“Zika in the Western Hemisphere: Risks and Response”

Testimony before the Senate Foreign Relations Subcommittee on Western Hemisphere, Transnational Crime, Civilian Security, Democracy, Human Rights, and Global Women's Issues

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Introduction

Good morning Chairman Rubio, Senator Boxer, and members of the Subcommittee. Thank you for the opportunity to testify before you today on Centers for Disease Control and Prevention's (CDC's) efforts to prepare for and respond to the Zika virus outbreak, which threatens the United States and the rest of the Americas.

The Administration has requested approximately $1.9 billion in emergency funding to respond to the Zika virus outbreak in support of both the domestic and international response.

CDC is the nation's health protection agency, working 24-7 to save lives and protect people against unpredictable threats such as the Zika virus. Nature is a formidable adversary, and Zika is our newest threat, particularly to pregnant women. CDC has some of the world's leading experts both in diseases spread by mosquitos and in birth defects. We must act swiftly to track and respond to the Zika virus, both domestically and globally. While we are learning more about the Zika virus every day, there are many things we do not know yet about Zika. These include our understanding the effects of Zika infection during pregnancy just how the virus causes microcephaly, a severe birth defect that is a sign of a problem with brain development, as well as the effects of Zika infection on the development of Guillain-Barré syndrome (GBS) and other possible complications. In addition to answering these questions, we are also working to accelerate optimal mosquito control strategies, improve laboratory testing and assure preparedness for rapid detection, control, and prevention within the United States and U.S. territories.

We are making advances in these areas and need the additional requested funding to do so. Much of what we know about Zika and similar viruses today is based on the work that's been done by CDC scientists. We are learning more about Zika literally every day, and will share information – and adjust our guidelines and recommendations – as we learn more. That is the nature of a scientific response to an emerging health threat. The doctors, scientists, laboratory experts, entomologists, disease control specialists, and others at CDC and other key Department of Health and Human Services (HHS) agencies are working nonstop to protect Americans from this and other health threats. We are committed to providing the American people with the most accurate and timely information about Zika virus, the current outbreak, and about what to expect here in the continental United States.

It's very important that Americans remember the core prevention message: If you're pregnant, you should not travel to a place where Zika is spreading, and if you are pregnant and in a place where Zika is spreading, do everything you can to avoid mosquito bites. In addition, if you are pregnant, you should either refrain from sex with a partner who has been in an endemic area or use a condom every time you have sex during your pregnancy.

Most people infected with Zika virus appear to have no symptoms, and most of those with symptoms have only mild symptoms such as fever, rash, joint pain, and red eyes or conjunctivitis - that last no more than a week. Zika virus infection is, however, a cause of microcephaly and other severe fetal brain defects and is associated with serious health outcomes for babies of women infected during pregnancy, even when the woman has no symptoms. In addition, Guillain-Barré syndrome has been reported following Zika virus infection, although a causal link has not yet been definitively established. CDC is investigating the link between Zika and GBS. GBS is very likely triggered by Zika in a small proportion of those infected, much as it is after a variety of other infections.

CDC's key priority in responding to this epidemic is to reduce the risk of Zika virus infection to pregnant women. CDC is acting based on what we know and, at the same time, undertaking research to better prevent adverse health outcomes in the future. That's why, during the same week we identified Zika in brain tissue specimens, CDC advised pregnant women not to travel to affected areas.

Current Status

While we have not yet seen transmission of the Zika virus by mosquitoes within the continental United States, many returning travelers to the US have been infected with Zika virus. As of July 6, 1,132 cases of travel associated Zika virus infections have been reported in US states and the District of Columbia. Also, as of July 6, 2,534 cases of Zika virus infections associated with mosquito-borne local transmission have been reported in the US territories, mostly in Puerto Rico. During the same timeframe, 320 cases of Zika virus infection have been reported among pregnant women in the United States and 279 infections have been reported among pregnant women in US territories. We know also, that a small number of cases can be attributed to sexual transmission.

CDC is also reporting the outcomes of pregnancies with laboratory evidence of possible Zika virus infection in the US states, DC and the territories. As of June 30 there have been seven live born infants and five pregnancy losses with birth defects reported to CDC's US Zika Pregnancy Registry. As of the same date, one pregnancy loss with birth defects has been reported by the territories to either the US Zika Pregnancy Registry or to the Puerto Rico Zika Active Pregnancy Surveillance System.

CDC urgently needs a surge of resources to prevent and control the spread of Zika virus in the U.S. Commonwealth of Puerto Rico and the U.S. Virgin Islands, and other U.S. territories. The population of *Aedes aegypti* mosquitos, the primary vector for Zika virus infection, is widespread on these islands. Protective environmental factors such as window screens are not as prominent in the territories, and the density of people puts people there at high risk for transmission. All three areas have already reported local mosquito-borne Zika transmission. CDC has deployed staff to the U.S. Virgin Islands, American Samoa, and Puerto Rico to support response activities and provide technical assistance to health departments there.

Furthermore, *Aedes* mosquitos are found in many areas of the continental United States, raising the risk of local transmission. Recent clusters of locally-transmitted dengue virus disease in the United States reinforce that Zika outbreaks in the continental U.S. may be relatively small and localized due to protective factors like window screens and less dense living conditions. However, any local outbreak will be of deep concern to the people living there, and we must be prepared for different scenarios including more extensive transmission risk. Local transmission of Zika will occur when a mosquito bites someone who is infected with Zika, likely someone infected during travel to a Zika-affected areas, and later bites another person, spreading the virus.. There are about 40 million people travelling between the continental U.S. and Zika-affected areas each year.

What CDC Is Doing

WHO has declared Zika a public health emergency and pregnant women, especially, need to be protected from its effects. To prevent and track Zika virus infection, CDC is conducting surveillance of the spread of the virus, developing and distributing better diagnostic tests, working with states and localities to improve mosquito control and tracking, assisting Puerto Rico and other territories, issuing travel guidance, and providing clinical guidance on Zika. CDC experts are also working to protect pregnant women by better understanding the link between Zika infection and adverse health outcomes.

Surveillance is essential to monitor and quickly identify areas with local transmission. Most of CDC's surveillance for arboviruses, including Zika, is captured through ArboNET, an integrated network which is used to monitor incidence of disease, conduct human case investigations, collect and test mosquitoes, and perform laboratory analysis. CDC's Epidemiology and Laboratory Capacity Cooperative Agreement supports ArboNet,

including funding staff in 49 states, Puerto Rico, and six large municipalities. Zika infection is now a nationally notifiable disease, meaning states report all identified cases of Zika infection to CDC.

While we know Zika infection causes microcephaly and other fetal anomalies, we do not fully understand how, or if, there are important cofactors for these adverse outcomes. CDC is working to improve our understanding of the spectrum of effects of Zika infection during pregnancy (i.e., whether children born with normal-sized heads might have other neurological damage, which may not be apparent for months or years), just how the virus causes microcephaly, the duration of Zika infectivity in semen, and why some but not all women infected during pregnancy give birth to infants with microcephaly. A child born with microcephaly can cost up to an estimated $10 million to care for over their lifetime, and can have devastating effects on families and communities who must care for them. In addition to surveillance for Zika cases, CDC is working with the states and territories on surveillance of pregnancies with evidence of Zika infections and pregnancy outcomes through the US Zika Pregnancy Registry and the Puerto Rico Zika Active Pregnancy Surveillance System. These are unique and unprecedented systems which can monitor pregnant women and their families and support health departments which provide care to these families. CDC is also planning a prospective cohort study in Colombia to evaluate the risk of maternal, fetal, and neonatal complications of Zika infection in pregnancy according to when during the pregnancy the infection occurred.. This study will complement an ongoing multi-country study supported by the National Institutes of Health (NIH) to evaluate the magnitude of health risks that Zika virus infection poses to pregnant women and their developing fetuses and infants.

CDC, along with other HHS agencies and private sector partners, has worked around the clock to develop and ship diagnostic tests to detect Zika virus infection. CDC currently has two different Emergency Use Authorizations (EUAs) from the Food and Drug Administration (FDA), one for the MAC-ELISA test, which measures the body's immune response to the virus (issued February 26, 2016 and reissued on June 29, 2016) and the other for the Trioplex rRT-PCR assay, which identifies the acute presence of the virus (issued March 17). These tests have been distributed through the CDC Laboratory Response Network (LRN). The LRN is an integrated network of domestic and international laboratories that can respond to biological and chemical terrorism and other public health emergencies. In addition to use in the United States, many other countries were provided the CDC assays necessary to run these tests. In the United States, Zika diagnostic tests are now also available through commercial laboratories. CDC is working to increase laboratory capacity in the United States to handle the surge capacity needs posed by the Zika virus. CDC remains open to collaboration and assisting partners, including private industry, in their endeavors to bring accurate and precise Zika diagnostic assays to market.

Many states and localities have existing mosquito control programs. CDC provides technical expertise on mosquito control strategies, including the best methods to control immature and adult mosquitoes, monitor resistance to insecticides, conduct mosquito surveillance, and monitor efficacy of control efforts. Expanded capacity has also been provided to states through the Epidemiology and Laboratory Capacity for Infectious Diseases Cooperative Agreement, Public Health Emergency Preparedness Cooperative Agreement, and federal vector control contracts to extend mosquito surveillance and control. In collaboration with the U.S. Departments of Defense, Agriculture, and Homeland Security, as well as the Environmental Protection Agency, HHS is working across its Operating Divisions to accelerate mosquito control research and to coordinate response efforts in the territories, as well as in the continental United States and Hawaii.

Puerto Rico has a particular challenge when it comes to vector control and mosquito-borne disease. Dengue and chikungunya, which are spread by the same mosquito, have spread rapidly throughout the island, and insecticide resistance is common. Now, dozens of pregnant women are infected every day with Zika virus, and we are very

concerned about what the coming months will hold. We are working with our partners in the Puerto Rico government, private industry, and other federal agencies to reduce the risk from mosquitoes spreading Zika in the territory. Activities include using CDC-developed mosquito traps, conducting indoor and outdoor residual spraying, distributing personal protection tools to pregnant women in Zika Prevention Kits, and amplifying our public education efforts.

CDC has issued 49 travel notices related to Zika. These are Level 2 travel health notices, advising travelers to practice enhanced precautions, with additional guidance for women who are pregnant or are trying to become pregnant. Pregnant women should postpone travel to regions with ongoing Zika virus transmission. If they must travel, or if they live in affected areas, CDC recommends pregnant women talk to their doctors or other healthcare providers first and to prevent mosquito bites. Reducing exposure to mosquitoes is important for anyone traveling to or residing in areas where the virus is circulating. Wearing long sleeves, long pants, using EPA-approved repellents such as DEET and permethrin-treated clothing (both of which are safe to use during pregnancy), and using other protections such as air-conditioning and window screens will reduce exposure to daytime mosquitoes. Given the potential for Zika virus to be spread through sex, pregnant women and their male partners living in or who have been to Zika-affected areas should abstain from sex or use condoms for the duration of the pregnancy.

CDC also has provided guidance for doctors and other clinicians on evaluation, treatment, and follow-up care of pregnant women and infants with possible exposure to Zika virus, partnering with organizations from the health care community to help distribute this information as widely as possible.

This is a rapidly changing situation and our understanding of the risks concerning Zika virus infection is incomplete and evolving. As we get new information, we will update our advice.

Coordination and Partnerships

CDC is working closely with health departments across the country and in the territories to support and coordinate its efforts and to expand capacity for detecting and responding to Zika virus. Strong collaboration with states and local partners is critical to an effective response. CDC is helping states assess and expand capacity, while engaging stakeholders including healthcare providers, blood banks, vector control organizations, medical associations, schools, employers, and others. We are continuously refining and improving our recommendations based on issues identified during the CDC-hosted Zika Action Plan Summit for state and local health officials and continued feedback from states.

I also want to acknowledge our federal partners. I have mentioned a few already. CDC is working in collaboration with other components of HHS including the Office of the Assistant Secretary for Preparedness and Response (ASPR) and its Biomedical Advanced Research and Development Authority (BARDA), the Office of the Assistant Secretary for Health, the NIH, who are working to develop a vaccine, and the FDA We are also working with partners across the U.S. Government, including the Department of State, the Department of Homeland Security, the Department of Veterans Affairs, and the Environmental Protection Agency, to communicate with travelers and health care providers, update travel alerts and clinical guidance, and develop improved mosquito-control methods.

Olympic Games

CDC and the United States Olympic Committee (USOC) signed a memorandum of understanding on May 27, 2016, and are working together to communicate risks and protective actions that can be taken before, during, and

after travel to the 2016 Olympic Games in Brazil. The target audience for CDC's outreach efforts include Olympic and Paralympic athletes, staff, and delegation members. Our guidance for the general public for travel to the Olympics is the same guidance we have issued for travel to Brazil and other areas with Zika. While many Americans will travel to Brazil for the Olympics, travel to the Olympics is only a small fraction of overall global travel to countries that have ongoing Zika transmission. Travel to the Olympic Games represents about 0.25% of total aviation travel annually to Zika-affected areas.

CDC's communication actions for the Olympics include webinars to National Governing Body staff to share Zika prevention and travel health information, hosting an in-person informational booth during out-processing in Houston, co-branded print materials tailored to the U.S. delegation, a customized CDC website with content tailored to National Governing Body needs, social media messages disseminated through USOC channels, and short videos on packing clothing for prevention.

In addition to Zika prevention guidance, CDC also has posted general guidance for all travellers to the 2016 Summer Olympic and Paralympic Games in Brazil. Guidance for travel to the Olympics includes information about travel vaccines, safe food and water practices, and safety and security in crowds.

As we continue to learn more about the Zika virus, we will update our guidance and recommendations for the 2016 Olympic and Paralympic Games as appropriate.

Conclusion

The emergence and reemergence of health threats, including those spread by mosquitoes and other vectors, will continue for the foreseeable future. These outbreaks cannot be expected to occur in isolation. Puerto Rico and Hawaii were already responding to outbreaks of dengue when Zika virus emerged as an urgent health threat. We need to address the threat of mosquito-borne diseases systematically, rather than episodically.

While we need congressional action on the President's funding request, CDC has not waited for Congressional action to respond to the threat posed by Zika. We have made difficult decisions and redirected resources from other important public health activities to support our most critical needs. These redirected funds, however, are not enough to support a comprehensive Zika response, and they divert funding from other critically important public health activities. They only temporarily address what is needed until the Congress acts on the Administration's emergency supplemental request. Without the full amount of requested emergency supplemental funding, many activities that need to start now may have to be delayed or stopped within months, or may not occur at all. We need to start now to do the work to better understand the link between Zika disease and birth defects; track the spread of mosquitoes in the U.S. and control them before the epidemic spreads here; support states and territories to prevent and manage cases of Zika, diagnose patients, and increase lab capacity; and better understand, develop, and more fully deploy laboratory testing and for mosquito control.

We are hopeful that Congress will work quickly to fund critical response efforts to protect pregnant women against Zika.