

DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION

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Centers for Disease Control and Prevention (CDC)

Chairman Cole, Ranking Member DeLauro, and Members of the Subcommittee. I am Rear Admiral Stephen Redd, Director of the Office of Public Health Preparedness and Response at the Centers for Disease Control and Prevention. Thank you for the opportunity to testify before you to discuss CDC's role in biodefense, and how it fits into the nation's overall preparedness to meet such threats.

CDC advances the health security of the nation by helping communities prepare for, respond to, and recover from the public health consequences of all hazards. These hazards include chemical, biological, radiological, and nuclear threats; natural disasters; and epidemics. For 75 years, this has been CDC's core mission. CDC's multidisciplinary workforce supports an integrated national system that continually monitors the public's health and is able to respond when a threat is identified. This ability is enhanced by our long-standing relationships and close collaboration with Federal, state, and local partners.

CDC's approach to biodefense falls into two distinct functional areas: Detection and Response.

Detection

World-class scientific expertise and laboratories ensure CDC is ready and able to detect and develop a response to a broad range of threats, including highly hazardous and infectious diseases like Ebola, smallpox, and H7N9 influenza.

CDC uses advanced molecular detection techniques that combine next-generation genomic sequencing, high-performance computing, and epidemiology to identify pathogens faster and more accurately. Laboratories from all over the world send specimens to CDC because they know CDC will be able to identify pathogens that other laboratories cannot.

Congress's support of our Advanced Molecular Detection investments allows CDC to detect outbreaks faster, before they have become widespread. These improvements are being applied in dozens of areas such as foodborne disease, influenza, antimicrobial resistance, hepatitis, pneumonia, and meningitis. Moreover, CDC shares genetic sequencing technologies with state and local health departments, and funds them to acquire new technology that helps them respond quicker and more efficiently at the local level.

CDC also has an international presence, including longstanding collaborations with countries and institutions around the world. Detection is a shared responsibility requiring interconnected laboratories working with common methods and which readily share findings. These strategic partnerships are strengthened by forward deployment of CDC scientists stationed in more than 60 countries.

A Strong Laboratory Response Network

Rapid identification of disease is critical to addressing public health threats before they become a crisis. CDC's Laboratory Response Network (LRN) is an integrated system of Federal, state,

local, and international laboratories that is scalable and flexible enough to respond to biological, chemical, and other public health threats. The linking of these laboratories over the last 15 years with the LRN advanced our preparedness capabilities and provided for rapid testing, timely notification, and secure communication of laboratory results.

For example, in response to the Zika virus outbreak, CDC collaborated with the Food and Drug Administration (FDA) to equip LRN laboratories across the United States with the ability to quickly test specimens for the outbreak strain of Zika virus.

Public Health Surveillance

Public health surveillance—the collection, analysis, and use of data to target public health prevention and intervention activities—is the foundation of public health practice. CDC monitors population health information around the clock to detect and track diseases. For example, following 9/11, CDC invested in using health-related data based on patient symptoms (syndromic surveillance) to detect a bioterrorist attack. Those investments are paying dividends as this system now allows officials to detect a much wider range of health threats, from opioid overdoses to chemical spills to disease outbreaks. Moreover, CDC collects, analyzes, and interprets human, animal, environmental, and food surveillance data, to identify and respond to potential health threats before they become emergencies.

To ensure a nationwide surveillance capability, CDC supports surveillance infrastructure and practice at the state and local level through the National Notifiable Disease Surveillance System (NNDSS), the National Syndromic Surveillance Program (NSSP), the National Healthcare Safety Network (NHSN), the Emerging Infections Program Active Bacterial Core Surveillance (EIP ABCS), and components of national influenza surveillance. As part of CDC's Surveillance Strategy, we are modernizing the tools and services used in the NNDSS and the NSSP and are implementing standards for exchanging data. CDC's Surveillance Strategy guides our agency's efforts to make U.S. surveillance systems:

- More adaptable to rapidly changing technology
- More versatile in addressing evolving health threats
- More adept at accessing and leveraging health-care data
- More capable of meeting demands for timely, population-specific, and geographically-specific information

CDC's Global Disease Detection Operations Center monitors outbreaks 24/7, assesses their potential risk to the United States and communities around the world, and improves global public health surveillance. Since 2017, CDC has tracked more than 170 unique diseases globally and identified outbreaks in more than 190 countries.

The surveillance data, collected in collaboration with domestic and international partners, provide an early warning system, inform CDC's threat assessments, and ensure response actions are at the right speed, scope, and scale to protect the public. When requested, CDC provides the subject matter experts to help develop and implement the appropriate response.

For example, the collaboration between CDC and the Assistant Secretary for Preparedness and Response (ASPR) during Hurricanes Harvey, Irma, and Maria provided vital real-time situational awareness for local jurisdictions that experienced the disasters. The processes and relationships used during these hurricanes now are in place for future collaborations.

Response

Investments in preparedness and response promote both CDC's readiness to act and that the state and local public health systems funded by the agency have the capacity to respond in times of crisis.

Medical Countermeasures for Public Health Responses

Through the Public Health Emergency Medical Countermeasures Enterprise (PHEMCE), CDC works with HHS agencies and other Federal partners to enhance preparedness for chemical, biological, radiological, nuclear threats, and emerging infectious disease by prioritizing Federal investments in medical countermeasures (MCMs). CDC provides agent-specific and public health practice expertise that puts the use of treatments and prophylactics in context. We understand how these products can be used in outbreak response, and the implications of the limitations that individual MCMs have, so that they can be integrated appropriately into a response. Within the PHEMCE, CDC subject matter experts use evidence-based science to provide technical expertise to state and local partners for public health emergency response planning, which includes: receiving, handling, and dispensing PHEMCE developed MCMs. Specifically, CDC subject matter experts:

- Develop clinical guidance on the use of PHEMCE MCMs
- Provide technical expertise to state and local partners for the development of deployment and dispensing plans for PHEMCE MCMs
- Conduct regular operational readiness reviews and exercises with state and local partners to ensure they are prepared and have the capacity to receive and dispense PHEMCE MCMs when responding to public health emergencies
- Review previously FDA-approved MCMs to develop clinical guidance for the emergency use of these MCMs for a potentially new indication when an emergency use authorization is in effect.

Just as important as having the right MCM available for deployment is knowing that state and local public health partners can effectively and efficiently receive those MCMs and get them to people in need of treatment or protection. For this reason, CDC offers virtual and in-person training, guidance documents, technical assistance, exercises, and other training programs to ensure that our partners have the knowledge and skills they need to dispense MCMs in a timely manner. In FY 2016, CDC supported 18 full-scale exercises and trained 2,232 Federal, state, territorial, and local emergency responders representing 43 different jurisdictions on how to receive and distribute products from the Strategic National Stockpile.

Role of State and Local Public Health Agencies

State and local public health agencies are the front lines of public health preparedness and response. CDC provides ongoing technical assistance and, where requested, on-the-ground personnel and materials to assist with response efforts. CDC's established relationships with state and local health departments ensure that day-to-day public health systems function effectively and efficiently and that emergency response actions are appropriate to the threat. These relationships also ensure state and local interests are taken into account during CDC's emergency responses.

The daily delivery of public health services, such as disease detection, surveillance, vaccinating children, and lab testing, is critical to public health preparedness and response. CDC encourages public health departments to use routine public health activities and real incidents to demonstrate and evaluate their public health preparedness and response capabilities. For example, state and local public health workers perform surveillance for serious illnesses and diseases and, when necessary, perform contact tracing to monitor the spread of those conditions. These same activities were put to use by jurisdictions to monitor for the spread of Ebola from domestic cases.

CDC also tests its pandemic influenza response capabilities with Federal, state, and local partners through virtual tabletop and functional exercises. CDC evaluates and improves its response plans based on lessons learned from previous responses and exercises.

To support our state, local, and territorial partners, Congress established the Public Health Emergency Preparedness (PHEP) cooperative agreement program, managed by CDC. The PHEP cooperative agreement program currently funds 62 awardees—including all 50 states, eight territories and freely-associated states, and four directly funded localities (New York City; Washington, D.C.; Chicago; and Los Angeles County). In FY 2018, Congress included an additional \$10 million for PHEP, providing a total of \$670 million for the program. These funds support preparedness and, on a limited basis, response staff, enable exercises to test and validate capabilities, provide for timely training, and pay for laboratory and communications equipment essential to maintaining preparedness. In addition, CDC helps grantees to identify and address gaps in preparedness capabilities, providing planning resources to ensure the needs of at-risk individuals are incorporated into response strategies, and improving response capabilities from experience gleaned during public health responses.

State and local health departments have greatly increased their capacity to respond to an array of hazards. For example, when a mumps outbreak in December 2016 sickened more than 800 individuals in Washington, the state mobilized a PHEP-funded Epidemiology Task Force to support local health departments with tracking disease cases and educating vulnerable communities about the benefits of vaccination. The outbreak response resulted in a dramatic increase in mumps vaccinations, with 5,000 additional people vaccinated, strengthening the community's resilience to both the current outbreak and future outbreaks of measles, mumps, and rubella.

Lessons Learned Inform the Next Response

CDC's number one priority during any public health emergency is to save lives. We are committed to continuously improving our response capability and after each activation we conduct a thorough after-action review to identify strengths to sustain and areas for improvement. After-action reviews collect data about successes and areas for improvement identified during unexpected incidents, exercises, and real events such as festivals or concerts that draw large crowds. Use of this information is key to improving performance for the next incident or event.

In response to experience during recent public health emergencies, CDC created a new funding mechanism ("Cooperative Agreement for Emergency Response: Public Health Crisis Response") that will quickly fund pre-approved awardees during public health emergency responses. This mechanism will enable immediate response activities and help mitigate negative health outcomes. We anticipate this mechanism will speed CDC's process of awarding supplemental funds to pre-approved awardees, potentially within weeks of supplemental appropriations being enacted.

During the Ebola epidemic, a critical lesson learned was that West African and other countries need effective systems to detect and stop infectious disease threats. As a result, CDC works with partners across the government on global health security to accelerate other countries' progress toward detecting and mitigating infectious disease threats quickly and effectively.

An outbreak that starts in another country can hit our shores in a matter of hours. Strengthening global health security also protects Americans' health. New diseases, like MERS and H7N9 influenza, can emerge without warning and have the potential to cause widespread infection and fear. CDC works with 31 Global Health Security partner countries to help them build the core public health capacities necessary for identifying and containing outbreaks before they become epidemics that could affect us all. Our global work strengthens four critical areas: surveillance, laboratory, workforce development, and rapid response capability. In addition, CDC medical and public health officers staff United States Quarantine Stations that are located at 20 ports of entry and land-border crossings where the majority of international travelers arrive. These health officers are the first line of defense to prevent the introduction and spread of infectious diseases.

Conclusion

The ability to quickly detect, and effectively respond to threats to the public's health is a top priority for CDC, the Department of Health and Human Services, and the Nation. CDC works around the clock to not only ensure its readiness but the readiness of those on the front lines: our state and local partners. CDC cannot predict the next disaster, but we know it is coming. The work we do now ensures that, when it does come, we are able to protect the health of Americans and save lives.