



Physicians Caring for Texans

**Senate Health and Human Services
Testimony on Zika
Catherine Eppes MD, MPH
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Mr. Chairman, members of the committee, thank you very much for the opportunity to make remarks today. I am Catherine Eppes, MD, MPH. I am a maternal fetal medicine physician at Baylor College of Medicine in Houston, with a background in maternal and fetal infections during pregnancy, as well as patient quality and safety. I am here representing the more than 49,000 physicians and medical students of the Texas Medical Association. I am a member of TMA's Committee on Infectious Diseases. I want to focus my testimony today on the effects of Zika virus on pregnant women and their infants.

What is microcephaly?

Microcephaly is a condition where a baby's head is smaller than expected, typically defined in the United States as three to five standard deviations from the mean head size. Numerous conditions are associated with fetal or neonatal microcephaly, including many infections such as cytomegalovirus and toxoplasmosis. These infections lead to arrested brain growth, and therefore concordant small head size. Some other conditions that can lead to microcephaly are genetic conditions and exposure to toxins such as alcohol.

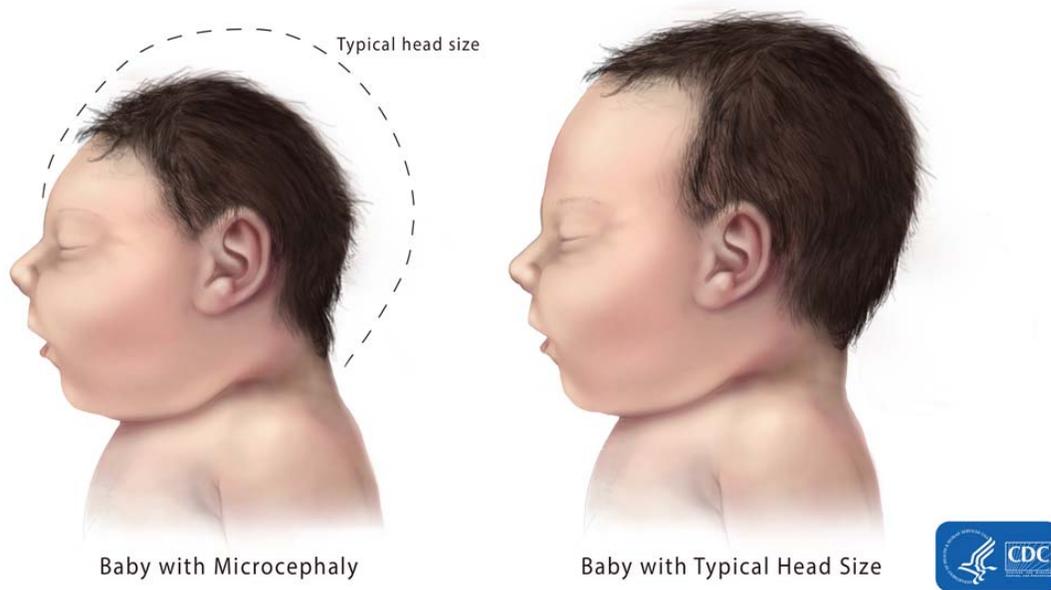
Babies with microcephaly can have seizures, developmental delay, intellectual disability, problems with movement and balance, hearing and vision loss, and other abnormalities. The severity of these problems vary, but often is made worse when confounded with other brain abnormalities. Zika virus in particular has been noted to cause many other brain abnormalities in addition to the small size, including:

- Enlarged ventricles,
- Absence of certain structures such as the corpus callosum,
- Calcifications within the brain,
- Lack of development of the brain stem, and/or
- Hypogyration, or decreased curvature in the brain.

Although this outbreak is so new that long-term outcomes are not known for infants affected by Zika virus, our available references to similar circumstances indicate that these infants are likely to be impacted profoundly.

Zika virus reached international attention when rates of microcephaly in Brazil skyrocketed. Typical rates of microcephaly in Brazil have been 0.5 to two per 10,000 live births, which is about 150 a year. In October through December of 2015 more than 3,000 suspected cases were reported to the Brazilian ministry of health. The Centers for Disease Control and Prevention (CDC) in April 2016 declared a causal link between Zika virus and microcephaly. CDC also acknowledge it may

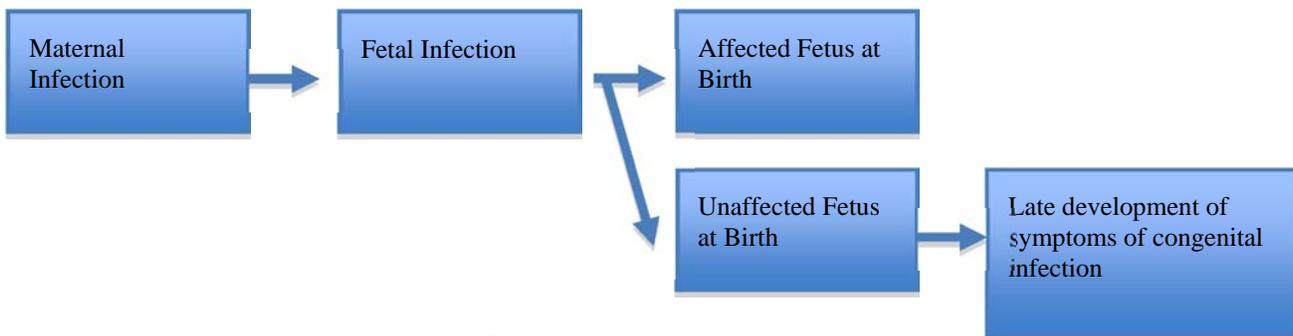
be only the “tip of the iceberg of what we could see in damaging effects on the brain and other developmental problems.”



How Zika virus is spread, and how this affects pregnant women and fetuses

Zika virus is spread predominantly via mosquitoes. However, it has been isolated from urine, breast milk, amniotic fluid, serum, and semen. All of these body sources highlight the risk to pregnant women and their infants. There are documented cases of sexual transmission, vertical transmission (from mothers to fetuses), and blood transfusions. In addition, there is theoretical risk from breastfeeding.

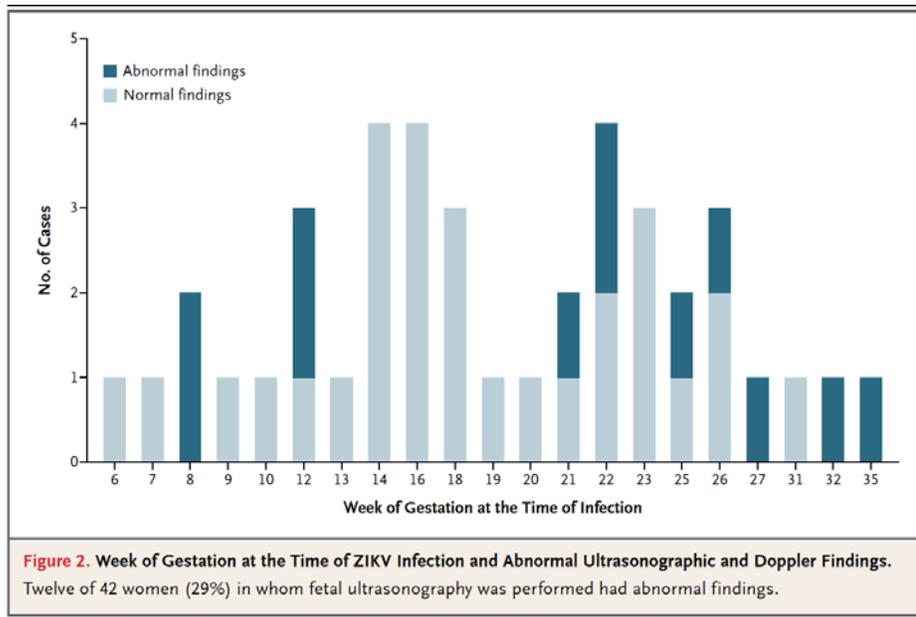
I am going to briefly describe the process for maternal to child transmission of infections to illustrate what is known and unknown about the transmission of Zika virus.



Typically, a mother can acquire an infection during pregnancy. There is then a chance that this can lead to a fetal *infection*, for certain pathogens. Of the fetuses with an infection, only a subset often are *affected*, or have a consequence or symptoms of the infection. Some of these manifest in utero or at birth, but some do not become evident for weeks to years after birth.

For Zika virus, we do not know the chance of fetal infection or having an affected (symptomatic) infant. Many of the individuals (four out of five) infected with Zika virus are asymptomatic. However, a recent small series from Rio de Janeiro published in the *New England Journal of Medicine* suggests that fetuses can be *affected* (illustrated by ultrasound signs of anomalies) in 29 percent of cases where mothers have a rash. There were cases of miscarriages and stillbirths in this

series as well. Fetuses were affected following maternal infection during all three trimesters. Notably, many women declined ultrasounds, and therefore the number of affected infants may be higher than what was seen in this small series. Also, many of the fetuses were not delivered at the time of the report, and therefore the number of infants showing signs of congenital Zika infection at birth or thereafter is unknown.



What does this mean for pregnant women or those considering pregnancy in Texas?

For the past year, I have staffed a clinic at Ben Taub Hospital devoted to taking care of pregnant women with infections. This clinic, until recently, has largely been devoted to taking care of women with syphilis, HIV, tuberculosis, malaria, and hepatitis. But in the past two months, it has largely become a clinic seeing women who have traveled to areas where there is active Zika virus transmission. In addition, we are receiving so many referrals from private physicians or pregnant women themselves asking about testing options that we will be opening an additional clinic to handle the volume. That is just based on travel history alone. If and when Zika virus becomes actively transmitted in Texas, the volume of women seeking treatment and testing will be enormous.

The women I see often tell me that they have called numerous physicians and providers searching for people who can offer them testing or information. Choosing the appropriate test is complicated, but accessing those tests is even more problematic. The largest volume of tests goes through the CDC, with a long turnaround time (21 days to eight weeks). The polymerase chain reaction (PCR) testing is currently offered only for women within two weeks of symptom onset. Other than that, there are only antibody tests (for IgM antibodies), which historically are poor tests, and for Zika, also are highly dependent upon the timing of infection and whether a person has had dengue or chikungunya in the past. The combination of a relatively new but profoundly significant disease with little knowledge about the exact timing and rates of transmission, and complex, often inaccessible testing options leaves pregnant women and physicians frustrated. I think doctors would benefit from statewide dissemination of the options and costs for testing within our state and city health departments. Additionally, the Women’s Health Program under Texas Health and Human

Services Commission should be a resource for physicians and providers in accommodating the swell of women seeking testing, especially those of lower income. The Medicaid program also should also be able to support the screening and testing of its eligible population and can be proactive in promoting and facilitating screening and testing for high-risk populations. Both of these programs should be active in informing females — and males — about preventing Zika.

As others have discussed, there is no treatment or vaccine for Zika virus. Therefore, the primary approach is prevention. This involves vector control, as has been and will be discussed by others in this panel. The other methods of prevention include educating the public and medical professionals. CDC has recommended women who might have been exposed to Zika or who are confirmed to have the virus delay conception for eight weeks. Likewise, it recommends men who are symptomatic of Zika delay conception for six months. It also recommends people discuss pregnancy planning in the context of Zika virus with health care professionals. This means that women who are considering delaying pregnancy due to either possible exposure to Zika virus or active transmission if/when it arrives in Texas will need access to contraceptives and medical care.

Last, I would recommend having an obstetrician-gynecologist serve as a member of the Texas Task Force on Infectious Disease Preparedness and Response. Reproductive-age women, and particularly pregnant women and fetuses, play a unique role in any infectious disease outbreak and therefore deserve specific attention. This has been illustrated by the increased illness and death among pregnant women from outbreaks such as the 2009 novel H1N1 influenza pandemic, Ebola, and now Zika virus. Many infections are sexually transmitted. Pregnant women have many physiologic changes that make them more susceptible to infections. And the fetal effects, either via birth defects, stillbirth, miscarriages, or preterm labor often are overlooked. These are reasons why having a medical expert in this arena serve on the task force would be beneficial.

Thank you for allowing me the time to speak about this important issue.