House of Representatives Energy and Commerce
Subcommittee on Oversight and Investigations
Hearing: "U.S. Public Health Response to the Zika Virus: Continuing Challenges"
Tuesday, May 23, 2017

Question for Dr. Rick Bright, Director, Biomedical Advanced Research and Development Authority (BARDA); Deputy Assistant Secretary, Office of the Assistant Secretary for Preparedness and Response (ASPR)

The Honorable Tim Murphy

1. What is our current capacity to test for the Zika virus in the United States?

The United States needs laboratory diagnostic tests to detect acute Zika infection and manage Zika infection in pregnant women. Active Zika infection is diagnosed using molecular assays [e.g., Polymerase Chain Reaction (PCR)] that detect Zika virus RNA in acceptable specimens including human serum, plasma, whole blood and urine. Because 80 percent of Zika infections are asymptomatic, people do not often seek medical care during the period when the Zika virus can be best detected. Serology tests (e.g., ELIA, IgM) that detect antibodies produced in response to Zika virus are used to detect Zika virus infection in people who are past the window when molecular tests are effective. HHS agencies have been working aggressively and collaboratively since early 2016 to make both molecular and serologic Zika diagnostic testing available to U.S. states, territories, and affiliated islands through public health laboratories and in clinical laboratories.

   a. In your opinion, is this capacity sufficient to meet demand for diagnostic tests, particularly among pregnant women in the summer months?

   Local transmission of Zika virus may occur this summer in parts of the United States, particularly in parts of Florida, Texas, and Hawaii that have previously experienced local transmission of dengue or chikungunya. Considering the number of molecular and serologic tests that are now readily available for clinical use (hospital, commercial laboratories) and public health laboratories, there is likely a sufficient capacity to provide Zika molecular and serologic testing. This capacity should serve the anticipated demand from pregnant women who may have been exposed to Zika, symptomatic individuals with risk of exposure in a localized outbreak, and travelers returning from Zika endemic regions.

   b. How does HHS plan to ramp up this capacity in the coming months, particularly as we get into the months where we could see local transmission of Zika in the United States?

The Zika MAC ELISA and the Trioplex rRT-PCR assays, developed by the Centers for Disease Control and Prevention (CDC), are available through the CDC Laboratory Response Network (LRN), and other public health and Department of Defense (DoD) laboratories in the United States and its territories. Both assays are provided by CDC under an Emergency Use Authorization (EUA) provided by the U.S. Food and Drug Administration (FDA).

BARDA and FDA have been working to bring commercial diagnostic tests to market, which would make testing available outside of the public health laboratory system. Eleven Zika PCR assays developed by commercial manufacturers are available under FDA EUA for use in certain private sector clinical laboratories (hospitals, large commercial laboratories). Any Clinical Laboratory Improvement Amendments (CLIA) accredited laboratory wishing to perform Zika molecular testing is able to purchase these tests from any one of eight different companies, or send their specimens to three different reference laboratories for Zika PCR testing. Due to the diverse nature of the U.S. clinical laboratory system and preferences by individual labs for different tests, it is not possible to estimate the total number of tests these laboratories can perform. Large commercial laboratories such as Quest and LabCorp generally have capacity to perform many hundreds of tests each week, and capacity to surge for additional testing demand if needed. These laboratories are equipped for rapid turn-around time and electronic reporting, which speeds up access to results from the ordering physician to the patient.

Testing for IgM antibodies to Zika is challenging due to cross-reactivity of other flavivirus antibodies, such as dengue. As such, FDA, BARDA and CDC have coordinated support to develop tests that perform at least as well as the CDC MAC-ELISA. Two tests developed by commercial manufacturers with support from BARDA are now available under FDA EUA for use in private sector clinical laboratories (hospitals, large commercial laboratories). The first, InBios Zika Detect™ IgM Capture ELISA, does not require specialized equipment and can be performed in CLIA accredited laboratories with proficiency in ELISA procedures. As of June 2016, InBios has manufactured and distributed 5,486 kits (as of 6/16/17; each kit can test 28 specimens). The second assay, DiaSorin LIAISON® Zika Capture IgM assay, runs on a proprietary, automated, high volume instrument that can perform 24 tests an hour. Several large clinical laboratories are currently evaluating this assay for use this summer. Other tests, including some tests supported by BARDA, at least one test that uses a high throughput analyzer and two tests that may be performed without any

instrumentation, are in development and under review with FDA. Once authorized by FDA, these assays will add to the national testing capacity. Moreover, BARDA is supporting the advanced development of two point-of-care diagnostic tests that would allow for rapid results for the clinician and patient.

The Honorable Frank Pallone

1. HHS recently reported that ASPR has obligated $110.6 million of its fiscal year2017 Zika funds. How much funding does BARDA have remaining in 2017 for Zika preparation or response? Does BARDA have sufficient funds remaining to support these efforts for the remainder of fiscal year 2017?

Of the $245 million in Zika supplemental funding that ASPR/BARDA received in the Zika Response and Preparedness Act (division B of Public Law 114-223), $8.257 million remains unobligated as of May 15, 2017. These remaining funds will be obligated before the end of the fiscal year. BARDA has sufficient funding to support all of FY2017 planned activities for Zika response and preparation

The Honorable Kathy Castor

1. Please provide an update on vaccine development and clinical trials.

BARDA is working closely with HHS interagency partners [National Institutes of Health (NIH)/National Institute of Allergy and Infectious Diseases (NIAID), FDA, and CDC], DoD [Walter Reed Army Institute of Research (WRAIR)] and the pharmaceutical industry to accelerate the development of several Zika vaccines. In particular, BARDA is supporting the development of four Zika vaccines based on two different platform approaches: 1) whole virus inactivated vaccines with alum adjuvant (Takeda, Sanofi Pasteur and Instituto Butantan), and 2) mRNA-based gene delivery (Moderna Therapeutics). All three inactivated vaccine candidates are in preclinical development stages. Phase I/II clinical trials are planned in fall 2017 (Takeda) and late summer 2018 (Sanofi Pasteur). Instituto Butantan, located in Sao Paulo, Brazil, is receiving support for the development and preparation of Zika vaccine under good manufacturing practices that will enable clinical studies at a later date. Moderna Therapeutics is presently conducting a Phase I clinical trial across three sites in the United States. Enrollment continues and data is expected later this year. A larger Phase II clinical trial in Latin America is being planned by Moderna for late 2017.

2. Please provide the latest information on the Zika vaccine licensing agreement between the U.S. Army and Sanofi and any relevant details.

BARDA is not involved in a decision to provide a license to Sanofi. Licensure negotiations are between Sanofi Pasteur and DoD/WRAIR.

3. With many members of Congress, states and public health advocates worried that the Zika vaccine being developed at the Walter Reed Army Institute of Research with taxpayer dollars will be priced too high, how is the federal government working to ensure Sanofi, when/if a licensing agreement is made, will sell this taxpayer funded vaccine at an affordable price to federal and state governments and to consumers?

   BARDA is keenly aware of the issues related to affordable and fair pricing of the medical countermeasures it develops. Many of the products BARDA develops are also procured by BARDA, CDC, DoD and are on the open market. Thus, procurement contracts are negotiated to allow for the greatest savings to the U.S. taxpayer. However, the Zika vaccine contracts were executed for the sole purpose of development and not intended for procurement by the government at this time. BARDA employs a portfolio approach that awards multiple vaccine development contracts to increase the probability in making available a safe and effective Zika vaccine. However, this approach promotes competition between manufacturers, thus potentially yielding lower costs in the marketplace.

4. How has public health advice regarding Zika evolved over the past few years for young men and women? What do we know now that we did not before and what new information could be on the horizon?

   BARDA respectfully defers to CDC on public health advice.

5. When does each federal agency believe they will run out of money to respond properly to Zika, including vector control, surveillance, vaccine and diagnostics development/improvement and research?

   BARDA currently has sufficient funding to support initial clinical studies for investigational vaccine candidates and diagnostics. Existing funds will be obligated on or before September 30, 2017.