 3) artificial intelligence (AI); 4) Data and Surveillance Workgroup (DSW) updates; 5) childhood immunization coverage and efforts to address lagging rates; 6) Communications and Public Engagement Workgroup (CPEW) updates; and agency priorities and updates.

Welcome & Roll Call

Debra Houry, MD, MPH (ACD Designated Federal Official [DFO]) called the meeting to order, welcomed everyone, and offered special thanks to Dr. Manson for whom it was 3:00 AM. She congratulated Dr. Julie Morita, who was elected to the National Academy of Medicine (NAM) on October 21, 2024. She then yielded the floor to the ACD Chair, Dr. David Fleming.

David Fleming, MD (ACD Chair) welcomed the ACD members, CDC leadership and staff, guests, and attendees. He announced that 2 new members were approved, Bechara Choucair, MD and Spero M. Manson, PhD. Dr. Manson was in attendance virtually and Dr. Choucair will attend the next ACD meeting and will be introduced at that time. Dr. Manson is a Distinguished Professor of Public Health and Psychiatry in the Centers for American Indian and Alaska Native Health (CAIANH) at the University of Colorado Medical Center. He is widely regarded as one of the nation's leading health authorities on American Indian and Alaska Native (AI/AN) individuals. The ACD is looking forward to Dr. Manson's personal contribution and incredible expertise that he brings to the committee, and called upon Dr. Manson to introduce himself.

Dr. Manson (CAIANH, University of Colorado Medical Center) expressed his gratitude for the ACD's greetings, indicating that he is Little Shell Chippewa from the Turtle Mountain Indian Reservation in North Dakota. He has been at the University of Colorado's Medical Campus since 1986 directing the CAIANH and has had the privilege of working with over 200 urban-, rural-, and reservation-based Tribal communities across the country. He is pleased to join the ACD, having had similar roles at the National Institutes of Health (NIH). He emphasized that this is a particularly welcomed opportunity to ensure that the views, priorities, desires, and aspirations of our country's native people are heard and have an opportunity to inform the agenda before the ACD.

David Fleming, MD (ACD Chair) called the roll, which established that a quorum of ACD members was present. Quorum was maintained throughout the meeting. The roster of ACD members is appended to this document as Attachment #1. Nirav R. Shah, MD, MPH declared the following potential conflict of interest (COI): Director, STERIS. No other COIs were identified. Dr. Fleming announced that the June 2024 ACD meeting and the Work Group (WG) meetings since then have been posted on the ACD website for people who would like to read them. He then reviewed the day's agenda, pointing out that CDC Director, Dr. Mandy Cohen, would close rather than begin the meeting with CDC updates due to a scheduling conflict.

Global Health

Kayla Laserson, ScD, SM, FASTMH (CDR, USPHS, RET) (Director, Global Health Center [GHC], CDC) noted that this is her 27th year at CDC, which began in the agency's Epidemic Intelligence Service (EIS) in 1997. She left CDC for a brief 5-year stint at the Bill and Melinda Gates Foundation in India, where she spent about 10 years working for CDC and the Gates Foundation and 7 years in Kenya. Her career at CDC has been in global health, where it is an honor now to serve as the Director of the GHC. During this session, she provided an update on CDC's global health work.

The are 3 divisions in the GHC: 1) Division of Global HIV and TB (DGHT), which is where the United States (US) President's Emergency Plan for AIDS Relief (PEPFAR) work is situated; 2) Global Immunization Division (GID), which is where CDC's global immunization work is housed, including the Global Polio Eradication Initiative (GPEI); and 3) Division of Global Health Protection (DGHP), which is responsible for CDC's global health security and global health infrastructure work. Dr. Laserson pointed out that while there is a specific GHC, she would be talking about a "whole of agency approach" given that global health at CDC occurs across the entire agency.

In the agency's overall global health work, there are many initiatives, such as the GPEI, PEPFAR, the President's Malaria Initiative (PMI), etc. Those initiatives and more address a vast number of pathogens and diseases that the agency is working on, such as high-consequence diseases (Ebola, Marburg, et cetera); vaccine preventable diseases (polio, measles); HIV/TB; respiratory diseases (influenza, COVID, RSV); emerging diseases; neglected tropical diseases (NTDs); foodborne and waterborne diseases; and vector-borne diseases (VBD). CDC is working across the globe, with 65 country offices and 6 regional offices. The agency also works with multilateral partners, such as the World Health Organization (WHO), UNICEF, and Global Fund. The agency has a frontline defense sitting in each of the country and regional offices overseas, which consists of approximately 2,000 staff and many locally employed staff. CDC's GHC also brings in deep expertise and Temporary Duty (TDY) detailees and various projects to support a particular project, work, or government as needed. The agency's global work also rests upon trust government partnerships. By having staff in-country for over 20 years, CDC has developed highly trusted partnerships, making CDC the first call when something happens. The agency also works with non-governmental partners and stakeholders within a country or region, as well as across different systems and domains of expertise, including topics such as readiness and response, research, data modernization, and more.

CDC's Global Health Strategic Framework encompasses all of the agency's global health work and has been developed and designed by the entire agency, across all of the centers with global health activities. The framework has 4 major goals that define CDC work overseas, including to: 1) stop health threats at their source before they spread to the US and other countries; 2) contain disruptive global disease outbreaks; 3) use global data for disease prevention and mitigation programs in the United States and other countries; and 4) save lives and improve health globally. These goals are achieved through 6 core capabilities globally and domestically and their indicators, which include:

1. **Data and Surveillance**: Ensuring interoperable data and surveillance systems that detect, identify, and monitor disease threats and produce high quality, timely data to inform public health action
2. **Laboratory**: Building public health laboratory systems that rapidly and accurately detect, track and inform public health action
3. **Workforce & Institutions**: Training and developing a multisectoral health workforce and coordinated essential public health services to prevent, detect, and respond to disease threats and integrate national public health functions
4. **Prevention & Response**: Developing systems, tools, and processes that enhance response to public health emergencies, including implementation of prevention and mitigation strategies and countermeasures to prevent transmission and treat diseases
5. **Innovation & Research**: Supporting research, implementation science and public health evaluations to inform best practices for preventing diseases and countering health threats
6. **Policy, Communications & Diplomacy**: Fostering health diplomacy by building relationships that promote the use of evidence-based public health policy, communicate risk, and disseminate prevention messages in response to health threats

To ensure metrics and goals are met, CDC developed the Global Health Leadership Steering Group (Steering Group), which is chaired by Dr. Houry and Andi Fristedt. The Steering Group is comprised of CIO Directors who

have global health equities, a Country Director, and a Regional Director to weigh in on global health security and all of CDC's global health funding in terms of how to plan and work better together and leverage each other. This Steering Group approved CDC's Global Health Strategic Framework to take it forward as an agency. A Communications Working Group was created as a subgroup of the Steering Group to guide how the agency talks about its global health work as One CDC rather than as specific centers, to articulate CDC's unique role versus other agencies, and to determine the most important messages for everyone to hear every time. There is also a Steering Committee below the Steering Group that is responsible for ensuring that CIOs across the agency are collaborating, projects are building core capabilities, and that global health security and other funds are being used to ensure that CDC is advancing capabilities. The Steering Committee has brought the framework to life and soon will be approving Fiscal Year 2025 (FY25) planning.

Dr. Laserson shared a world map showing the regions where CDC has Regional Offices, including Brasília, Brazil; Tbilisi, Georgia; Hanoi, Vietnam; Tokyo, Japan; Muscat, Oman; and Panama City, Panama. These are diplomatic offices that create relationships and linkages back to CDC so that if countries need support, CDC can bring that in. CDC has numerous country offices in Africa and Asia, many of which started with PEPFAR, built further global health security, and support a variety of other core capabilities and programs (e.g., influenza, antimicrobial resistance, PMI, etc.). The core capabilities have been critical for global outbreaks. The first is Mpox, with a focal point in the Democratic Republic of the Congo (DRC) on which CDC has been working since December 2023. This is the first outbreak to which CDC is deploying the US Government (USG) Playbook for Outbreak Response in which CDC plays the role of the Senior Operating Official and USAID and State are Deputies to that role. This is across the entire USG and is the first time that this playbook has been used, which has been very effective. The response was activated within 24 hours of the decision to stand up a USG response. This helped to lessen the confusion that sometimes occurs at the beginning of any outbreak. This is an ongoing response and there also is a CDC-specific response that encompassed working with Africa CDC, bringing in Mpox vaccine, ensuring deployment strategies for the vaccine, and implementing basic public health to try to reduce this outbreak and stop the spread. Africa CDC and the WHO declared Mpox a continental and global emergency.

When polio was detected in Gaza, the USG was able to negotiate hours of tranquility within Gaza so that vaccination could be done. This effort has been very successful, with hundreds of thousands of children vaccinated and also receiving Vitamin A during the hours of tranquility. The second round is underway. In Asia, CDC has been able to strengthen detection and response of avian influenza in Cambodia and Vietnam through years of work across the agency, especially in the National Center for Immunization and Respiratory Diseases (NCIRD), working together with the government to build bird surveillance in markets, laboratory detection, and workforce. This has resulted in the ability to detect an outbreak quickly and stop it at its source. Some of the global lessons learned with H5 domestically can be transferred to Asia, and vice versa. There has been an unprecedented dengue outbreak in the Americas this year, in addition to Oropouche in the Americas. Oropouche is a vector-borne illness about which little is known. There have been many travel-associated cases in the US, largely from Cuba. There is potential vertical transmission of Oropouche, so CDC is assessing this important area. The most recent outbreak has been Marburg in Rwanda, for which there has been an extremely fast response. With 72 hours, 3 of CDC's experts were on the ground working with the government. While this has been the largest Marburg outbreak, it is hopefully nearing the end. The Rwandan government implemented a very strong response, building upon CDC's global health investments like FETP and PEPFAR that have been in these countries for a long time. The point of the Strategic Framework is to build on core capabilities to be ready to respond.

In conclusion, Dr. Laserson posed the following questions for the ACD's consideration and discussion:

1) Global health security is national security, yet our budget remains vulnerable to the familiar cycles of panic and neglect. In this current environment of declining resources and increasing risk, **what messaging do you feel will best resonate with policymakers?**
2) Using the global health strategic framework, our team is in the process of developing detailed metrics and indicators to track progress toward our goals and inform future plans. As we look to measure success, assess resources, and identify gaps in our cross-agency global health work, **are there particular metrics you feel would be powerful and valuable to track consistently over time?**

Discussion Summary

Dr. Manson noted that working among rural, isolated, and generally impoverished AI/AN communities, many are impressed by the extent to which the circumstances there reflect global circumstances that increase risks for these various conditions. His experience at the state level and working with policymakers is that developing these kinds of relationships reduces the sense that the global picture is somehow different and can be separated and made independent from the domestic picture. Globally, it is possible to understand what the implications are for the most at-risk populations domestically and that there is a synergistic relationship in the discovery process between them.

Dr. Laserson emphasized that an effort has been made to use the messaging of the domestic-global continuum in terms of the populations CDC serves, how pathogens are moving, and bidirectional learning. The core capabilities built globally are the same that are needed domestically.

Dr. Fleming stressed that this is an incredibly important point. Many policymakers in the US seem to think of global health as a 1-way street in which the US is saving the rest of the world, while the reality is quite different. Instead, there is a lot of 2-way information, knowledge, and learning that could be leveraged globally to tackle problems in the US.

Dr. Medows suggested presenting the entire PowerPoint, including the maps and individual conditions, when speaking on The Hill. She agreed with Dr. Manson that it would be effective to pair up with someone on the domestic side on The Hill to talk about keeping this contained and under control globally in order not to experience the numbers domestically as well. In terms of metrics, it would be helpful to hear how the individual countries are assessing CDC's performance.

Dr. Laserson said she liked the idea of having the countries assess CDC's performance. CDC is beginning to use the metric of 7-1-7, which began with Resolve to Save Lives and now with WHO. The idea is to rapidly improve early disease detection and response by detecting a suspected infectious disease outbreak within 7 days, reporting it within 1 day to public health authorities to start an investigation, and mounting a response within 7 days. Countries are beginning to adopt that metric, which becomes a way to measure performance of a country and of CDC's support to countries. They have presented this slide deck and similar ones to The Hill and have tried to ensure that it is carried forward. In addition, colleagues on The Hill have been invited to visit these countries because it makes a huge impact to see the work on the ground.

Dr. Sharfstein pointed out that something happening that in any way touches the US offers an important communication opportunity that is beyond typical education on a particular topic. Anything that could be translated and provided as an update of an actual event could be helpful, such as "People from X state that were in X country got sick, but it was caught quickly and they did not bring it back, and we wanted to let you know that there is no risk." A link to an advisory committee or to Emergency Managers at the state level would be beneficial. Emergency Managers represent a powerful group at the state level, given that they stand up all of the Incident Command Structures (ICS) throughout states when something occurs. They might want to know how this works because they would be the ones dealing with outbreaks coming to the US, and also might be good

messengers to explain that they appreciate regular updates on global health for state Emergency Managers. Having a direct relationship with them could be beneficial for the CDC GHC because they can be very persuasive.

Dr. Laserson said that while they do not have such an advisory committee, Dr. Henry Walke is the Director of CDC's Office of Readiness and Response (ORR) and has great contact with the state Emergency Managers. Perhaps there is a way to implement Dr. Sharfstein's suggestion without an advisory committee per se.

Dr. Sharfstein noted that oftentimes, CDC is in touch with the Public Health Emergency Management (PHEM), which is not as powerful politically at the state level as the state Emergency Managers.

Dr. Laserson said that when they go to The Hill, they do talk about specific events such as the Florida malaria case last year and Oropouche in the US.

Dr. Martinez said he appreciated Question 1, especially the national security component. It made him think about utilizing the military medicine folks as allies, even when going to The Hill, even more down in "the weeds" in the sense of how it impacts "worldwide qualified," which is a term used by the military to ensure that the US can deploy its troops. Global health is part of that as well, so utilizing that would be a great tool that gets to the heart of many policymakers in terms of national security. In terms of Question 2, he suggested that inclusion of a behavioral health metric is important. The COVID-19 pandemic had an ongoing impact on the behavior of the public, which is true for all infectious diseases, some of which have chronic sequalae.

Dr. Laserson acknowledged these as great ideas and said that consideration is being given to the behavioral health aspect.

Dr. Morita liked the Strategic Framework because the issue of needing to break down silos and unify the approach across the agency is very important. She noted that later in the day, she and Dr. Shah would be talking about the work that the DSW has been doing to help the data systems think about how they can break down some of the siloes. Some of the work with the Strategic Framework and the Steering Committee could be applied to the data systems as well. In terms of the questions, vaccine-preventable diseases (VPDs) provide opportunity for specific examples of issues that can help resonate with policymakers. Internationally and globally, it is possible to see the diseases that are not prevented because countries may not have the strong infrastructures that the US has. It is important to help policymakers see that the US is better and stronger because of strong infrastructure and that investing in it to sustain it helps keep the US from experiencing what is occurring globally. Regarding metrics, she did not recall seeing anything in the goals about capacity-building in other countries. Yet, she feels that the presence of CDC does help to build capacity within other countries. Perhaps a metric pertaining to capacity-building would be beneficial.

Dr. Laserson agreed about VPD. In a CDC meeting around young families the previous day, there was discussion about the importance of the fact that the many zero dose children overseas who have not had a single vaccine are the same children who are at risk for various diseases and be involved in outbreaks. Therefore, the focus on VPD infrastructure is very important. Capacity-building is absolutely part of the metrics. In terms of epidemiology and laboratory, the ability of laboratories to perform certain tests is because of the training CDC is doing. They do measure the content of the training and the number of people being trained.

Dr. Fleming noted that DSW would be speaking later about how the time-limited categorical nature of funding that comes to programs, including global health programs, precludes longer-term capacity measures in the absence of dedication by programs to capture those measures to determine what should be measured across programs that are common. He encouraged the ACD and CDC to adopt some of the recommendations they would be hearing about later in the day, and determine whether they would apply in global health as well.

Dr. Dawes said he has spoken to Ministers of Health and university leaders across the world who have shared that the work that CDC is doing is making a difference. He also expressed appreciation for the framework and agreed with what had been said. In terms of demonstrating the importance of interventions or programs to policymakers, he appreciated the recognition that global health security is national security, which is one compelling argument. There also is an economic argument. If CDC could monetize the cost-savings realized from interventions every time they go into certain countries and pull that back into the states, recognizing that politics is local. He agreed with Dr. Martinez about the behavioral health metric, which is an area he has heard leaders worldwide say they need help with. In terms of the hierarchy of value placed on healthcare, which is often very low for behavioral health in the US and globally, a metric that integrates behavioral health would be very compelling and helpful to the public health leaders in the US.

Ms. Valdes Lupi noted Dr. Laserson's example of a unified global response, including the Mpox example, would support amplifying and elevating the work that the agency is doing at the agency. CDC's primary role in responses is unique and should be called out, celebrated, and highlighted. Departments or agencies in secondary roles should be recognized to demonstrate CDC's lead in response efforts – that the agency has a playbook that is working immediately and effectively in terms of recognition of specific roles everyone is playing. It's important for policymakers to understand the implications of the response role that CDC is taking.

Dr. Laserson indicated that CDC is highlighting the playbook at every opportunity, which is now getting additional attention due to Marburg. They need to keep highlighting the playbook to ensure that everyone is sensitized to it.

Strategic Science and Impact

Sam Posner, PhD (Director, Office of Science [OS], CDC) noted that he has been at CDC for about 26 years during which he has held several leadership positions in chronic disease, immunization, respiratory diseases, and injury prevention. He also recognized the staff in the OS, without whom none of the work would be possible. During this session, Dr. Posner highlighted the roles of the OS within the agency, the complex and distributive nature of the work that they do, strategic leadership throughout the scientific lifecycle at CDC, and opportunities for building upon current activities to support translation, dissemination, and the impact of CDC science.

The OS has a complex and diverse portfolio and supports Centers, Institutes, and Offices (CIOs) across the agency, often with no direct line of authority. As the chief science office, the OS sets the high-level strategic vision and provides leadership to ensure that quality, impact, and integrity standards are embedded throughout every scientific project within the agency. This is done by: 1) leading processes to guide scientific prioritization, review, and clearance to safeguard and promote quality of science; 2) safeguarding CDC science by protecting the rights and welfare of people who participate in CDC-sponsored research, providing guidance to safeguard individual privacy and confidentiality, coordinating extramural research, and serving as CDC's public health experts; 3) promoting translation, dissemination, and access to quality, timely, and useful cross-cutting scientific data, findings, and technology transfers to strengthen public health and to improve public health decision-making through publications such as the *Morbidity and Mortality Weekly Report* (*MMWR*); 4) improving the quality, transparency, credibility, and impact of guidelines and recommendations from CDC, such as through the Community Preventive Services Task Force (CPSTF); and 5) facilitate research, innovation, and collaborative partnerships to support new public health products and technologies.

The OS provides scientific guidance and standards for the agency and is charged with ensuring implementation. Internally, the OS aligns it activities and resources to support the agency's priorities and to facilitate CDC science throughout the scientific lifecycle. This begins with strategic science prioritization, which is the intentional planning and prioritization of work that will build and advance the evidence base to inform policy, guide

practice, and have public health impact. This ensures that the agency is prioritizing the right science at the right time for the right audience. These priorities are identified by leaders throughout the agency. The Director has priorities supporting young families, readiness and response, mental health, and the underlying One CDC. Programs also have their specific substantive priorities on which they are focused, and the OS helps programs focus on what they can do to advance their missions and conduct the science.

The OS also provides oversight and support of regulatory reviews, scientific integrity, and compliance with laws. The office also spends a considerable amount of time reviewing, which also involves identifying opportunities for collaboration, bringing in additional resources such as Small Business Innovation Research (SBIR) or technology transfer, and supporting the library. The OS is often most known for scientific, guidance, and consultation in terms of developing and propagating best practices to ensure excellent in scientific product development. These processes are critically important to ensure the highest quality science that is accurate and innovative. Finally, the OS ensures scientific dissemination. About 18 months ago, the *MMWR* moved to the OS. *MMWR* is CDC's flagship dissemination method for science, which has had continuous impact and accounts for a great deal of scientific and public awareness of the CDC's science. In addition, the OS tracks scientific publication citations and how that work appears in policy, and is working with innovative AI and other technologies to track that.

The OS focuses on the goals of scientific excellence in terms of prioritization and design of science activities, ensuring quality in scientific research and review, ensuring impact in scientific dissemination, and supporting scientific operations and infrastructure. Within those goals are several guiding principles. The most important is collaboration across the agency. Integrating and sharing lessons learned and measuring impact have been important, as is continuous development of the scientific processes and the scientists. Along with several other components, the OS provides a fair amount of scientific training for the OS staff and external partners. This ensures that there is a public health workforce that can continue to meet the demands, needs, and challenges as the field evolves.

In thinking about science prioritization and looking forward, it is important to acknowledge the complex context of constrained resources, the importance of working collaboratively across the agency, and the limited authority to be directive. In closing, Dr. Posner posed the following questions for the ACD's consideration and discussion:

1) How can CDC best translate and disseminate science? Considerations for engaging Communication Workgroups and other channels?
2) How can OS leverage the ACD to expand its impact and reach to the field?
3) How can we continue to build and maintain trust in CDC Science?

Discussion Summary

Dr. Fleming said he did not think there had ever been a time when science at CDC was more important or more difficult to communicate as it is now.

Dr. Sharfstein emphasized that the work of the OS is incredibly important and recognized that it also has been challenging for the agency. Among the various criticisms is that it takes too long. In terms of the importance of "getting it right," he is on the Editorial Board of the *Journal of the American Medical Association* (*JAMA*). JAMA and the *New England Journal of Medicine* (*NEJM*) cannot "get it wrong." They have to move very quickly when papers are submitted that are very important. Trying to figure out how to do a good job and also move expeditiously is important in terms of expanding people's understanding of what is occurring. Is CDC able to break the news to move quickly, or is CDC responding after the word has gotten out with the most definitive study? He asked whether the OS has benchmarked itself against leading journals in terms of how they move quickly and the various tracks they have, whether the OS/CDC have an expedited process that allows them to

focus on something quickly, and if they have established metrics to assess whether reviews are done adequately and if time can be reduced even while maintaining quality.

Dr. Posner responded that the short answer is that they do have a lot of metrics related to time and accuracy. Early releases of the *MMWR* can be accomplished in less than a week from the time the information is received. They have a great system in terms of early releases, and they do that well. Great improvements have been made in the clearance time in general over the past couple of years. There is always room for improvement in terms of time, process, who reviews, how quickly the reviews are completed, and the quality of the reviews. Measuring the quality of a reviews is a challenging and sensitive topic, but he is interested in making sure that a small number of good reviews achieve what is needed quickly rather than many reviews that do not necessarily achieve that. It is a fine balance, but they are focused on, thinking about, and working toward this. A process is in place for expedited reviews, clearance, and dissemination of *MMWRs* through Early Release and other mechanisms. He thinks they do a pretty good job compared to some other journals.

Dr. Houry added that a former FDA Commissioner published a piece in *JAMA* recently about the speed of CDC's science.[1] Unfortunately, the examples he chose to use were from 2018. CDC has made significant progress since then, including on one of the surveys that he highlighted that was published before the full *MMWR* was released to support the FDA in the hearing. Per Dr. Posner's comment, the agency continues to work on being more efficient, but is looking for different ways to work, such as Dashboard Science Briefs. When CDC has worked with other journals, they often have been the rate limiting factor versus *MMWR*. If everything is a priority, it is not possible to get everything out fast, so second-tier priorities might take longer.

Dr. Taylor related Dr. Posner's second question to the ACD about expanding impact and reaching the field to the CPEW and the field of making science understandable, accepted, and interesting to the community. She asked whether thought had been given to using journals such as the *Scientific American* and *Natural History,* that would not be like the incredibly data-intensive articles in the *MMWR*, but the lag in vaccine rates would be a fantastic article as would be CDC's global work. Publications such as these have a different type of writing from journalistic articles.

Dr. Posner said that this pointed out some of the challenges the OS has. The OS does not decide where information goes, but instead works with CDC programs in partnership to develop this. One thing that has been done, which started with Vital signs about 15 years ago, was an elaborate communications package with a lot of materials for various audiences. That has been morphed into being done for every *MMWR* to work with all of the different channels so that it is not just the *MMWR*, but includes a suite of materials that has been very useful. They propagate that to other places where possible, which often requires working in partnership with other journals or others to reach the appropriate audience to ensure that people have access to the information needed. Every year, the Office of Communications (OC) works with medical journalists to understand what they need and to train them on how to talk about CDC's work. While not directly related to Dr. Taylor's suggestion, it does involve figuring out various avenues to reach people.

Building on what Dr. Taylor suggested, Dr. Morita said she thought the concept of various audiences is important. There could be a large and broad audience for whom it would be necessary to determine tactics, mode, and journals to use that would range widely. She asked how closely the OS works with the OC within CDC to disseminate the information resulting from the strategic priorities process to the general public and the scientific community. The OS's partnership with the OC seems critical to sharing key findings from the science perspective not only with the scientific community, but also with the general public in a way that is understandable. Back in the day, the *MMWR* seemed fast and furious. However, now there are You Tube,

[1] Gottlieb SM. Is it Time to Refocus the Role of the CDC? *JAMA Health Forum*. 2024;5(10):e244301. doi:10.1001/jamahealthforum.2024.4301

Reddit, Instagram, and other social media tools that smart people use routinely as sources of information rather than *MMWR*, *JAMA*, *NEJM*, *Scientific American*, and other similar sources.

Dr. Posner indicated that in addition to the OS working with the OC, they encourage scientific partners with CDC's CIOs to work with their communications offices. This is why partnerships and interconnections are so important, because much of what the OS does is helping, suggesting, encouraging, and steering people in those directions. The higher visibility products the OS releases have a component that comes out through various channels they use. They do try to reach audiences through a variety of channels in addition to scientific publications, such as social media channels. There are some intricacies of doing this for the federal government, but there is an effort to continually build and explore that. They are looking forward to advancing the *MMWR* even more over the next year as a role model.

In addition to more general audiences, Dr. Martinez suggested the need to move even more upstream to high school science programs, science teachers, and science fairs to help them understand CDC, the science, and conveying it to the youth of the future who will be the leaders of tomorrow. Reaching out to the health profession programs at the college level also could be beneficial. He took a group of students from the University of Texas at Austin who wanted to be MDs to the CDC, 2 of whom became CDC Fellows.

Dr. Posner discussed some of the activities within NCIRD and in the work that Dr. Dauphin, in the Public Health Infrastructure Center, does in bringing people from various levels into CDC and exposing them, especially from Minority Serving Institutions (MSIs). These opportunities have changed people's perspective and interest in CDC and having people realize that CDC is even an option. He spoke with a young women a couple of years ago at one of these events who were from a Tribe in rural Montana who said they never thought of CDC. Now it is on their "radar screen" that they could do this. There is a lot of this type of outreach going on throughout the agency, including reaching out to more biotech programs. CDC has a lot of interesting and challenging problems that they could solve. For instance, they met with Georgia Tech the previous week to talk about this.

Dr. Shah said that while he understands that many people are appropriately incentivized to publish their science, he wondered if/how incentives are being changed for CDC researchers to focus less on peer-reviewed publications behind paywalls and more on response-ready real-time reports. For example, a bright spot is the Center for Forecasting and Outbreak Analytics (CFA) with their work on Mpox. He thought it would be beneficial to understand specific incentives in performance reviews as they have changed over time.

Dr. Posner said that while he did not have broad agency insight into performance reviews and metrics, CDC focuses on getting the science out through a number of channels. Peer-reviewed publications is one of those, but it is not the only one. In his experience over time, there has been less emphasis solely on peer-reviewed publications. One thing that has been observed among agency leadership over the last 4 years has been a major focus on getting the science out quickly and not holding it for peer-review publication, so the agency is making great strides in this respect. The agency encourages the use of preprint servers as a part of getting information out quickly so that it is available in the public sphere before it has been peer-reviewed. That is one channel, and CDC uses a variety of other reports as well. As Dr. Houry mentioned, they also are thinking about other opportunities for dashboards and other platforms where other information could be made available quickly ahead of peer-review publication.

Dr. Fleming added that at its heart, CDC is a public health agency that has a science-based approach as opposed to a scientific agency that is more university-like. COVID was an example of an instance in which the science that CDC was producing was too late. For example, a well-done cohort study might have been in peer review, but the answer had already come out by the time the study was released. CDC's history is one in which "down and dirty" but quick epidemiologic studies using case series, case-control approaches, or a variety of well-validated non-

cohort scientific studies is a way of getting information out sooner and better when needed. His sense is that those studies are not as valued as they once were at CDC and certainly are not being conducted as often, and he wondered whether there is anything that can be done to highlight the importance of rapid good science versus excellent but too late science. A performance metric in an academic institution is a citation list, but that is not what the metrics should be at CDC. He asked whether there is any consideration for performance metrics and awards at CDC rather than how many times science appears in an index or is cited in a peer-reviewed journal, the extent to which it resulted in programmatic or policy changes or differences in knowledge among affected communities.

Dr. Posner noted that CDC's Charles C. Shepard Science Awards would be presented later in the week. While these focus on the most outstanding peer-reviewed research papers, the focus of the discussion often focuses on what impact the work had on changing policy or how something is delivered on the ground. Over the past several years, CDC has learned through COVID that the agency needs to do both and find a balance between quick science and definitive science. He would turn to Drs. Jernigan, Arwady, Laserson, and others about what the agency is doing within the CIOs to balance that. The OS tries to help CIO leadership think that through in terms of prioritization and timelines to answer important questions now versus important questions that are going to take 3 years. This highlights the importance of opportunities for partnerships across the agency.

Advancing Public Health Impact through Artificial Intelligence (AI)

Jennifer Layden, MD, PhD (Director, Office of Public Health Data, Surveillance, and Technology [OPHDST], CDC) expressed gratitude to the ACD for the invitation to speak on this topic and acknowledged OPHDST staff and others across the agency who are involved in these efforts across the agency. The ACD previously requested a presentation on what the OPHDST is doing to support the use of AI across the agency and with jurisdictional partners. There is tremendous potential to leverage this tool and a suite of tools to support CDC's work in data analytics and make the agency's daily operations more efficient and effective. Numerous definitions of AI are used, so Dr. Layden read the following specifically from the Executive Order that defines AI as "A machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations, or decisions influencing real or virtual environments. This definition of AI encompasses the AI technical subfields of machine learning (ML), including deep learning as well as supervised, unsupervised, and semi-supervised approaches; reinforcement learning; transfer learning; and generative AI." That comes directly from Executive Order 14110, which has helped CDC set its framework and in its work with other federal agencies and HHS leadership.

During this presentation, Dr. Layden discussed some of the work that has happened across CDC with its HHS and jurisdictional partners, and what CDC sees as the potential of the work. She emphasized that there is no direct funding for the use, adoption, or expansion of AI at the federal level or across jurisdictions. There has been tremendous interest and appetite for AI across the agency and jurisdictional partners, as well as some great use cases, but it has been done at the will and a small amount of seed money to accelerate the pace of the work. As CDC has taken this approach, one of the key objectives is one of the milestones in the Public Health Data Strategy (PHDS), which is to release a CDC AI Strategy. A draft is in place and the agency is working to assure that there is alignment with the HHS'AI forthcoming strategy, which is anticipated to be released in early January. Several team members are working on the broader HHS Strategy. There is a public health-specific sub-group in the HHS Task Force. CDC has team members who participate in helping to shape that. CDC's proposed draft strategy continues to evolve based on the direction of the broader HHS strategy. CDC's draft strategy has 4 major pillars:

1) **AI Adoption**: Identify, develop, test, and implement AI technologies to help CDC staff solve complex public health problems and improve the health of the nation
2) **Trustworthy AI**: Ensure CDC develops and implements responsible and trustworthy AI that adheres to standards and best practices

3) **Data & Technology**: Invest in the AI-readiness of CDC and STLT data assets and the analytic, computing, and cloud technology needed to implement state-of-the-art technologies
4) **Capacity Building**: Increase the capacity of CDC to implement AI technologies to improve public health outcomes through strategic partnerships and investments in human capital

There has been a very broad Community of Practice (CoP) at CDC to advance the agency's AI Strategy, which is open to all staff and programs. There are over 1500 members, which speaks to the interest and desire for such a CoP. They meet regularly and provide input, raising concerns and ideas for priority uses cases. In terms of capacity-building, training opportunities have been provided and a series of listening sessions have been convened with jurisdictional partners to understand how they are leveraging AI, where they see potential, and where they need support and resources. For example, questions arose in one of the sessions about the security and ethical aspects. CDC is connecting them with experts who can provide that training and insights. In terms of AI adoption, there has been great interest is trying to leverage tools, pilot them, understand the value, and evaluate the impact of them.

Early in 2024, CDC had 16 use cases for a generative AI pilot program. A huge number applied for this, but due to resource constraints, strategic selection was necessary to have diverse representation across the agency and projects that could be completed in a short time. The Enterprise AI Chatbot was launched, which is available to all CDC staff for official business use. This is led by CIO partners and has been a huge success. To accelerate the use of AI, there are 4 high impact priority use cases for the AI accelerator program (AIX). This has experienced tremendous progress and has the potential to scale to similar types of use cases. Several steps have occurred with respect to trustworthy AI. CDC is working closely to coordinate with the HHS Office of the Chief AI Officer on federal AI policy compliance, an AI consultation group was established to support CDC AI governance, and internal guidance on Generative AI use was released in February 2024. In terms of data and technology, AI capabilities have been enhanced by providing secure access to Azure OpenAI API. In addition, enterprise cloud platform capabilities have been expanded to utilize all forms of AI to support the work across the agency. including ML.

To spotlight a few areas of CDC's AI innovation, the Generative AI Guidance was released earlier in 2024. That has been shared across the agency and with 36 federal agency partners as they have been developing similar types of guidance. The AI Accelerator Program (AIX) is one in which there was an opportunity for programs across the agency to submit proposals. The following 4 cases were selected based on their scalability and feasibility: 1) Tracking Unplanned School Closures 2) TowerScout: Rapid Localization of Cooling Towers for Legionnaires Outbreaks; 3) Processing Clinical Narratives from Electronic Health Records (EHR); and 4) NewsScape: Tracking Public Health Events with News Data. The goal of all of these projects is to be completed in the next quarter. Feasibility, scalability, and how the projects are reducing burden are being tracked. For example, a 98% decrease has been observed in the labor time needed for tracking national unplanned school closures from 20 contractors at 400 hours per week total to 1 FTE at 10 hours per week. The Enterprise CDC AI Chatbot was launched early in 2024. There has been tremendous interest in and use of this capability. Innovation is occurring at the program level when they determine how to leverage this for daily activities. Common tasks include editing content, proofreading content, software coding assistance, summarizing content, and generating meeting agendas.

A key focus that also has been launched is working with CDC's jurisdictional partners. The agency wants to ensure that they have an opportunity to hear and understand how jurisdictions are leveraging AI, where there is interest, and where there are risks and concerns. In partnership with the CDC Foundation, a series of working group sessions were conducted with staff from STLT public health agencies to share insights on AI and public health. Topics covered included identifying current levels of awareness and interest in AI/ML tools by STLT partners, exploring potential AI use cases benefiting STLT partners and federal public health agencies, and

discussing existing barriers to responsible AI adoption by STLT partners. In terms of key takeaways from the sessions, the following potential AI pilot projects and top concerns with adopting AI in public health were identified:

Potential AI Projects
- ❑ Improving disease surveillance and contact tracing with AI
- ❑ Enhancing data integration and decision-making with AI
- ❑ Streamlining the grant writing process with AI

Top Concerns with Adopting AI in Public Health
- ❑ Privacy and data security risks
- ❑ Amplification of societal biases and health disparities
- ❑ Lack of training resources

This was early in the process of the series of listening sessions. Must more dialogue, input, and evolving discussions must happen in order to continue to understand how AI can support the public health workforce.

In closing, Dr. Layden posed the following questions for the ACD's consideration and discussion:
1) What should be the next high impact AI use cases to ensure CDC meets the moment with AI?
2) What are several high impact AI use cases which can be implemented to support STLT partners?
3) What external threats from AI to public health are you most concerned about and what role do you foresee CDC playing in mitigating these risks?

Discussion Summary

Dr. Manson noted that within President Biden's Executive Order pertaining to AI, the NIH's Artificial Intelligence/Machine Learning Consortium to Advance Health Equity and Researcher Diversity (AIM-AHEAD) initiative was one of the key examples that he spotlighted. As an MPI on that initiative, Dr. Manson pointed out that some of the frustration that the investigators and leaders have had is that initiative's lack of adequate outreach to sister agencies, particularly within HHS, in joining together to develop and capitalize on synergies with respect to the partnerships around AI and their application to individual clinical care and population health. He strongly encouraged CDC to reach as he will continue to do on the NIH side to explore and develop these kinds of partnerships more fully. For instance, there has been concern that much of the AI work to date in the health arena has been seminal and largely elegant and pristine with respect to developing a variety of models and algorithms for estimating various aspects that would be relevant but not necessarily applied to healthcare at the individual and population levels. The AIM-AHEAD partnership holds particular promise. Dr. Manson co-directs a new program launched in Year 3 called the AIM-AHEAD Public-Private Partnerships to Improve Population Health Using AI/ML. This program is bringing together for the first time Dade County and Tribal Health Departments with MSIs and data science vendors in establishing these kinds of triatic partnerships to advance the application of AI to clinical issues of the day regarding population health. He said he would be glad to do whatever he can to promote the relationship between AIM-AHEAD and CDC. AIM-AHEAD is well-funded and is seeking partnerships with sister HHS agencies. Thus, there is an early opportunity to capitalize on the former's funding in the absence, hopefully short-term, of resources within CDC to support this effort.

Dr. Layden indicated that at the HHS level, the Office of the National Coordinator (ONC) is now the Assistant Secretary for Technology Policy (ASTP)/ONC. As the ASTP/ONC office is stood up, there will be a Chief AI Officer, Chief Technology Officer, and a Chief Data Officer. Having the ASTP leadership will help to spearhead and accelerate coordination and working across federal agencies.

Dr. Shah congratulated Dr. Layden on this incredible work and said he was glad to see these tools spread across CDC and open to all, at least in the initial iterations. Regarding the support of STLT entities, he pointed out that many jobs at the STLT level are at risk. For instance, much of the work of "shoe leather" epidemiologists might be automated or in some way augmented by these tools. In addition to CDC's own staff, he asked how the agency is thinking about upscaling STLTs and transfer the savings that may occur in jobs that need to be reskilled to other position and how this would be done sustainably. This will not be any different as increasingly more cloud is used. While he could see the early excitement, this is the chance to jump past the phone line to cell phones with CDC and data and to do this differently in the current environment.

Dr. Layden said these questions are top of mind as CDC continues down this path. Admittedly, one challenge is that there is not a massive influx of funds enabling the agency to have the dedicated resources in terms of personnel to think through this and implement such approaches. The public heath workforce continues to evolve. While it is and can be threatening, this is a point in time when public health is short on workforce. Evolving workforce, skillsets, and expertise are needed not only related to AI. That needs to be factored in as training and fellowships are provided. There will continue to be delays and limited acceleration without dedicated investments.

Dr. Fleming noted that surveys he has seen suggest that knowledge of AI is not very good at the state and local levels. Beyond just epidemiologists, a range of public health practitioners and public health business potentially could be augmented and simplified by AI. He asked Dr. Dauphin, who is overseeing a workforce project that has a lot of resources associated with it, whether there are opportunities to encourage consideration of AI.

Dr. Dauphin responded that Dr. Layden's office is doing a great job working with CDC's partners, such as the Council of State and Territorial Epidemiologists (CSTE), who are investing in and thinking about fellowship programs and training opportunities to upscale STLTs regarding Dr. Shah's question specifically pertaining to epidemiologists. The other thing she thinks about is how STLTs are using their funding for training opportunities. With funding from the Public Health Infrastructure Grant (PHIG) over the past year, CDC has been able to support the upscaling of the workforce. State and local health departments have been choosing to use some of their funding for increasing and incentivize training. As noted, there is not a huge influx of funding to support this. There is definitely great need and leveraging the agency's partners and other resources that can be used at the state and local levels will be important moving forward.

Dr. Morita emphasized that OPHDST does a great job of engaging with partners, which came through in the conversations between OPHDST and the DSW in terms of OPHDST's willingness to commit, engage, and work forward. She congratulated them for doing all of this work without a budget, which is remarkable. One of the key takeaways from the DSW sessions was the identification of top concerns such as privacy and data security risks, amplification of societal biases and health disparities, and lack of training resources. The Generative AI Guidance is a valuable accomplishment. OPHDST thought through the core principles, which are incredibly valuable. She suspects that most STLT agencies do not have the expertise or opportunity to work through the principles and guidance necessary, and asked whether thought had been given to sharing the Generative AI Guidance with STLT agencies. Having been at the local level, she could convey that they relied on CDC guidance and other protocols or practices that informed the work that they did.

Dr. Layden said another area CDC's Chief Information Office (CIO) is exploring is working with CIOs at the STLT levels. This is somewhat challenging in that sometimes it is within the public health department and sometimes it is centralized, but Jason Bonander is working through establishing those partnerships. STLTs have asked for information on the broader topics regarding security.

Dr. Medows said that regarding Question 3, she is most worried about whether CDC can sustain the level of quality assurance (QA) in terms of the data integrity itself, the skillset among those who are making the queries to AI with regard to knowing what data to use and how to ask the questions, and monitoring how the output is being used. She will feel more comfortable when AI output is being used to inform, but is more concerned about when it is used in a decision-making mode.

In terms of STLT health departments, Ms. Valdes Lupi asked whether OPHDST has explored whether there are Social Vulnerability Index (SVI) use cases around bias and racial bias. A major challenge at the local level regards how to weave together various datasets to address longstanding, persistent health inequities because this does not necessarily sit within the health department. Having been at a city health department, this involves housing, transportation, and education. Regarding external threats, ACD members already raised concerns about workforce and upscaling. One of her major concerns is that in this area of AI, health department colleagues are being left behind. AI has become the day-to-day in healthcare settings. She wondered whether there is a convening role for CDC to bring together the public and private sectors in partnership with philanthropy partners to determine whether there are ways, given the lack of resources, if there are other efforts that could be made outside of government to support upscaling and workforce development so that healthcare practitioners are not left behind.

Dr. Layden said she suspects that there is a good SVI use case already. They do not have a good running list of all of the use cases—especially out to the jurisdictional level. Sometimes some of the greatest innovations occur at the state and local levels. One aspect they are keen to think through regards how to build up scalable tools and make them available so that everyone does not have to create their own, which would likely lead to redundancies in some of the technologies. Private partnerships represent a critical path forward. In some instances, this happens organically at the jurisdictional level. CDC convened a series of quarterly summits last year working with local jurisdictions, states, and private industries to bring people together. In all honestly, the appetite and eagerness for that is not the same as when there was a bolus of funding that attracted private industry.

Dr. Dawes indicated that the threat he is most concerned about is scientific racism. News stories have articulated how this is taking root in the US, North America, and so forth. He asked how CDC is building in guardrails to ensure that biases are not perpetuated and health inequities are not broadened.

Dr. Layden replied that this is a major area of the pillars of the strategy. This field is evolving so rapidly, the team is trying to stay as informed as possible and leverage the available capabilities to help address it. The potential for perpetuation of biases and broadening of health inequities are major concerns that must be factored in across public health.

Dr. Sharfstein asked whether any consideration had been given to establishing some type of CDC “Gold Star” or review for an AI tool that would be a mark for state and local health departments that something seems like a good idea. The nature of all of the possible ideas is endless, and some of them are bad ideas. Perhaps there are some datasets that CDC could identify as being valid for using AI versus people just doing or promising whatever. Related to that would be for CDC to discourage some things that the agency has identified as potentially illustrating bias that might be picked up by many places. A specific example is a tool that is being used that is not generative AI but is AI-based that is supposed to predict a patient’s chance of becoming addicted to medications, which includes race- and criminal-related items. People use this tool despite the concerns many people have that it could reinforce biases that exist in the underlying datasets. CDC is in a tough position because the agency is at the edge of the envelope trying to get CDC in the right position, but a way to flag things as a safe harbor for health departments that is more than just teaching them how to sort through it. This could be changed as needed as new information becomes available, and it might be quite influential. He could imagine

a situation in which Health Officers meet at a meeting and one of them says, "I'm doing 8 of the 10 recommended 10 Gold Star AI cases that CDC recommends, and they have been helpful to me." This could help to drive attention to what is most impactful.

Dr. Layden said she thought this was a good suggestion, noting that there are some parallels and other avenues where that has been applied. There are some similarities in the approach CDC is taking to establishing the basic technical/functional standards around data systems.

Dr. Shah noted that the Coalition for Health AI (CHAI™) convened a public health workgroup earlier that week with goals to advance frameworks for safe and trustworthy use of AI.

Dr. Fleming noted that one of the recommendations from the Health Equity Task Force was recognition that small new community-based organizations (CBOs) experience difficulties in terms of successfully competing for grant funding, including CDC and state and local funding. A significant barrier is lack of experience in writing grants, particularly grants that meet government standards. He recalled that one of the use cases Dr. Layden shared involved state and local simplification of grants and he wondered whether that could be extended to grant application assistance from AI for CBOs as well.

Dr. Manson noted that AIM-AHEAD has identified datasets that are less subject to biases and lend themselves to AI/ML applications. Overall, there is an enormous need as well as opportunities to increase AI readiness among the public health workforce and its constituents.

Data and Surveillance Workgroup (DSW) Update

Julie Morita, MD (Co-Chair, DSW) reminded everyone that when the DSW was first established, it had specific Terms of Reference (TOR). Earlier in 2024, the DSW received guidance from the CDC regarding their narrowing of the focus and the desire for the DSW to focus on a particular direction. Therefore, the terms were updated. The 3 key factors that influenced this pivot were that: 1) CDC recognizes the proliferation of disparate data reporting systems within the agency; 2) there is fragmentation that hinders efficient data management, analysis, and timely decision-making; and 3) streamlining and consolidating reporting systems could improve system effectiveness and efficiency. This meant that the DSW's charge changed to review the scope of systems, factoring in sustainability, burden placed on partners, and potential redundancies, and make recommendations as to whether the Agency should initiate a process to streamline the systems across the agency, and outline criteria that should be included in the process. To achieve this charge, the DSW has been tackling the following questions: 1) How can CDC implement a process to comprehensively assess data reporting systems, aiming to enhance sustainability, alleviate partner burdens, and minimize potential redundancies; and 2) How can this process streamline the technical, system, and procedural aspects of CDC's data reporting systems, while establishing clear criteria for identifying and eliminating redundancies? Since finalization and approval of the TORs about a year ago, the DSW has met monthly and discussed the following topics:

- ❑ Current data reporting systems, ongoing efforts to streamline, consolidate, or rationalize systems, and IT data governance
- ❑ Potential approaches for data system optimization
    - Military branch closure
    - Hospitalization data sprint
- ❑ Future policy opportunities (e.g., leveraging FHIR, USCDI+)
- ❑ Potential levers that could be used to incentivize adoption of optimization (e.g., governance, budgetary, risk management)
- ❑ Partner interview insight recap
- ❑ Report review and editing

The DSW actively engaged with partners to capture their insights and reflections, which was a new and labor-intensive approach. Several DSW members took on the challenge of interviewing 18 people. Based on the information that was provided in the meetings and interviews, the DSW identified specific benefits of system optimization and attributes of optimized systems. Benefits of system optimization include reduced burden for STLT agencies and CDC, reliable data pipelines, reduced risk of data loss and/or cyber threats, and increased visibility into data reporting and accuracy. Attributes of optimized systems include standardization across health-related data classes and elements, alignment with other federal agencies and broader healthcare IT efforts, sustainable funding, consistent governance, enhanced use of shared tools and processes, and data sharing with providers to enhance patient outcomes. Challenges hampering innovation in the current system landscape include siloed data reporting systems, reactive system development, varying levels of automation, lack of interoperability, and lack of standardization in metrics across different topics. Key barriers to innovation include the organizational structure within CDC program/disease-specific funding structure, and resistance to change. Potential enablers to achieve proposed optimization include amplified data governance; an increased level of automation; standardized metrics and reporting models; transparent, inclusive decision-making and effective feedback channels; incentivized system consolidation and integration; clear accountability and auditing mechanism; and educating Congress about the potential for program-agnostic funding.

To fully understand CDC and external user perspectives on the systems themselves, the DSW interviewed 18 partners across HHS, academia, STLT public health agencies, industry, and other associations like the Association of Public Health Laboratories (APHL). The DSW was heartened by the enthusiastic participation and thoughtful reflections. All of the interviews were recorded because people were willing to share so much information, and some AI was used to synthesize and summarize some of the key findings that came through the conversations. An incredible depth of expertise was made available to the DSW, with a broad range of leadership experience across the sectors. The DSW was struck by the specificity and consistencies that came through in the interviews. Partner interview insights were categorized into 3 overarching categories: 1) Challenges Hampering Innovation in the Current System Landscape; 2) Key Barriers to Innovation; and 3) Potential Enablers to Achieve Proposed Optimization.

Challenges Hampering Innovation in the Current System Landscape

- ❑ Siloed data reporting systems
- ❑ Reactive system development
- ❑ Varying levels of automation
- ❑ Lack of interoperability
- ❑ Lack of standardization in metrics across different topics

Key Barriers to Innovation

- ❑ Organizational structure within CDC
- ❑ Program/Disease-specific funding structure
- ❑ Resistance to change

Potential Enablers to Achieve Proposed Optimization

- ❑ Amplified data governance
- ❑ Increased level of automation
- ❑ Standardized metrics and reporting model
- ❑ Transparent, inclusive decision-making and effective feedback channels
- ❑ Incentivized system consolidation and integration
- ❑ Clear accountability and auditing mechanism
- ❑ Educating Congress on potential for program-agnostic funding

Based on review of the systems, prior efforts to optimize data and other systems, and input from partners, the DSW proposed the following 3 Action Steps and principles for the ACD to consider recommending to the CDC to optimize its data systems, which are more particularly described in the full report:

Action Item #1: Adopt a CDC Agency-Led Approach to Data Management

- ❑ Build on existing investments/technologies. Limit new stand-alone systems and reduce functionality redundancies.
- ❑ Collect data once and reuse. Streamline data collection and communication.
- ❑ Connect public health with healthcare. Align with the Trusted Exchange Framework and Common Agreement (TEFCA) and support expansion of interoperability standards. Leverage intermediaries/flexible architecture.
- ❑ Automate and improve access to data. Communicate and exchange data in a structured way with CDC partners. Improve usability of CDC data collection systems through automated and bidirectional data feeds.
- ❑ Promote standardization of data elements. Develop improved and unified systems for sharing standards-based data from STLTs to CDC.
- ❑ Engage STLTs and data providers early and often.

Action Item #2: Employ a Use-Based Approach to System Optimization

For each core data source, the approach should be to:

- ❑ Identify key public health use cases for each core data source (i.e., the "why" for data collection by STLTs).
- ❑ Map data systems that are in place to support each identified key public health use case.
- ❑ Reconcile data collection and processing systems that might address similar needs through analyzing each system.
- ❑ Based on the analysis, collaborate with STLTs and providers to identify potential target states for each data system.
- ❑ Prioritize systems for consolidation based on potential value of impact and feasibility of implementation.

Action Item #3: Develop Underlying Initiatives to Support a Unified Approach to System Optimization

- ❑ Create shared understanding of key concepts and terms among relevant partners, including public health and healthcare.
- ❑ Support expansion of TEFCA and interoperability standards such as USCDI, USCDI+ and FHIR, as well as non-healthcare related standards and definitions.
- ❑ Promote adoption of automated, scalable data exchange across public health and healthcare, enabling continuous access to near real-time, line-list level data.
- ❑ Simplify and promote adoption of common data use agreements.
- ❑ Embed incentive and accountability structures both within CDC and across jurisdictions with public health authority.
- ❑ Collaborate with other federal agencies and build incentives for robust public health data exchange.

In addition to the 3 action steps, the DSW went further to make some process recommendations. Many of the DSW members are accustomed to being on the frontlines and putting policies and protocols into action in the field. The following is a list of process recommendations for CDC to consider in moving forward with optimization:

Process Recommendations

- ❑ Encourage OPHDST to partner with the Public Health Infrastructure Center to align DMI strategy in funding language and ensure support for both internal and external workforce programs and impact evaluations efforts.
- ❑ Prioritize core data sources to begin employing a use-based approach based on predefined criteria.

- ❑ Develop implementation plans with concrete timelines and milestones.
- ❑ Evaluate progress over time on these recommendations including building robust value assurance frameworks.
- ❑ Ensure sustainability of system optimization and continuous improvement as public health and healthcare IT evolves.
- ❑ Strengthen existing enterprise-wide data governance to enforce system optimization:
  - HHS Health IT alignment policies
  - Data and vocabulary standards and certifications
  - Data Use Agreements (DUAs) and data governance
  - System optimization target states (i.e., systems slated for modernization vs. consolidation)
  - "Unified Public Health" principles

The DSW felt strongly that if CDC can modernize and consolidate the data systems, it will allow the agency, STLT agencies, and other data submitters to reduce complexities in their systems, ultimately reducing the burden of reporting and enabling better and more complete response-ready data at the national level. The DSW's report provides 3 action steps that CDC can take that will allow CDC and the national public health infrastructure to better design public health interventions based on timely, accurate, and comprehensive data; and ultimately to improve public health outcomes and responses to public health emergencies throughout the US. The DSW wanted that to be top of mind as people are thinking through this approach.

Discussion Summary

Dr. Shah expressed gratitude to Dr. Morita for doing such a wonderful job of summarizing so much work. This represents at least 50 plus people's input in a relatively short amount of time. The DSW tried to be very comprehensive with the team's input, with a goal to focus on response. The use cases are important. He expressed his hope that as the document is considered and if it is approved, people will spend time dissecting it and leaning in to help the CDC achieve the use cases suggested and other use cases. He offered special thanks to Dr. Layden and the entire team who helped make this realistic, ambitious, and thorough.

Dr. Taylor noted that her role on the DSW stretched her knowledge base and was great, but she admitted that she had one frustration with it. She is a virologist from a public health laboratory. The experience of going through the pandemic and having the data work to support the response was tough. She understands the charge because there are so many levels and this is long-term, but when these recommendations go forward to Congress to say that funding is needed, it would be good to include wording about how this will support the ability of CDC and STLTs to respond to threats. She did not think the recommendations clearly conveyed that sense of urgency.

Dr. Fleming suggested that perhaps that would be something to include in the forward as opposed to the nature of the proposed action steps for the ACD to consider as recommendations. His opinion was that enacting those steps would achieve what Dr. Taylor was referencing, with some language to make the throughline clearer.

Dr. Morita agreed that this could be included in the background or in the conclusion where the report indicates what the value of these action steps and the whole process would be. She did not think it would require a change to the action steps themselves. The point is well-taken that a stronger point could be made overall.

Dr. Taylor emphasized that the timing of the urgency would be valuable given avian influenza, Oropouche, Dengue, and so forth.

Dr. Sharfstein noted that reading the report reminded him of laboratory reports, with different data aspects and laboratories across CDC. Part of the challenge regards bringing it together in a way that is most effective. This is an inherent challenge for CDC because each group is doing very important work, but it can add up to confusion, particularly for local health departments if it is done differently or not coordinated. The second general observation is that a lot of data things have a perfect and a good problem. Everyone has specifics, it is loaded up, and then it is hard to move forward. Given the organizational challenges and the fact that there must be a plan, he asked for DSW's thoughts about how timelines are set, decisions are made for data, and how these recommendations relate to that. There can be aspirations to have all of these systems coordinated, but it will be difficult to accomplish without clear timelines and clear decision-making.

Dr. Morita indicated that this point arose in the conversations of the DSW. The DSW did not feel that it was their charge to make specific recommendations, but instead was to acknowledge that those aspects need to be considered. There is language in the process recommendations about things to consider such as feasibility and establishing timelines. One member strongly recommended that the DSW identify a single person who ultimately would be responsible and accountable for data optimizing moving forward. The DSW stepped away from identifying a single individual but did call out that there should be an overarching lead part of the organization to be responsible and accountable for prioritizing, establishing timelines, setting up key performance indicators, and monitoring progress.

Dr. Fleming recalled the report stating that those things need to happen as this is implemented. He called on Dr. Layden to speak about how her office is thinking about the issue of timelines and prioritization.

Dr. Layden said that in terms of the steps the OPHDST is taking to help in this effort, they have talked about the siloed system. Currently, there are over 600 systems at the agency. There also has been a proliferation of underlying data platforms that support these systems, which makes it hard for interoperability and there is also a lot of redundancy. To one of the points that was made in the recommendations, the agency moved forward with a decision a few months ago to establish an enterprise data platform building off existing technologies. During COVID, there was acceleration of user momentum around HHS Protect and Data Collation and Integration for Public Health Event Responses (DECIPHER) used more as a mechanism to put a lot of different systems on it. Building off of the momentum there, CDC proposed having a core platform that prioritizes the core data, putting timelines on that in terms of the most essential, and having documentation across the various one-off systems about who is using what type of data in order to have some rigor and routinize the process of defining core data, how it is being used, and the impact of it. This involves not only the data, but also the technology to exchange data. As this platform is stood up, one goal is to have clear timelines around the core data, building off of the concept of the core data that will be used across and then figuring out to make it part of a robust data governance structure within the agency, pulling in partners as appropriate and able, and then incentivizing programs to leverage the core data through different mechanisms.

Dr. Martinez agreed with the action steps, but a health equity lens approach to the data did not seem to be called out.

Dr. Morita said that this is not specifically mentioned in the recommendations because they are talking about the systems themselves, not about the specific data elements that are included. The need to look beyond just traditional data health elements was brought up repeatedly in the conversations, such as looking to other agencies for their data, such as Women, Infants, and Children (WIC); transportation, housing, social determinants of health (SDOH) types of data to include in the systems. The DSW did not delve into specific data elements to be included, but rather focused on the process of consolidating systems. Perhaps that is contextual information that can be included the report versus the action steps themselves, saying that the DSW wants to

recognize that whatever is done does not exacerbate or make worse existing inequities or disparities through system changes, versus adding anything specific about it in each of the action steps.

Dr. Fleming agreed that it could be handled in the language. He suggested that potentially in addition to not exacerbating disparities, the data elements should be critically analyzed for their utility and their ability to address issues of SDOH, political determinants of health (PDOH), and health equity. They also could review the health equity recommendations to see if those could be referenced to incorporate that concept in what they are trying to achieve.

Dr. Martinez emphasized that contextually, this is important to call out since the recommendations will go to HHS.

Dr. Manson said that while he thinks that calling out and emphasizing this with respect to data elements is important and appropriate, it is necessary but not sufficient. He believes that NIH's work in AI has underscored a number of examples in which the systems of data acquisitions themselves introduce biases that underscore and can amplify disparities unwittingly. He believed that the suggestion of including it in a contextual fashion would be adequate, but he would not limit it to data elements per se. There are systemic issues.

Dr. Shah added that in the private sphere and public health, there is a lot of action. The SCAN Foundation is funding the Coalition for Health AI to create large datasets of vulnerable populations for training generative AI models. That will have direct implications for public health. There is a systems approach that is what the DSW is trying to address with this report. It is about agility and not waiting for data from 50 states before making a single recommendation, leveraging what is available to identify signals that are actionable, et cetera. There are opportunities to work with private partners in addition to state and local partners.

Dr. Shah made a motion to accept the DSW's report and proposed action steps in that report to be official recommendations from the ACD to CDC and HHS. Dr. Medows seconded the motion.

Dr. Manson asked whether the motion would acknowledge the context just raised around systemic issues, not just data the elements themselves.

Dr. Fleming added to the motion that the report would be written to reflect the discussion on issues of health equity with respect to the data themselves and the systems that collect them, and the impact that this kind of change would have on the ability to respond.

Dr. Fleming observed that as context for the motion, the DSW did a wonderful job in condensing this down to 3 proposed action steps, now 3 recommendations. He would say those are super recommendations and that the heart of what actually needs to happen are in the bullet points underneath each proposed action step. He urged that as the report works its way through HHS, is put on the web, and is adopted by CDC that they not limit the discussion of what the recommendations are only to the words in the 3 higher levels, and to make it clear that the recommendations actually incorporate every single one of the items underneath as well. With all due respect, they do not want to see a condensation of what is in the report to some high-level language that does not have the specificity that the DSW worked so hard on. As with health equity, this report is an important part of committee work, so the ACD would expect to receive updates on CDC's implementation of this, including at the next ACD meeting in terms of thoughts on timelines and priorities.

Vote: Accept the DSW's Report and Action Steps

The motion made by Dr. Shah and seconded by Dr. Medows was amended to: 1) accept the DSW's report and proposed action steps in that report to become official recommendations from the ACD to CDC and HHS; 2) that the report be written to reflect the discussion on issues of health equity with respect to the data themselves, the systems that collect them, and the impact that this kind of change would have on the ability to respond; and 3) that CDC provide regular updates on its progress on these recommendations during future ACD meetings. The vote passed unanimously, with no opposition and no abstentions, including the motion and additions.

Childhood Immunization Coverage and Efforts to Address Lagging Rates

Demetre Daskalakis, MD, MPH (Director, NCIRD, CDC) provided an update on childhood immunization coverage in the US and efforts to address lagging rates, beginning with measles as a case study. As of October 10, 2024, a total of 267 measles cases have been reported by 32 jurisdictions this year. That is comprised of 14 outbreaks of measles, with 70% of cases having been outbreak-related. That compares to 2023 during which there were 4 outbreaks, which represented 49% of the cases in the US. It is important to remember that measles is a foe that we know, but MMR vaccine is a tool that is known as well. While measles are almost entirely preventable by vaccination, vaccination coverage decreases have increased the risk of outbreaks. MMR vaccine is 93% effective after 1 dose and 97% effective after 2 doses, which makes it one of the most effective vaccines in preventing complications and infection. Measles was eliminated in the US in 2000, but there continues to be a similar trend of introductions from outside the US. Generally speaking, when measles appear in populations that are highly vaccinated, that is the end. When measles appear in populations with lower vaccination rates, the effect is outbreaks. That is playing out in 2024 with a high proportion of all of the US cases.

It is known that if the population is vaccinated up to 95% or above, the effect is community immunity. Rather than a spark flying into kindling, a spark flies into not so flammable areas and there are not large outbreaks. With that said, vaccination among kindergartners continues to decrease. It was 95.2% during 2019–2020 and down to 93.1% in 2022–2023. While he does not typically go down to the decimal point, Dr. Daskalakis emphasized that the 0.2% and the number behind it ends up representing tens of thousands of children. That translates to about 250,000 kindergarteners who are not protected against measles. In terms of vaccination coverage post-pandemic, estimated coverage by 24 months of age with nearly all childhood vaccines was 1.3% to 3.2% lower among children born in 2020 and 2021 compared to those born in 2018 and 2019. There also was a decrease of almost 8% for influenza vaccine, with increases observed in influenza mortality among children. Coverage disparities exist and persist by race and ethnicity, poverty status, health insurance status, and Metropolitan Statistical Area (MSA). Coverage was lower among Black, Hispanic, and AI/AN children compared to White children, children who did not have private health insurance, children living below the federal poverty line, and children who are living in rural areas.

While the proportion of unvaccinated children remains below the 2030 Health People target of 1.3%, it is unclear how long that will continue. There are many reasons for decreases in coverage, some of which are artifact, but there also is the reality that coverage is decreasing because people are getting vaccinated less often. CDC recently released some interesting data about the percentage of kindergarteners with exemptions, which also shows another important trend that is worth highlighting. The percentage of kindergarten children with an exemption is now 3.3%, which is a 50% increase over the 2013–2014 percentage. Recalling the 95% measles coverage example, 36 states and the District of Columbia (DC) are under the 95% threshold where it is expected that community immunity would prevent large outbreaks of measles. Zooming in on the exemptions of states with less than 95% MMR coverage, 10 reported that more than 5% of their kindergarteners had medical and non-medical exemptions, making it impossible for kindergarteners to achieve the 95% threshold. The exemptions alone are driving that. These figures highlight the importance of efforts to address access, vaccine hesitancy, misinformation, and disinformation as means by which to increase coverage, reduce disparities, and protect children from VPDs.

Some of the ways CDC is addressing the fact that vaccine coverage is lagging after the pandemic focus on catch-up campaigns, which are strategies that exist to address those lags in coverage and catch-up children who were born during 2017–2021 range and younger who are still under-vaccinated for their age. To help address the pandemic-specific declines in immunization, CDC launched "Let's RISE." That effort is designed to equip healthcare providers (HCP) and other partners with strategies, resources, and data to help support getting Americans back on schedule with their routine immunizations. This campaign focuses on understanding the size, scope, and cause of declines in routine vaccinations resulting from COVID-19 pandemic; devising an evidence-based strategy and operational plan to better direct CDC routine vaccination catch-up activities; equipping partners with evidence-based strategies and resources to get vaccination back on schedule; and sharing data and insights on trends in routine vaccination rates to find and protect communities that have fallen behind on vaccinations. Ultimately, many of these evidence-based recommendations focus on strong HCP recommendations. It is known that provider messages are key in making sure that children and adults get vaccinated across the lifespan. Therefore, reminding providers to advocate for vaccine at every encounter is key in terms of convincing people of the importance of vaccine. Using technology is also important in terms of messages and recall notices to ensure that people are reminded of vaccine as often as they are reminded in providers' offices.

CDC also is taking action to get school children caught up with routine immunizations for the 2024–2025 school year. To highlight some of the resources that are helpful in this space, the *CDC Call to Action: What Schools Can Do to Promote Routine Vaccination Catch-Up Among School Aged Children*[2] outlines what schools can do to promote routine and catch-up vaccination among school aged children. The *Ways Schools Can Support Routine Vaccination Catch-Up Among School-Aged Children: A TOOLKIT FOR EDUCATIONAL PROFESSIONALS June 2024*[3] is part of the Let's RISE program and focuses on how schools can support routine vaccination catch-up. This toolkit was created in association with many partners like the Public Health Foundation (PHF), National Association of School Nurses (NASN), American Academy of Pediatrics (AAP), National Healthy Schools Collaborative (NHSC) at Kaiser Permanente, and others. This toolkit provides tools that are actionable from trusted messengers outside of the routine health space to help increase vaccination. Part of CDC taking action is also about making sure people know how it is going by providing jurisdiction kindergarten vaccination coverage reports for immunization programs, which help on the ground in terms of strategy. The back-to-school communication campaigns[4] are cute and Dr. Daskalakis hopes that eventually, people think "diphtheria is the name of a dinosaur" and that "rubella is the name of a princess."

The Vaccines for Children (VFC) Program is celebrating 30 years, which highlights important strategies to improve childhood vaccination. The VFC Program eliminates or reduces vaccine cost as a barrier to vaccinating eligible children. It automatically covers vaccines recommended by the Advisory Committee on Immunization Practices (ACIP) and approved by the CDC for children ages 18 years and younger. Looking back, there are only a couple of efforts that stand as towers of achievement in public health from the perspective of achieving an equity goal quickly. The VFC is one of those. In celebrating the VFC, it is important to highlight that in its history, CDC estimates that vaccination of children born between 1994 and 2023 has prevented 508 million illnesses, 32 million hospitalizations, 1.1 million deaths, and saved nearly $2.7 trillion in total societal costs by investing in a program that costs money but has rewards that can be measured in successful people and reduced societal costs. While the VFC Program is great, people over 18 years of age also have preventable diseases. Work is underway to expand provider types and coordinate with existing partners to restore and improve childhood vaccination coverage. Ongoing attention to strategies that allow for a fully realized immunization program in the US, including what is in the President's Budget this year for Vaccines for Adults (VFA), is also an important step in

[2] https://www.cdc.gov/vaccines/partners/downloads/cta-school-health-partners.pdf
[3] https://www.phf.org/resourcestools/Documents/Lets_RISE_School_Toolkit.pdf
[4] https://www.cdc.gov/vaccines/php/keeps-it-that-way/index.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fvaccines%2Fkeepitthatway.html

that full realization. Beyond the fact that it provides access, it also is an important resource on the ground for people to educate the importance of vaccines and address hesitancy and misinformation/disinformation.

In closing, Dr. Daskalakis posed the following questions for ACD's consideration and discussion:

1) Are there additional strategies that NCIRD should consider to increase childhood vaccination?
2) Are there different approaches that NCIRD should consider to raise awareness of this issue?
3) What other entities could help us better collaborate in the educational sector?
4) Are there additional communication approaches to help us reach parents, providers, and schools about childhood vaccinations?

Discussion Summary

Dr. Sharfstein asked whether and how CDC is working with pediatricians on communication, identifying areas with under-vaccination, and responding to misinformation/disinformation, and whether CDC is aware of/engaged in research that helps pediatricians address vaccine questions. He is familiar with researchers who have ways of triaging parents to the kinds of questions they have, and that one set of talking points does not work for all. There is a research component because this is a complicated problem.

Dr. Daskalakis said that CDC works with pediatricians through relationships with the AAP and other relationships and making sure that when the agency is creating materials, it involves an iterative process in order to make it useful for pediatricians. It has been helpful to understand that in terms of providing information, it is possible to "overwater a plant such that the plant does not thrive." With that analogy in mind, it is important to think about ways to provide small bitesize messages that pediatricians and adult doctors can use in their clinical settings to allow them to communicate quickly. Pediatricians are generally better at talking about vaccines than adult providers. Consistently, CDC hears directly from pediatricians that tools to make interactions efficient are beneficial. On the issue of vaccine hesitancy, CDC's communication folks are engaged deeply in researching communications. This is a space that is evolving to address some of the elements that are triggering and potentially may hamper the ability to communicate. For instance, some of the things that have been known to work for decades in terms of communication about vaccines may actually turn people completely off from hearing the message. Messages that tend to be very absolute about a vaccine, such as vaccine is highly effective but people can still get the infection and vaccine is categorically safe, sometimes result in messages that do not land. A lot of research is going to go behind evolving messaging, for which CDC would like the ACD's input as well.

Dr. Taylor asked whether the autism issue is still associated with the measles vaccine. She is increasingly interested in partnerships. As a grandmother of 3 children, she buys children's clothes online from companies, some of which give money to childhood causes. She asked whether CDC has thought about engaging with them on their websites, such as including the pictures of the child with the dinosaur and the princess. This also applies to diapers, bottles, and other items.

Dr. Daskalakis stressed that misinformation and disinformation die hard. Unfortunately, there are populations in which autism continues to be a consideration. The agency is currently dealing with an outbreak in the US for which the core issue with the population who are not getting vaccinated for measles is around the story of autism. It is important to continue to educate that is not the case, and to realize that this is now an entrenched view in some populations. There is a lot of work to do to change that entrenched view. In terms of partnerships, he likes to think of trusted messengers and trusted platforms. In terms of the work CDC does to develop messages, he thought they could think about ways to do better with industry to raise the messages into that space. At the end of the day, even from the financial perspective, those 508 million children who were saved bought a lot of things.

Dr. Manson expressed gratitude for this informative presentation that underscores the urgency and importance of this particular initiative. There were a number of lessons learned with the COVID pandemic, particularly with respect to AI/AN communities be they urban, rural, or reservation-based, not the least of which was the importance of greater understanding and aligning communication content and strategies with the purposes of those communities. To the extent that they saw this evolve positively throughout the pandemic, there were marked increases in vaccine uptake among Tribal communities. While the rubella and diphtheria images are cute, he presumed that CDC is giving adequate attention to appropriate contextualizing of those same images in other populations that will be more meaningful and carry forward with the same impact. One of the lessons learned out of successful campaigns, and on which the literature has been clear, is that the uptake of vaccinations in many Tribal communities was surprisingly high despite the early predictions to the contrary. One thing that contributed to that was not only culturally appropriate communication that was embedded in core values of reciprocity, obligation, and the collective nature of responsibility in these communities, but also that it was deeply embedded in co-designing, co-implementing, and co-communicating these kinds of initiatives. When the federal CDC efforts translated into state, county, metropolitan, and tribal public health agencies, that emphasis on partnerships was one of the critical factors in the success. He asked to what extent CDC is taking advantage of the Tribal Advisory Committee at the agency and other potential partners in terms of informing such efforts.

Dr. Daskalakis emphasized that CDC is really engaged, especially through the VFC, and is having some great conversations and deeper engagement around messaging. Most recently, one of the things CDC is most proud of is the Nirsevimab work the agency is doing with Tribal nations in terms of getting important views from them about what can be done to increase Nirsevimab coverage among the populations. CDC is focused on respecting specific considerations such as sovereignty and ensuring that they are co-creating efforts and using information from Tribes as the starting point as opposed to downstream in the work that the agency does. There has been a lot of crosstalk, as well as opportunities to connect. CDC will continue to take advantage of these great opportunities and connections, but the note is good about needing to increase what the agency does in this space.

Dr. Morita noted that she previously served as a Medical Director for an immunization program in Chicago for many years. They were very dependent/relied upon the VFC for the infrastructure through which to deliver vaccines throughout the city. Along with that was 317 funding that allowed the immunization program to complement some of that work and engage in some of the quality assurance work that was necessary. Over 700 clinics in Chicago were receiving vaccines from the immunization program, which made it easy to engage routinely and easily with and provide them with information, support, and report cards on how they were doing from a vaccine coverage perspective. She lost track of whether that is still happening in state and local areas, but it was a core element of driving and optimizing the pediatric and family practices. While VFC delivery is critical, there are also the complementary supports that are made available. Throughout her years as Medical Director for Immunizations, the power of the story was huge. Families who were affected by VPDs either through the success of a vaccine or the lack of a vaccine and the devastation that followed were moving and powerful. CDC materials focus a lot on data, which makes sense and is needed, but it also is about these narratives about lives saved or lost. In addition, she is a huge proponent of the VFA Program. She saw what the FVC Program could do for children and thought a VFA Program would do likewise for adults if it could get beyond just being an item in the President's Budget.

Dr. Daskalakis indicated that CDC continues to do the VFC work and it underlines that data works in both directions, as he highlighted in the Let's RISE example. The VFC base is critical, and the 317 program rounds that out somewhat, but it does not quite get them there because it tends to wax and wane in terms of resources. He recalled that when he was one of the folks overseeing the vaccine program in New York, it was hard to plan for

routine vaccination for adults when the resources had to be used to ensure that there were adequate resources for outbreaks. Putting those 2 together would be helpful, and that is done with the VFC. In terms of the power of the story, CDC has some of that and also does this through the agency's partners. There are great examples of organizations that are funded or supported by CDC who uplift stories about people whose children did or did not survive a VPD, for which he offered to provide examples to the ACD. As in everything in public health, the stories make the numbers come to life. Continuing support of those organizations that are putting that forward is a priority for NCIRD. CDC agrees that a VFA Program is a great idea.

Ms. Valdes Lupi said that on Question 3 what she would offer in terms of other entities is Health Leads, which stood up a Vaccine Equity Collaborative, which is a multi-stakeholder group comprised of philanthropies, AAP, School-Based Health Centers (SBHC) Association, Kaiser, and others. She is happy to make that connection, because they are continuing to elevate the importance of vaccines. Regarding Question 4, she underscored the importance of trusted messengers. In the work that the Kresge Foundation has been doing with some of its community-based partners, she has learned about the important role of micro-influencers (e.g., those with 10,000 followers or less) as trusted partners in communities who have lived experience and could be someone at a church or school, and the importance of the community-based workforce involving Community Health Workers (CHW), Promotores, or other types of community members who do that important bridging work. It would be wonderful to leverage those connections that were built in communities during the pandemic. The National Association of Community Health Workers (NACHW) is an example of a partner that might be able to help in the work with the CHWs.

Dr. Martinez asked how Tribal vaccination coverage rates and US/Mexico Border Region rates compare to the totals Dr. Daskalakis shared. He does not like the term "vaccine hesitancy." He prefers, and read an op ed on it, being "vaccine equity" issues, especially in terms of communities of color. A lot of social determinant factors were impacting the ability of communities to get vaccination, especially during the pandemic.

Dr. Daskalakis said he did not have those figures in front of him, so he would owe the ACD follow-up on that. Rates that tend to break geographically, like state boundaries, tend to be somewhat harder—especially with Tribes that often cross state boundaries. CDC has some data, but it tends to be somewhat patchier.

Communications and Public Engagement Workgroup (CPEW)

Rhonda Medows, MD and Octavio N. Martinez, Jr., MD, MPH, MBA, FAPA (CPEW Co-Chairs) provided a summary of the CPEW's interim report and draft proposed action steps, for which they were seeking input and advice from the ACD during this session and would seek a vote on the report during a subsequent ACD meeting. Dr. Medows pointed out that she and Dr. Martinez would be presenting the CPEW's interim report, which included some suggested actions based on their observations to date. This body of work began for the CPEW in August 2024, so they are about 3 to 3.5 months into the work. The CPEW has a standard structure, with 2 members of the ACD serving as Co-Chairs, 15 members who are professionals and experts from the public and private sector, 2 additional ACD members who serve as back-up, a DFO, and multiple CDC senior leaders. Dr. Medows acknowledged and thanked the CPEW members, who they owe a debt of gratitude for sharing their expertise, time, and amazing patience. They include communication experts, clinicians, public health leaders, epidemiologists, members of academia, and a resident journalist.

As a reminder, the CPEW's timeline is scheduled to end in June 2025 when the Final Report is presented to the ACD for its review and vote. The CPEW's TORs were identified by the CDC, which the CPEW divided into 3 areas for which they identified corresponding Task Groups: 1) Risk Communication; 2) Trusted Messengers and Community Partnerships; and 3) Improving the Effectiveness of Communication as reflected in the following table:

Priority Area	Focuses
Priority area #1: Improving risk communication practices Lead: Rhonda Medows	• **What should CDC pursue to improve its risk comms efforts with the public** (i.e., sharing what we know, when we know it, and sharing what we *don't* know, and, crucially, what we're doing to find answers)? • How does CDC better communicate when the science is evolving and changing? • How does CDC better understand audience-specific perceptions of risk? • How does CDC better tailor content (e.g., visuals), outreach and messaging efforts that match to risk level and encourage appropriate health protection behaviors among those audiences?
Priority area #2: Building relationships & mechanisms to communicate via trusted messengers Lead: Octavio Martinez	• **How can CDC build more robust relationships and mechanisms to communicate via trusted messengers** (e.g., clinicians, faith leaders, those with lived experience) at the national, state and local levels? • How can CDC better identify, prioritize & engage trusted messengers for different groups? • How can CDC better leverage comms efforts (like roll out plans) to further engage trusted messengers and partners?
Priority area #3: Delivering more effective communication Lead: Josh Sharfstein	• **What can CDC do to better deliver more action-oriented and focused comms to help people** protect their health (e.g., effective messages and storytelling, including around data)? • How can CDC better tailor messages and comms methods, as appropriate, to audiences, particularly for historically marginalized communities (e.g., how can we best reach these populations to protect the most people in the most communities)? • Are there other considerations to achieving greater transparency in addition to increasing the pace, content and reach of CDC's communications? (e.g., considering impact of different communications channels, such as blogs, TV interviews, emerging platforms)? • What mechanisms should CDC use to evaluate/measure progress in its public-facing comms efforts? • How might CDC ensure greater consistency & minimize perceived contradictions in comms at all levels?

The third Priority Group planned to begin its work at the end of October, while the work of Priority Groups 1 and 2 were to be presented during this session. In terms of activities to date, the CPEW has been meeting at least weekly or bi-weekly either as a full workgroup or as a Task Group focused on Risk Communication or Trusted Messengers. Presentations and discussions with CDC communication leaders from August through October 2024 have focused on the following topics:

- ❑ Crisis & Emergency Risk Communication (CERC) & Emergency Risk Communication Training Program
- ❑ Risk Communication Information Framework and Pilot
- ❑ Health Information Management and Alert System – Partner Alerts
- ❑ Partnership and Engagement Cases Studies – Health Equity
- ❑ Communication Rollout Process
- ❑ Social Media Engagement – Influencer Engagement
- ❑ Strategic Partnership - Customer Relationship Management Tool
- ❑ Approach to Clinical Engagement
- ❑ Approach to Communicating Risk Assessments
- ❑ Partnership Efforts with the National Weather Service (NWS)
- ❑ Use Of Trusted Partners for Controversial Issues
- ❑ Infodemics and World Health Organization Infodemic Information
- ❑ Public Health Guidance Process
- ❑ Discussions with CDC's Communication Director

Dr. Medows presented Task Group #1's draft proposed action steps, with 1–5 pertaining to system-wide improvements or restructuring that CPEW believes to be foundational in order to be more effective and more coordinated with risk communications, and 6–10 focused on expansion and upgrades of existing programs and activities as follows:

SYSTEM-WIDE IMPROVEMENTS OR RESTRUCTURING

1. **Comprehensive, Agency-Wide Strategy for Risk & Crisis Communication**
   - The CDC should immediately move to develop a comprehensive, agency-wide risk and crisis communication strategy and associated strategic plan to inform and focus its risk and crisis communication activities. This strategy should inform activities throughout the agency.

2. Inclusion of Risk Communication in Agency Strategic Planning and Decision Making

- Risk and crisis communication should be positioned structurally as part of the strategic decision-making and management function of the agency so that processes of communication such as timing, messages characteristics, spokespersons and audience needs and perspectives are represented in decisions. Systems of stakeholder input and feedback should be routinely distributed to agency decision units.

3. Message Alignment Across Agency

- Systems for alignment of messages across the agency, such as templates for creating messages and committees to align communication activities should be developed. Templates should include sections to address where the science may be evolving for the issue and/or how the CDC communicates specifically about the unknown areas.

4. Emergency Response Structure

- The Office of Emergency and Risk Communication was recently relocated to the Division of Communication. The office should continue to be operationally aligned with the emergency response structure as part of the strategic response framework to ensure a central role in establishing response strategies. This includes active participation in the Incident Management Leadership Group, including but not limited to the JIC lead.

5. Risk & Crisis External Advisory Group

- The CDC should establish a standing risk and crisis communication external advisory group to assist in ongoing assessment, development of new communication activities, provide an independent perspective, and offer advise as needed during emergencies. This group can aid in pre-emptive risk assessment and crisis planning across key issues.

EXPANSION OF EXISTING PROGRAMS & ACTIVITIES

6. Crisis and Emergency Risk Communication (CERC) Training Programs

- The Crisis and Emergency Risk Communication (CERC) program of communication training has a broad reach and significant impact. Updates and revisions to the CERC program, which are currently planned, should incorporate lessons from recent public health emergencies, the changes in communication driven by social media, infodemic management, and stronger audience centered and engaged perspectives. The CDC should expand its capacity to train and support state and local health departments regarding their basic crisis and risk communication needs. This should include the capacity to learn from the experiences of local and state governments.

7. CDC's Infodemics Management Strategy and Framework

- The CDC's infodemics management strategy and framework (defining infodemics as an overabundance of information – some accurate and some not – occurring during an epidemic) needs to be expanded and reflect more proactive and systematic approaches to addressing mis and dis information that goes beyond responding to individual inaccuracies and rumors. This framework should be closely aligned with the larger risk communication strategy.

8. Social Media for Risk & Crisis Communication

- The CDC needs an agency-wide, contemporary, and expanded approach and consistent presence to social media for risk and crisis communication that emphasizes speed of response, social listening, and the role of social media in the larger risk communication strategy. Social listening needs to be integrated fully as a feedback mechanism to inform decisions and communication (See recommendation #2). The CDC also should conduct and support research on how people engage with health information online.

9. Targeted Internal Training for CDC Personnel

- The current program of internal training of risk and crisis communication instruction for CDC personnel should be extended. This program should include basic principles of effective science and risk communication, translating science into plain language, understanding and meeting audience needs, timely clearance, communicating under conditions of high uncertainty, speed of message testing and response, and the role and function of legacy and social media. There should be opportunities for CDC staff to provide feedback about the communication process including if some messaging can be improved.

10. Health Alert Network & System of Progressive Alerts

The CDC has well-established programs of engagement with public health partners such as through the Health Alert Network (HAN) and Emergency Partners Information Connection (EPIC). HAN is CDC's primary method of sharing cleared information about urgent public health incidents with public information officers; federal, state, territorial, tribal, and local public health practitioners; clinicians; and public health laboratories. EPIC is a network of community- and faith-based organizations, professional associations, non-governmental organizations, and government agencies.

- **Surveys of HAN and EPIC partners** should be conducted to assess their communication needs and preferences and provide feedback. Processes should be expanded to develop relationships, active and authentic involvement and two-way communication with HAN, EPIC, and other partners that meet mutual informational and communication needs.

- These partners may also be **supported as trusted messengers** within the crisis communications structure. This may include providing them with message resources that can be used to extend the reach of agency communication.

- These networks should also include a **system of progressive alerts**, similar to the flood system of watch, warnings, and advisories or hurricane severity levels to reflects the level of emerging health risks. This will require developing a method for assessing the scale and severity of developing risks.

Dr. Martinez commended the CDC directors and staff who presented to Task Group #2, which concentrated on trusted messengers and Question #1 of this priority area. The remaining 2 questions and ACD feedback following this session will be addressed between now and June 2025. He then presented Task Group #2's draft proposed action steps, emphasizing that there is still work to be done. Task Group #2 identified the following 3 main categories: 1) Dimensions of trusted messengers CDC should measure; 2) steps to strengthen and improve engagement with trusted messengers, and 3) training and action steps within each category, which are more particularly described as follows:

DIMENSIONS OF TRUSTED MESSENGERS CDC SHOULD MEASURE

1. Establish new agency metrics for partnership engagement.

- New agency metrics should extend beyond the simple volume of contacts to track the type of partnerships established across the country as a way of monitoring key deficits in partnership type. For example, measure the geographical distribution of partners, the distribution of organization types and sizes among partners, and the frequency and recency of site visits by CDC staff or virtual meetings with CDC staff with partners, i.e., what, how many, and the quality of the touchpoints.

STEPS TO STRENGTHEN AND IMPROVE ENGAGEMENT WITH TRUSTED MESSENGERS

2. **Institutionalize, standardize, and make accessible to all internal stakeholder groups criteria and vetting guidelines for partner organizations and trusted messengers.**
   - Shen et al. (2023) described their process for identifying community-based organizations in the Philadelphia area for a vaccination effort. Explicitly noting which groups originally identify and contact trusted messengers; and the nature of on-going communication with messengers can offer process transparency.

3. **Promote greater transparency by advertising how CDC selects trusted messengers and publicly explain how interested parties can contact CDC to be considered for future collaboration.**

4. **Establish an acknowledgement process through which state and local public health officials can give acknowledgement or official thank you(s) to partners who have acted as trusted messengers.**
   - Organizations such as Workhuman offer social recognition platforms which may be relevant. If CDC were interested in providing rewards that have value, they may want to work with CDC Foundation to do that.

5. **Develop a list of and create solid relationships with state and especially local health department communicators who already may have strong and authentic relationships with trusted messengers in their communities (or may be trusted messengers themselves).**

6. **Create a process and feedback loop by which CDC engages with local health department communicators about specific topics, who then share this with local trusted messengers and gather feedback that will benefit both the CDC and the local jurisdiction.**
   - Start with the health departments with existing local trusted messenger relationships.

7. **Create regional communications/community engagement communities of practice.**
   - Invite new members to take part. Leave room in the process for refinement of messaging at every step of the process. One model that may be helpful to observe and learn from is the regional CDC PIO process being rolled out now where one activity is for CDC to begin to learn who the local LHJ PIOs are, and vice versa.

8. **Develop a grassroots Community Advisory Board (CAB) of 12 to 15 individuals.**
   - The CAB should not be organization representatives, since it appears that the CDC already has this level of trusted messenger engagement. The CAB is to work with the CDC Office of Communications and the CIOs in the development and implementation of relationships with trusted messengers and in the development and implementation of communication mechanisms. Members need to be from across the nation with as much diversity represented as possible (rural, tribal, individuals with lived experience, faith leaders, small business owners, essential workers, etc.). This CAB can also be instrumental in reviewing existing CDC approaches to trusted messengers and mechanisms to communicate for effectiveness and continuous quality improvement. Consultation with the CAB during a crisis can also be part of the charge. A Federal Advisory Committee Act (FACA) group may be necessary.

9. **Leverage the Partnership Matters CRM (Customer Relationship Management) to establish a Trusted Messenger Network (TMN).**
   - CIOs can build upon this existing infrastructure by entering information about their trusted messengers—individuals knowledgeable about public health and their local contexts. This will allow CIOs across the agency to efficiently search for and access current spokespeople at the national, state, and local levels based on specific topics.

10. Integrate CRM checks into the rollout process.

- Prioritize and ensure partnership/public engagement is applied to agency-level communication rollouts, including engagement pre-release; and incorporate pre-release partner and public engagement in Agency-level communications rollouts by formerly inserting it as a step in the existing communications rollout development and approval process.

11. Pre-clear trusted messengers who are CDC employees.

- The CDC Office of Communication should collaborate with HHS and the White House to "pre-clear" CDC spokespeople who can consistently be available to the media. By combining the strength of a trusted messenger network (TMN) with more direct communication from the CDC, we can increase public health messages that are delivered by both trusted local voices and the CDC itself, bolstering efforts to rebuild public trust in the agency's expertise.

TRAINING

12. Equip trusted messengers through trainings and resources.

- Communications, policy, and partnership staff can offer messengers regular access to the latest data and talking points, which they are developing and clearing as part of their rollout process. This can include developing and offering toolkits/trainings for entities that would like to be involved in trusted messenger initiatives. This empowers trusted messengers to deliver culturally appropriate and relevant messages, including especially hard to reach communities and individuals such as immigrant communities, rural, limited health literacy, etc.

13. Invest in producing more culturally relevant audience research.

- The research should be aimed at better understanding of communities, which will help guide partner and trusted messenger engagement and customize key messages for priority segments.

14. Develop Agency-wide policies and trainings of CDC staff through a centralized curriculum platform.

- The goal is to ensure and support adoption of partner and public engagement across the Agency. A dashboard or toolkit approach available to all staff can help. Communicate this expectation to partners and trusted messengers, including the "rules of engagement" and terms of which internal and external groups must abide. For example, the Association of American Medical Colleges (AAMC) offers a toolkit for medical school advisors which includes resources on networking and organizational connection which may serve as a model for a platform.

Dr. Medows acknowledged that the CPEW has a lot more work to do and more information to take in, but they have learned a lot already and wanted to share their suggested action steps given what they know at this point. There are some opportunities to obtain models from other industries regarding risk communication and community engagement.

Discussion Summary

Dr. Fleming acknowledged the amazing amount of work that has been done by the CPEW to date and invited ACD members and CDC leadership to provide input, advice, and suggestions for moving forward.

Dr. Taylor called out the recognition in the document that true community engagement is not informing but is, in fact, at its core is a feedback loop of given and take. To her, that is the essence of what needs to be done. "Trusted messenger" suggests 1-way and it is important to make sure that it is 2-way. She congratulated the CPEW, emphasizing that this is a conversation that is going to affect everyone.

Dr. Martinez liked Dr. Taylor's observation that "trusted messenger" could be considered 1-way much "hesitancy" versus "equity" that he raised during Dr. Daskalakis's presentation. Language is powerful, key, and integral to communication. He asked whether consideration should be given to a different term.

Dr. Dauphin thanked Dr. Martinez for raising the recommendation about incentivizing this. CDC does do that for other things, such as when health departments reach certain milestones with things like accreditation letters and notices of appreciation. In one of the draft recommendations, there was a notice about elevating the work with partners, Tribes, and other groups by making sure that is called out.

Dr. Fleming noted that it crossed his mind when they were saying "trusted messenger" whether that always involves a person or there could be other trusted ways of getting information out in many communities. Particularly in rural communities, there are still local newspapers that people read to find the truth. Other communities have community forums that represent a trusted mechanism. He wondered whether the CPEW considered that some of these mechanisms would apply to alternative formats for getting messages across in a way that would be trusted by the community receiving them.

Dr. Martinez said that he thought as they go through the rest of the questions and when Dr. Sharfstein stands up Task Group #3, they probably will end up drilling down and getting to those points. They are at the beginning of this process and have not delved that deeply yet.

Dr. Manson applauded the CPEW's work and the Co-Chairs' reports to this point, which were thoughtful, deliberate, and timely. As the continue deliberations, he encouraged them to build in accountability in the sense of which program locus within CDC would be responsible for oversight and coordination of the respected activities and ultimately, the metrics that would be applied to assess progress and success along the lines implied by the various draft recommendations.

Dr. Houry thanked the CPEW members, emphasizing how great it was to see this come to fruition. Based on the 14 meetings to date, it is obvious that the CPEW members dove into this. For her, it would be helpful to hear the 2 or 3 things that are the most urgent or high priority. If CDC could have a few to start with or tackle, then the rest follow.

Dr. Martinez said that they have thought about and discussed prioritization to some extent, but decided to back off of that because they felt that at this stage, they wanted to bring everything to the table first. He and Dr. Medows already have discussed, and will bring Dr. Sharfstein into the conversation, about moving forward and prioritizing. Dr. Medows agreed.

Dr. Laserson said that perhaps there was a way to speak with CPEW separately about how to think about this globally, not only with regard to the messages for CDC's global work that they talked about earlier, but also these kinds of messages and messengers in a global context. All of the same issues apply, but not enough of this has been done in the agency's global work. It would be nice to bring that in as well.

Dr. Liburd from CDC's Office of Health Equity (OHE) indicated that CDC's OHE has released a tool called *Communicating About Health Equity Concepts (CHEC)*,[5] which could be useful in terms of the recommendation regarding more culturally appropriate communications. CDC also produced the *2024 Language Access Plan (LAP)*[6] CDC has produced as part of larger plan HHS has made a commitment to, which will be helpful in terms of operationalizing a lot of what the CPEW is proposing.

[5] https://www.cdc.gov/health-equity/what-is/communicating.html
[6] https://www.hhs.gov/sites/default/files/cdc-language-access-plan-2024.pdf

Dr. Morita asked how the CPEW is including and tackling misinformation and disinformation in terms of the organization of the Task Groups.

Dr. Medows responded that one or two of the Task Group #1's action steps for risk communication address infodemics, which includes misinformation and disinformation. Basically, in an overabundance of information, even the correct information gets lost. CDC has an epidemic management system set up, for which they are going to pilot and expand the framework. They are already doing the data collection from various sources and the analytics, and need to pilot that to see if it can be effective and informing the communication strategy. It is a work in progress, and the CPEW action steps suggests expediting and expanding that outward. Task Group #1 also suggested that rather than a retrospective study, it needs to be a proactive systematic study that is used to inform the solution.

Dr. Fleming added that this work has been supported by many internal CDC staff as well, and he wanted to give Kevin Griffis and Kate Galatas an opportunity to say a few words as well.

Mr. Griffis expressed gratitude for the opportunity to speak. He thought the CPEW was able to identify a lot of things CDC has been working on and a lot of the issues that were raised during the course of Moving Forward, in particular. They agency has made a lot of progress over the last few years, particularly around plain language training for CDC's subject matter experts (SMEs), curriculum that has been created and is now online, overhaul of the agency's website to help people better find what they are looking for online and better communicate with the American people, and the work the agency is doing and continuing to refine around misinformation.

Kate Galatas said that it has been an honor to be part of this group. As they put all of their CDC SMEs in front of the groups, there is a tremendous amount of context-setting that has to happen initially for a group like this to get up to speed. Without fail, all of the CPEW members made a point each and every time to say how inspired they were by the work that CDC is doing in this space and the improvements that have been made already. She got to hear all of that, but her communication colleagues did not get to hear all of the gratitude and wonderful things that the CPEW members had to say about the work CDC is doing. She thanked the CPEW for not only the work that they are doing, but also the way they honored the work that CDC has done and improvements they are trying to make. She appreciates that and looks forward to the rest of their work together.

Director's Update: Agency Priorities

Mandy K. Cohen, MD, MPH (Director, CDC) welcomed everyone and expressed gratitude to the ACD members for giving their time to this important advisory committee. She is very proud of the CDC team and recognized that this meeting offered an opportunity to share an agency update and to collaborate, acknowledging that there is always more work to do and more that CDC is trying to do to meet the moment and the incredibly hard mission that they have to protect health and improve lives. She shared some of the important infrastructure investments and updates the agency has made since the last ACD meeting, as well as updates on some of the more urgent items of avian influenza, Mpox, and Marburg. As a reminder, the agency's 3 priorities are: 1) being ready to respond to any health threat; 2) improving mental health; and 3) supporting young families.

Within the readiness and response priority is where a lot of the work has been done in terms of reshaping CDC. None of that is more visible than within some of the data work. Dr. Cohen is very excited that the agency officially launched its effort for a One CDC data platform, which is a big deal that was a year plus of work between the Data Team and all of the Centers. Obviously, the oxygen that powers CDC's work is its data. Challenges were highlighted during the pandemic in terms of receiving data, the ability to turn those data into action quickly, and the ability to visualize it in a way that was not just actionable for people who have studied public health for many years, but also for real people. CDC knows that investing in its infrastructure is absolutely critical, so the decision was made to build one enterprise data platform. That does not mean the agency will not

have others, but this will allow CDC to have one interoperable platform for all of its data needs that will allow the agency's work to be more efficient and effective and to make better decisions because there will be data that can be linked across different datasets and different populations. The platform builds on DECIPHER, which was built during COVID. This is a Palantir-based platform, so CDC has made a big decision to work closely with the Palantir team to build this platform. Dr. Cohen has spent some time with the Palantir leadership specifically because this is very important not only for CDC, but frankly for the country and the world in terms of overall health security. She has been very pleased with their partnership and thinks they share the same visions of what they want to get done with this data work.

This is a huge change for CDC, so it required an all-of-CDC launch that was officially done about 2 weeks prior to this meeting. While it was a lot of work and took a long time to even get to a launch, she thinks it is going to be very impactful and ultimately will allow CDC to better do its work. One example that she has been sharing is around CDC's wastewater data. All of that work was stood up during COVID over about 6 to 8 months initially. When they wanted to use that same architecture to also detect Mpox, it took about 2 months to stand up the addition. When they wanted to use the same infrastructure for avian influenza, it took just a few days to stand that up. At a time when the expectations of CDC and what they are asked to perform are so high and all of the COVID infrastructure dollars are going away, the agency must be efficient with its time, money, and data platforms. She looks forward to giving the ACD updates as more is learned.

Huge steps forward have been made in the laboratory space as well. CDC now has an official Office of Laboratory Systems and Response (OLSR). Looking across the agency from an enterprise perspective, there are many laboratories focused on particular diseases. This is taking an enterprise approach. One of the first things the OLSR was able to do was create a new contracting vehicle that allows the agency to work with commercial laboratories more quickly. While that might not seem like a big deal, it is. CDC recently awarded contracts to places like Labcorp, Quest, and Aegis to serve as a "warm base" for the agency to have surge testing capacity and ground floor diagnostic test development so that CDC can scale to platforms that allow them to get to hundreds of thousands of tests a week that may be needed. As part of all of that, CDC is now receiving de-identified laboratory data from the large commercial laboratories. It is hugely exciting to be able to have that new input of data that anyone at CDC could access, and powers all of the data work just described.

In terms of CDC's communications and engagement work, Dr. Cohen thanked the CPEW for the preview of the recommendations in terms of honing in on risk communications, using trusted messengers, and others. She looks forward to continuing to work with the committee, particularly in terms of helping CDC prioritize the most important steps the agency needs to take first to ensure that they continue to improve. She expressed her hope that the ACD was seeing that CDC has placed a lot of emphasis on how the agency communicates, the speed at which this is done, and the simplicity. She is proud of the way the agency is communicating in the context of the Fall/Winter respiratory season and getting people ready for COVID, influenza, and respiratory syncytial virus (RSV) vaccinations. While the agency did a great job last year, she thinks they are really "hitting it out of the park" this year because the agency communication with clinician partners has been outstanding. CDC started that work in February. Part of the work is to recognize that to get to simple, fast, easy communication with clinicians in October, the work needs to start early. It is not only about communications regarding CDC's recommendations, though that is important, but also it is thinking about the workflow for clinicians in terms of how they order and store their medications, how they talk to their patients about getting vaccinated, how they sign up to be a VFC provider, and so forth.

To highlight a few aspects of the second priority related to improving mental health, CDC recently released new data showing a significant decrease of 13% in overdose deaths compared to a 3% decrease the year before. That is remarkably large. Everyone wants to better understand that number in terms of what is working, but Dr. Cohen continues to see CDC data and its partnership with the 90 health departments receiving Opioid Data to

Action (OD2A) funding driving the scientific understanding of what is happening, and thus the rigor and evidence of what is working to help reduce overdose deaths and how to support communities with the best evidence-based practices. This is great news, but this continues to be an evolving space where there is more work to do as the substances on the street evolve faster sometimes than the knowledge. CDC also is using its understanding of youth mental health and survey instruments in important ways. CDC has been an important player in bringing to the agenda understanding teenage girls in particular and their many mental health challenges. There is more influence of social media, so CDC has been prioritizing some of its research to better understand the correlation between social media and youth mental health. The research and survey results from CDC continue to drive the work across the board in this space, which is really exciting.

With respect to supporting young families, CDC has been able to expand its Maternal Mortality Review Committees (MMRCs) since the last ACD meeting. These committees run in a number of states and do deep dives on every mom who is lost during or after childbirth to understand the root causes. Because of an expansion of funding of another $120 million, CDC is now able to do this in 46 states. MMRCs are very impactful. She saw this in her state of North Carolina before they were able to expand Medicaid. They were able to use their data from the MMRCs to make a case for expanding Medicaid coverage for 12 months after delivery. Even in states that have expanded Medicaid, they are seeing this coverage. This is a direct result of the MMRCs and CDC's investment in the research, evidence, and impact on policy that is changing the health of moms. While some improvement has been observed, the US continues to have the highest maternal mortality of any high-income country and there is a lot of work to do. This work is helping to prioritize and focus on African American women and the disproportionate impact they are having. Again, the data are focusing and prioritizing CDC's work. In preparation of getting children back-to-school, CDC did a lot of preparation and used the back-to-school timeframe to remind families about routine vaccination. More families are choosing to opt out of vaccination through exemptions and states potential offering more flexible exemptions to those policies. Exemption rates have crept up, but not in a homogenous way across the country. There are pockets where exemptions are quite high and other places that are doing better than pre-pandemic levels. CDC engaged with its education partners. Dr. Cohen spent some time with Secretary Cardona, the US Secretary of Education, at an event in Milwaukee to talk about this joint work together. She went to Louisville that is bringing vaccination into elementary, middle, and high schools which allows for administration of thousands of vaccines at the start of the school year. This is an area that continues to need attention to ensure that children are getting vaccinated.

To touch on some of the agency's response efforts, avian influenza turns out to be ongoing. Unfortunately, a new chapter has emerged in California where there are a lot of dairy farms. Once avian influenza made it into California, there has been spread to a number of dairy herds that has resulted in more exposures to some humans. Illness continues to be mild with mostly conjunctival symptoms, but the agency is monitoring this very closely to make sure there are not changes occurring in the genetic make-up of the virus. Thus far, nothing has raised concerns about increases in human-to-human spread. Testing and treatment continue and there are vaccine candidates that all map to the current versions of the virus. While there is more work to do in that space, CDC is assisting multiple states with active work on avian influenza. In terms of messages and trusted messengers, CDC has been using advocacy groups for farm workers and multiple languages to ensure that information is getting out. The agency has been using very targeted, paid media to alert farm workers about risks, wearing personal protective equipment (PPE), and reporting symptoms.

Mpox also has been on CDC's mind a lot as a new clade, Clade Ib, has come from the DRC in Africa. Clade II is endemic in the US, so the agency is now watching Clades Ia and Ib. There is one strain of Ib that has been observed to be somewhat more transmissible. CDC teams are on the ground right now to understand the transmission dynamics of the virus, supporting the country teams in DRC to help with testing, epidemiology, and training laboratory and epidemiology staff. At the United Nations General Assembly (UNGA), President Biden committed $500 million dollars and 1 million Mpox vaccine doses to this effort. Vaccination is important, but is

only one piece of the work in Mpox. A lot of the work that CDC's team is focused on is the "blocking and tackling" of good public health in partnership with USAID and other USG partners. In addition to being deployed globally, CDC is getting ready for Mpox in the US and has been ramping up testing capacity for Clades I and II. By December 2024 to January 2025, there will be testing capacity in all US commercial laboratories. This will allow CDC to ensure that it is doing everything possible to find cases of Mpox, understand whether it is Clade I or II, make sure people are getting access to the newly commercialized vaccine, working to increase uptake, and using wastewater to understand Mpox across the US.

Regarding Marburg, Dr. Cohen congratulated the folks in Rwanda. The teams there did a terrific job of jumping on this emergency very quickly, and CDC was grateful to be part of the team carrying out that response. The agency sent 3 very senior staff members who have response to viral hemorrhagic fevers multiple times who have stook up laboratories with "toothpicks and duct tape" in every part of the world. These staff members helped set up genetic sequencing, coach on epidemiology, create vaccine protocols, deliver monoclonal antibodies that came from US donations, and get vaccines in arms within 9 days. There was unbelievable collaboration with the government of Rwanda and the USG to understand what was happening on the ground and importantly, because this was a healthcare-associated outbreak, CDC's teams did a lot to help with infection control training and procedures. That has helped in that in the last number of days, no new cases or community spread have been observed. Dr. Cohen is hopeful that this trend continues, which would allow for pulling back some of the additional precautions that have been implemented for travelers entering Rhwanda and the US. She is very proud of the team and what CDC was able to bring to that outbreak.

Discussion Summary

Dr. Fleming emphasized that Dr. Cohen has every reason to be proud. All of the things she has to balance are energizing and overwhelming. It warmed his heart when she started off talking about her priorities and recognizing that the laboratory work in the private sector was at least in part as a result of the recommendations from the Laboratory Working Group (LW) that this is a necessary element of response. In terms of the One CDC platform, about an hour before Dr. Cohen's arrival, the ACD unanimously approved the recommendations DSW made for how to move forward in a very specific way. Now there is a roadmap that the DSW worked on with Dr. Cohen's team that is now agreed to by the ACD as the way forward. The CPEW's proposed action items also will be an important part of the ACD's work. It is energizing and overwhelming for the ACD to see the overlap between what the committee is trying to do and what CDC is doing. Dr. Fleming said that when he worked in local public health, one of the most powerful tools they had was the MMRCs process, so he was happy to hear an update about that. They looked at mortality from a preventability standpoint and assessing in retrospect what might have been done differently to have prevented a case. The combination of the prevention focus and having locally relevant information made all of the difference in working with the community and providers in getting some of those steps into place. He asked whether thought had been given to, and if there potentially are resources, to expand that process. If that same kind of work is done for infant mortality or early childhood deaths, there would be a powerful local platform to engage providers in the community.

Dr. Cohen indicated that these reviews are incredibly intensive, but there are opportunities to learn from that process in terms of how the rigor can be brought to other work that CDC is doing. She has appreciated that the MMRCs have continued to evolve to think about impact and commonalities that they are seeing. For example, as progress has been made on certain parts of maternal mortality, others have surfaced such as more focus on cardiac issues related to African American women and mental health-related sequelae. Those are 2 areas that now could have deeper dives now that the data allow CDC to look across and deep dive down to ask different kinds of questions to surface information. There is a lot of great opportunity to bring that kind of process to other areas.

Dr. Manson said that his constituents for the most part are AI/AN people living in urban, rural, and reservation communities across the country. One of the early challenges they faced in dealing with the pandemic was the inaccessibility, lack of timeliness, and the completeness of the data available to them in regard to prevalence and incidence related to the virus, but also vaccination rates. Earlier in the day, there were some informative presentations by CDC leadership about current challenges with respect to vaccination and Dr. Cohen just mentioned mental health and maternal child mortality issues—all signal events in Tribal communities. He asked how CDC has advanced beyond some of the challenges that Native people face with respect to timely access to data in order to perform trending analyses that would assist in allocation of increasingly limited resources, et cetera so that they do not find themselves in the future in the same place they were 3 years ago.

Dr. Cohen welcomed Dr. Manson to the ACD and thanked him for his early morning wake-up of 3:00 AM to attend the meeting. Data are almost always top of the list when CDC meets with its Tribal Advisory Council. She just attended the HHS Tribal Advisory Council in Tacoma, where the first thing she shared with them was CDC's focus on data. The agency has been investing in improvements in data access. As CDC gets better with building one enterprise platform for the agency, CDC becomes better partners to everyone—states, localities, and Tribes. Right now, with every program CDC has, they ask for and share back data in lots of different ways. This is resource-intensive, so as CDC rebuilds its internal systems, they very much have in mind that partnership with local public health entities. Beyond that, CDC also has put out grants and is about to release another grant in the data space.

Dr. Dauphin added that they heard a great presentation earlier from Dr. Layden from the Data Office. CDC works very closely in engaging Tribes and Tribal-serving organizations and working with partners. The National Indian Health Board (NIHB) has been fantastic in helping the agency. They also have worked with the National Council of Urban Indian Health (NCUIH) and CDC Tribal Advisory Committee, hosting more listening sessions than the agency has ever done to her knowledge. They are hearing directly from Tribes and Tribal-serving organizations about how best to make sure CDC has appropriate messaging, that they are getting the resources to AI/AN populations, and hearing their concerns. CDC has made a lot of progress in this space. There is a lot more work to do, but CDC is really proud of the work that they have been doing.

Dr. Manson called out that he is aware of Dr. Cohen's upcoming meeting with the Tribal Epidemiology Centers in late February of 2025, which are on the forefront of much of the trending analyses and surveillance efforts in Tribal communities. He underscored the importance of that continued and growing relationship and partnership.

Dr. Morita extended her gratitude to Dr. Cohen for her leadership, recognizing that in the short time she has been at CDC, she has identified these 3 priorities, acted on them, and organized the agency around them. The examples of the efforts that Dr. Cohen is proud of represent impressive and important work. The DSW shared some action steps that they wanted the ACD to make to CDC related to data optimization. The DSW's action steps can easily be connected to Dr. Cohen's framework of readiness and response. Dr. Taylor made an important point earlier about how that connection needs to be highlighted, because that work ultimately will improve CDC's readiness and response and can be highlighted in the opening and background of the DSW's report itself. Dr. Morita also pointed out that Dr. Cohen's acknowledgement of the exemptions as a critical piece to the lagging vaccine rates is very important, which struck her when Dr. Daskalakis presented his update earlier in the day. It was clear that there is a connection between the lagging rates and the exemptions, which is something CDC should keep a close eye on in terms of the policy opportunities there are that could help address that issue. It is difficult to watch the deterioration of the vaccine coverage there has been in the past.

Dr. Cohen thanked Dr. Morita and congratulated her on being a newly elected member of the NAM.

Dr. Hardeman echoed Dr. Morita's congratulations to Dr. Cohen on all of the progress she has made. Reflecting on the maternal mortality work, as someone who has chaired the MMRC in Minnesota for several years and based on her research work in reproductive health, she pointed out that while efforts have been made to set up a robust way to measure mortality, they have not delved into the morbidity element and the fact that so many women experience severe complications and near misses that they hear about anecdotally but are not robustly tracking. She requested Dr. Cohen's thoughts on how CDC is thinking about potentially moving into the space of capturing severe complications and morbidity in a more systematic way nationally and within states.

Dr. Cohen first thanked Dr. Hardeman for Chairing one of the MMRCs. CDC is grateful that they can now have this in more places, which will allow for a more national picture because the local context has differed. It is a really great point to capture the near misses and morbidity. In terms of the deep dives that are done into the mortalities, hopefully the policies that are being put into place will impact not only the impact of mortality, but also everything that goes with that. This year, CDC created a Change Package particularly focused on African American women who are much more likely to have resulting congestive heart failure, which is a huge morbidity risk factor going forward, or more likely to get gestational diabetes. These data are already picking up some of that.

Dr. Houry added that mortality is easy to measure, but morbidity is much harder and is captured in many different ways. CDC is looking at some of the work through the International Classification of Diseases (ICD)-10 codes around severe maternal morbidity and is working closely with Emory through a partnership around Epic Cosmos data to look across health care systems. With systems level data, they can follow people more longitudinally.

Dr. Wong added that CDC also has been thinking about healthcare partners and quality measures. With hypertension being such a leading cause, particularly in African American women, CDC is working with groups like the National Committee for Quality Assurance (NCQA) and others to make sure that they are able to capture that in quality measures and contribute to the development of those measures for severe obstetric complications as well.

Dr. Sharfstein requested an update on how CDC's priority to close the gap between medicine and public health is going.

Dr. Cohen responded that Dr. Wong has been leading a lot of that effort along with Dr. Houry. She thinks that data can knit medicine and public health together. CDC is making efforts around the standards. The way that the agency is collecting data plugs public health into the health delivery data ecosystem. The country has invested $30 billion in Health Information Technology for Economic and Clinical Health (HITECH), so the public health side is catching up but cannot be siloed. What CDC is building is very much an effort to plug into the health delivery system, but then consideration must be given to "for what?" One example is quality measurement, and another is preparing for the Fall/Winter respiratory system by working with Epic on their Care Gap Closure List to optimize how the box of care gaps Epic users see on their screens works and looks for vaccination. At different points at time when patients are intersecting with the health delivery system, there are opportunities to close that gap through immunizations. That is a public health priority getting carried out in health delivery systems. That could be done for overdose prevention and other areas in which public health and healthcare delivery have to be on one team. She has spoken at every major clinical conference possible because she wants public health to have much more presence in clinical conferences. It is not just CDC trying to impose its priorities. It is helping public health be better as well, because public health needs to understand all of the operational complexities to be able to get someone a vaccine. She and Dr. Wong were having a conversation earlier in the day with some of the big institutions in the Atlanta area about how hard it is to even order some vaccines. It is so important for public health to understand that if they want to get over the hump of actually making community impact. It is

going well, but there is a lot more to do. She expressed appreciation to Dr. Sharfstein for his leadership in this space. She worries sometimes that healthcare and public health talk past each other, but need to be measuring the same things, partnering toward the same goals, and not sitting in different rooms and departments—this has to be a collaborative effort. She sees it happening and is excited about a much deeper partnership between CDC and the UCLACenters for Medicare and Medicaid Services (CMS) than she has ever seen before, and CDC is doing a lot more partnering with FDA as well. While she thinks they are on the right track, she welcomes opportunities to do more.

Dr. Fleming emphasized that it was great to hear Dr. Cohen's optimism on this really important issue. He thanked her for attending, spending her time with the ACD, and bringing her energy and excellence into the room.

Dr. Cohen expressed appreciation to the ACD members for their time, support of the CDC work, and continuing to make the agency better.

Closing Remarks / Adjourn

David Fleming, MD (ACD Chair) thanked the ACD members for their time and energy to attend the meeting personally or virtually. From his perspective, this was one of the most productive meetings they have had in terms of the quality of the discussion and willingness to provide advice to CDC. Importantly, he thanked CDC for the incredible number of CDC leaders who came to speak with the ACD members about issues that are important. He also expressed gratitude to the amazing host of CDC support staff who make these meetings possible in the seamless way that they do.

Debra Houry, MD, MPH (DFO) expressed gratitude to Dr. Fleming and the work groups, acknowledging the amount of time and work that occurs between meetings. She also recognized CDC's amazing staff and senior leaders who presented and attended throughout the day. The engagement from everyone was great, and she is looking forward to the next ACD meeting.

With no further business posed or questions/comments raised, the meeting was officially adjourned at 3:00 PM ET.

Certification

I hereby certify that, to the best of my knowledge and ability, the foregoing minutes of the October 22, 2024 meeting of the Advisory Committee to the Director, CDC are accurate and complete.

January 15, 2025
Date

David Fleming, MD
David Fleming, MD
Chair, Advisory Committee to the Director
Centers for Disease Control and Prevention

Attachment #1: ACD Membership

CHAIR
David W. Fleming, MD
Clinical Associate Professor
University of Washington School of Public Health
Seattle, Washington
Term: 10-01-2021 – 06-30-2025

DESIGNATED FEDERAL OFFICER
Debra Houry, MD, MHP
Chief Medical Officer
Deputy Director for Program and Science
Centers for Disease Control and Prevention

MEMBERS
Bechara Choucair, MD
Executive Vice President and Chief Health Officer
Kaiser Permanente
Oakland, California
Term: 08-02-2024 – 06-30-2027

Daniel E. Dawes, JD
Senior Vice President, Global Health
Executive Director, Global Health Equity Institute
Founding Dean, School of Global Public Health
Meharry Medical College
Nashville, TN
Term: 09-28-2021 – 06-30-2025

Helene D. Gayle, MD, MPH
President
Spelman College
Atlanta, Georgia
Term: 12-11-2023 – 06-30-2027

Rachel R. Hardeman, PhD, MPH
Blue Cross Endowed Professor of Health and Racial Equity
Founding Director, Center for Antiracism Research for Health Equity
Associate Professor, Division of Health Policy and Management, University of Minnesota School of Public Health
Minneapolis, Minnesota
Term: 09-28-2021 – 06-30-2025

Spero M. Manson, PhD
Distinguished Professor of Public Health and Psychiatry, Centers for American Indian and Alaska Native Health
The Colorado Trust Chair in American Indian Health, University of Colorado Denver's Anschutz Medical Center
Elbert, Colorado
Term: 07-06-2024 – 06-30-2027

Octavio N. Martinez, Jr., MD, MPH, MBA, FAPA
Executive Director, Hogg Foundation for Mental Health
Senior Associate Vice President, Division of Diversity and Community Engagement
Clinical Professor, Steve Hicks School of Social Work
Professor of Psychiatry, Dell Medical School
The University of Texas at Austin
Austin, Texas
Term: 09-28-2021 – 06-30-2025

Rhonda M. Medows, MD
President
Providence Population Health
Renton, Washington
Term: 09-27-2021 – 06-30-2025

Julie Morita, MD
President & Chief Executive Officer (CEO)
The Joyce Foundation
Princeton, New Jersey
Term: 09-29-2021 – 06-30-2025

Nirav R. Shah, MD, MPH
Senior Scholar
Stanford University School of Medicine
Palo Alto, California
Term: 09-27-2021 – 06-30-2025

Joshua M. Sharfstein, MD
Professor of the Practice in Health Policy and Management
Johns Hopkins Bloomberg School of Public Health
Baltimore, Maryland
Term: March 30, 2022 – June 30, 2026

Jill Taylor, PhD
Senior Advisor for Scientific Affairs
Association of Public Health Laboratories (APHL)
Silver Spring, Maryland
Term: 09-28-2021 – 06-30-2025

Monica Valdes Lupi, JD, MPH
Managing Director for the Health Program
The Kresge Foundation
Troy, Michigan
Term: 09-27-2021 – 06-30-2025

Attachment #2: Acronyms Used in this Document

Acronym	Expansion
AAMC	Association of American Medical Colleges
AAP	American Academy of Pediatrics
ACD	Advisory Committee to the Director
AI	Artificial Intelligence
AI/AN	American Indian and Alaska Native
AIM-AHEAD	Artificial Intelligence/Machine Learning Consortium to Advance Health Equity and Researcher Diversity
AMA	American Medical Association
APHL	Association of Public Health Laboratories
ASTP/ONC	Assistant Secretary for Technology Policy/Office of the National Coordinator
CAIANH	Centers for American Indian and Alaska Native Health
CBO	Community-Based Organization
CDC	Centers for Disease Control and Prevention
CERC	Crisis & Emergency Risk Communication
CFA	Center for Forecasting and Outbreak Analytics
CHAI™	Coalition for Health AI™
CHEC	Communicating About Health Equity Concepts
CHW	Community Health Worker
CIOs	Centers, Institutes, and Offices
CIO	Chief Information Office
CMS	Centers for Medicare and Medicaid Services
COE	Center of Excellence
COI	Conflict of Interest
CPEW	Communications and Public Engagement Workgroup
CPSTF	Community Preventive Services Task Force
CSTE	Council of State and Territorial Epidemiologists
DC	District of Columbia
DECIPHER	Data Collation and Integration for Public Health Event Responses
DFO	Designated Federal Officer
DGHP	Division of Global Health Protection
DGHT	Division of Global HIV and TB
DRC	Democratic Republic of the Congo
DSW	Data & Surveillance Workgroup
DUA	Data Use Agreement
EIS	Epidemic Intelligence Service
EPIC	Emergency Partners Information Connection
ET	Eastern Time
FACA	Federal Advisory Committee Act
FDA	Food and Drug Administration
FHIR	Fast Healthcare Interoperability Resources
GID	Global Immunization Division
GPEI	Global Polio Eradication Initiative
HAN	Health Alert Network

Acronym	Expansion
HCP	Health Care Providers/Personnel
HEW	Health Equity Workgroup
HHS	(United States Department of) Health and Human Services
HITECH	Health Information Technology for Economic and Clinical Health
ICD	International Classification of Diseases
ICS	Incident Command Structures
IT	Information Technology
ITDG	Information Technology Data Governance
JAMA	*Journal of the American Medical Association*
LAP	2024 Language Access Plan
LW	Laboratory Workgroup
ML	Machine Learning
MMRCs	Maternal Mortality Review Committees
MMWR	*Morbidity and Mortality Weekly Report*
MOU	Memorandum of Understanding
MSA	Metropolitan Statistical Area
MSIs	Minority Serving Institutions
NASN	National Association of School Nurses
NACHW	National Association of Community Health Workers
NAM	National Academy of Medicine
NCIRD	Center for Immunization and Respiratory Diseases
NCQA	National Committee for Quality Assurance
NCUIH	National Council of Urban Indian Health
NEJM	*New England Journal of Medicine*
NHSC	National Healthy Schools Collaborative
NIH	National Institutes of Health
NIHB	National Indian Health Board
NTD	Neglected Tropical Disease
NWS	National Weather Service
OCIO	Office of the Chief Information Officer
OD2A	Overdose Data to Action
OPPE	Office of Policy, Performance, and Evaluation
OHE	Office of Health Equity
OLSR	Office of Laboratory Systems and Response
OLSS	Office of Laboratory Science and Safety
ONC	Office of the National Coordinator for Health Information Technology
OPHDST	Office of Public Health Data, Surveillance, and Technology
ORR	Office of Readiness and Response
OS	Office of Science
PDOH	political determinants of health
PEPFAR	President's Emergency Plan for AIDS Relief
PHDS	Public Health Data Strategy
PHEM	Public Health Emergency Management
PHF	Public Health Foundation
PHIG	Public Health Infrastructure Grant
PMI	President's Malaria Initiative
QA	Quality Assurance

Acronym	Expansion
RSV	Respiratory Syncytial Virus
SBHC	School-Based Health Centers
SBIR	Small Business Innovation Research
SDOH	Social Determinants of Health
SME	Subject Matter Expert
STLT	State, Tribal, Local, and Territorial
SVI	Social Vulnerability Index
TDY	Temporary Duty
TEFCA	Trusted Exchange Framework and Common Agreement
TMN	Trusted Messenger Network
TOR	Terms of Reference
UNGA	United Nations General Assembly
US	United States
USCDI	United States Core Data for Interoperability
USG	United States Government
VBD	Vector-Borne Disease
VFA	Vaccines for Adults
VFC	Vaccines for Children
VPD	Vaccine-Preventable Diseases
WG	Workgroup, Work Group, Working Group
WASH	Water, Sanitation, and Hygiene
WIC	Women, Infants, and Children
WHO	World Health Organization