DEPARTMENT OF HEALTH AND HUMAN SERVICES

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STATEMENT

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BEFORE THE

SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS

HOUSE ENERGY AND COMMERCE COMMITTEE

U.S. HOUSE OF REPRESENTATIVES

EXAMINING THE U.S. PUBLIC HEALTH RESPONSE TO THE ZIKA VIRUS

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INTRODUCTION

Good morning Chairman Murphy, Ranking Member DeGette, and members of the Subcommittee. I am Dr. Luciana Borio, Acting Chief Scientist at the Food and Drug Administration (FDA or the Agency). Thank you for the opportunity to appear today to discuss FDA's actions in response to the Zika virus outbreak.

As you know, Zika virus was first identified in 1947 in Uganda. Since then, sporadic cases and a few outbreaks have been recognized in a number of locations, including parts of Africa, Asia, and the Pacific. However, the situation has changed dramatically since May 2015, when the first local transmission of Zika virus in the Americas was confirmed in Brazil. By December 2015, Brazil had reported more than 56,000 suspected cases of Zika virus and has since stopped counting cases due to the magnitude of the outbreak, which Brazilian national authorities estimate to encompass from approximately 500,000 to 1.5 million cases.

Zika virus is now spreading throughout Latin America and the Caribbean, as well as in parts of the Pacific and Africa. As of February 25, 2016, 34 countries and territories, including the Commonwealth of Puerto Rico, the U.S. Virgin Islands, and American Samoa, have active, local transmission of Zika virus.

Potential links between Zika virus infection and neurological complications (e.g., Guillain-Barré Syndrome), as well as microcephaly and other poor pregnancy outcomes in babies of mothers who were infected with Zika virus during their pregnancy have dramatically increased concerns about the risks associated with Zika virus. On February 1, 2016, the World Health Organization

(WHO) declared the recent clusters of microcephaly and other neurological disorders a public health emergency of international concern.

No locally transmitted mosquito-borne Zika virus disease cases have been reported in the continental United States to date. There have, however, been travel-associated cases, as well as local cases of sexual transmission to women whose only known risk factor was sexual contact with an infected male partner who traveled to an area with active transmission. These imported cases have the potential to result in local spread of Zika virus in areas of the United States where *Aedes* mosquitoes that transmit Zika virus are found. CDC and state, local, and territorial health departments are monitoring for any such events.

FDA RESPONSE TO THE ZIKA VIRUS OUTBREAK

FDA is working in collaboration with other components of the Department of Health and Human Services (HHS), including the Office of the Assistant Secretary for Preparedness and Response (ASPR) and its Biomedical Advanced Research and Development Authority (BARDA), the National Institutes of Health (NIH), and the Centers for Disease Control and Prevention (CDC), as well as with partners across the U.S. Government and with international partners to respond to the Zika virus outbreak. FDA's primary areas of activity include: (1) protecting the safety of the nation's blood supply and tissues for transplantation; (2) facilitating the development of donor screening and medical diagnostic tests that may be useful for identifying the presence of, or prior exposure to, Zika virus; (3) supporting the development of investigational vaccines and therapies; (4) reviewing proposals for the use of innovative strategies to help suppress the population of virus-carrying mosquitoes; and (5) protecting the public from fraudulent products that claim to prevent, diagnose, treat, or cure Zika virus disease.

Blood Supply and Tissue Safety

In the absence of an available donor screening assay, the risk of transmission of Zika virus by blood transfusion is considered likely, based on the most current scientific evidence of how Zika virus and other flaviviruses (including West Nile and dengue) are spread, as well as recent reports of transfusion-associated infection outside of the United States. Realizing this risk, and to better protect the U.S. blood supply, FDA issued new Zika-related blood donor guidance. In areas with active Zika virus transmission, FDA recommends that whole blood and blood components for transfusion be obtained from areas of the United States without active transmission. Blood establishments may continue collecting and preparing platelets and plasma if an FDA-approved, pathogen-reduction device is used. FDA also recommends deferral from donating blood for four weeks for individuals in areas without active Zika transmission if they a) have been to areas with active Zika virus transmission; b) have recovered from an illness with symptoms suggestive of Zika virus infection that developed within two weeks of exposure in an affected area; or c) have had sexual contact with a man who has traveled to, or resided in, an area with active Zika virus transmission during the prior three months. The guidance also recommends that blood establishments update donor education materials with information about Zika virus signs and symptoms, ask potentially affected donors to refrain from giving blood, and update the donor history questionnaire to elicit information on recent exposure to an affected area. FDA is working with public health authorities in territories with confirmed Zika virus to take rapid and appropriate steps to ensure that safe blood is available.

In addition, to advance blood safety against Zika virus, FDA is facilitating the development of screening tests for identifying the presence of the virus in donated blood and pathogen-reduction

technologies to kill viruses in blood components through establishment of reference materials, clarification of regulatory pathways, and interactive review of sponsor-submitted data.

Furthermore, FDA is developing guidance that will address appropriate donor deferral measures for human cells, tissues, and cellular and tissue-based products. This guidance is particularly important given evidence of sexual transmission of Zika virus.

Diagnostic Tests

Unfortunately, there are no commercially available diagnostic tests cleared by FDA for the detection of Zika virus. Two types of diagnostic tests are needed for Zika virus: (1) a test to diagnose acute infection; and (2) a test to assess whether individuals, especially pregnant women, who were potentially exposed to Zika virus were actually infected. In keeping with FDA's practice for responding to emerging infectious disease outbreaks, FDA has been reaching out to potential diagnostic manufacturers to encourage them to develop needed diagnostic tests for Zika virus. In addition, FDA is working interactively with diagnostic manufacturers interested in developing diagnostic tests for Zika virus to help accelerate development programs, including clarifying data requirements for the authorization of the use of Zika diagnostic tests under FDA's Emergency Use Authorization authority (EUA). FDA has authorized the use of a Zika virus diagnostic test developed by CDC under EUA for the qualitative detection of Zika virus-specific immunoglobulin M (IgM) antibodies by qualified laboratories. This diagnostic test can help expand domestic readiness for Zika virus by enabling the identification of patients recently infected with Zika virus in support of response efforts. The authorized test has already been made available to 19 states and territories. FDA is ready to authorize the use of additional

Zika virus diagnostic tests under our EUA authority as soon as we receive data regarding the accuracy and precision of the test from a diagnostic manufacturer to enable such authorization.

Vaccines and Therapies

There are no vaccines or treatments in advanced development for Zika virus at this time. Development programs for investigational vaccines and therapies are in the very early stages and FDA is actively engaged with NIH and BARDA to help accelerate development programs. FDA stands ready to work with medical product developers to provide technical support and clarify regulatory and data requirements necessary to move products forward in development as quickly as possible.

Vector Control

In the United States, mosquito control is typically achieved by a multi-faceted approach that includes a range of tools, including surveillance of mosquito activity, reduction in breeding sites, and the use of chemical and biological control methods. There has been public discussion of a new method to potentially help control mosquito populations through the use of a genetically engineered (GE) line of the mosquito *Aedes aegypti* (OX513A) developed by Oxitec, Ltd. The release of male Oxitec GE mosquitoes is intended to cause suppression of the mosquito population in a release area over time because the offspring resulting from the mating of male GE mosquitoes with wild type females do not develop to adulthood. The Brazilian National Biosafety Commission found the Oxitec GE mosquito safe for use in Brazil in 2014 after extensive field testing, and open field trials of these GE mosquitoes have also been conducted in the Cayman Islands, Panama, and Malaysia. Although multiple pilot studies have been

authorized in Brazil, the country's national regulatory authority, the Agência Nacional de Vigilância Sanitária (ANVISA), is currently reviewing Oxitec's request to approve its product for commercial sale.

FDA is reviewing information in an Investigational New Animal Drug (INAD) file from Oxitec regarding the potential use of the company's GE mosquito with the intent of suppressing the population of *Aedes aegypti* mosquitoes at the release site(s). FDA ordinarily cannot acknowledge or discuss INAD files due to confidentiality concerns; however, FDA is able to do so in this case because Oxitec has publicly announced that they have opened an INAD file.

Oxitec is seeking to conduct a field trial to determine whether the release of its GE mosquito will suppress the local *Aedes aegypti* mosquito population in the release area at Key Haven, Florida. As with similar applications, FDA plans to release for public comment a draft environmental assessment submitted by Oxitec that assesses the potential environmental impacts of conducting a field trial in Key Haven with the GE mosquitoes. A field trial of the GE mosquito may only be authorized if—after a draft environmental assessment has been released for public comment and the Agency has had the opportunity to review those comments—FDA issues a final environmental assessment and Finding of No Significant Impact on the environment, or FDA prepares an Environmental Impact Statement. If such a trial is authorized and conducted, Oxitec could use the results from a field trial in an application for approval if the company decides to pursue one in the future.

Fraudulent Product Claims

Unfortunately, during emerging infectious disease outbreaks such as this, fraudulent products that claim to prevent, treat, or cure a disease rapidly appear on the market. FDA is actively monitoring for fraudulent products and false product claims related to Zika virus and will implement enforcement actions, as warranted, to protect the public health.

CONCLUSION

FDA is fully committed to remaining highly responsive and adaptive to the complex range of issues the Zika virus outbreak has presented and will continue to present. Developing the medical products necessary to help bring this outbreak under control is highly complex and will, unfortunately, take time. Close cooperation and collaboration within FDA, within the U.S. Government, with our international partners, and with product developers, is essential to help facilitate the development and availability of medical products to respond to Zika virus. There is an urgent need to accelerate medical product development programs, and FDA anticipates that—similar to the Ebola epidemic in West Africa—there will be a strong desire for access to investigational medical products as soon as they become available.

While the Ebola and Zika viruses have important differences, the response to the Ebola epidemic demonstrated that the typical, phased approach to medical product development can be accelerated and streamlined as appropriate, for the particular health circumstance; it may be appropriate in certain emergency circumstances to accept a greater than usual degree of uncertainty and risk in order to move rapidly to clinical trials, with the goal of getting safe, effective therapies or vaccine products to patients sooner. However, while greater risks may be acceptable during a public health emergency or when there is the potential for a public health emergency, the responsibility to protect patient welfare never ceases. The Ebola epidemic

highlighted the importance of determining whether investigational products may help patients, do nothing, or cause unintentional harm. Thus, it is essential that clinical trials be designed to provide interpretable data— with respect to both safety and efficacy—that will enable the global community to learn whether investigational products are safe and effective for broader use.

FDA is fully prepared to leverage its authorities to the fullest extent practicable to help accelerate the development and availability of safe and effective products with the potential to help mitigate the Zika virus outbreak as quickly as the science will allow.

Thank you. I am happy to answer your questions.