

# RESPONDING TO THE ZIKA OUTBREAK

Strategies that can inform effective government prevention and response

AN OVERVIEW OF GAO WORK



Infectious diseases threaten the health and well-being of people and animals around the world.

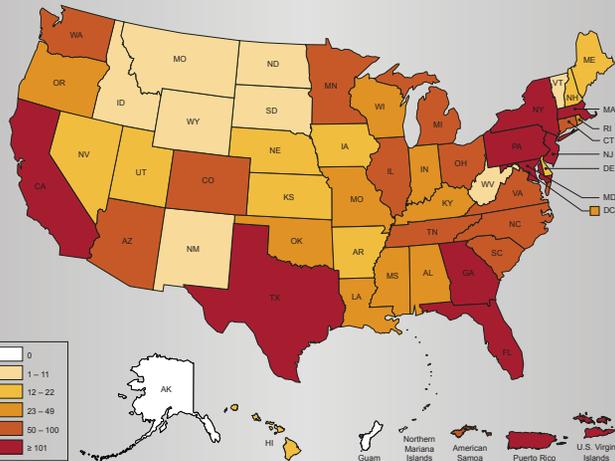
One such disease—the **Zika virus**:

- is primarily transmitted to humans by infected mosquitoes and sexual contact
- can cause symptoms including fever, rash, and joint pain
- has been linked to microcephaly in newborn babies
- is possibly linked to Guillain-Barré syndrome in adults



## Zika Cases Reported in the United States (as of December 7, 2016)

To date, in most states and territories, all reported cases have been travel-associated. Locally-acquired cases have occurred only in American Samoa, Florida, Puerto Rico, Texas, and the U.S. Virgin Islands.



Source: Centers for Disease Control and Prevention (data), Map Resources (map).

GAO has published a number of reports (cited in each section) on responding to infectious disease outbreaks, which can help inform **a robust Zika response strategy** for federal, state, and local officials.



## PREVENT

How can we best detect threats and manage risks?



**July 2016, Florida:** The first cases of mosquito-borne transmission of the Zika virus were reported in the continental United States. But such cases were reported earlier in some U.S. territories:



Check out our testimony to Congress on the Zika virus in March 2016 (GAO-16-470T).



These territories are front-line zones for detecting and preventing the spread of the Zika virus, but they may have limited capacity to test for diseases.

Medical officials often have to send their lab specimens to Hawaii, the U.S. mainland, or Australia for identification.



**A robust Zika response strategy** builds the capacity of medical labs in these locations to help

- reliably identify/detect diseases like Zika, and
- minimize delays in responding to them.

See our report on building nonfederal capacity in biosurveillance, which refers to collecting, analyzing, and interpreting data to help monitor for pathogens (GAO-12-55).



## RESPOND

Do we have the capacity to respond to an outbreak?



Researchers funded by the National Institutes of Health (NIH) and Biomedical Advanced Research and Development Authority (BARDA) are developing a Zika vaccine. However:

It can cost an estimated **\$800 million – \$1 billion+** to develop a single vaccine.

**More than 80%** of vaccines fail in the early development stage.

### Phases of Medical Countermeasure Development

	Discovery	Preclinical Development	Phase I	Phase II	Phase III	Licensure	Production & Delivery
Time	3–7 years	0.5–2 years	1–2 years	2–3.5 years	2.5–4 years	1–2 years	
Phase cost (in millions)	\$100–130	\$60–70	\$70–100	\$130–160	\$190–220	\$18–20	

Source: Department of Health and Human Services. Read our reports on developing and acquiring medical countermeasures (GAO-11-567T, GAO-12-121, GAO-14-442).



In addition to vaccine research, NIH and CDC are also funding mosquito control activities, such as

- treating standing water
- using insecticides
- developing biological controls for mosquitoes

**A robust Zika response strategy** funds both vaccine research and mosquito control activities.

Our testimony to Congress on Zika explores various mosquito control options (GAO-16-470T).



## COLLABORATE

How can federal agencies coordinate with all stakeholders?



Collaboration among federal agencies that work on infectious disease outbreaks is essential.

These agencies include:

**Roles and Responsibilities for Detection across the Inter-governmental, Cross-Domain Biosurveillance Network**



Source: GAO-10-645.



For example, during the West Nile virus epidemic, separate investigations of sick people and of dying birds continued for weeks.

The time it took to connect the bird and human outbreaks signaled a need for better coordination among public and animal health agencies.



Read more about the West Nile virus outbreak (GAO/HEHS-00-180).



**A robust Zika response strategy** includes national biosurveillance that fosters efficient interagency collaboration (and coordination with nonfederal agencies).

Read our reports on developing national biosurveillance capability (GAO-10-645) and nonfederal capacity (GAO-12-55).



## COMMUNICATE

How do we share information with the public?



Uncoordinated communication can lead to misunderstandings that affect the public's awareness and response to an outbreak.

For example, disorganized communications by the federal government during the 2004-2005 flu season contributed to

- confusion about the availability of a vaccine
- frustration
- lower vaccination rates



Additionally,

~120–160 million: The number of H1N1 vaccine doses that HHS said would be available in October 2009

but

<17 million: The number of doses that were actually shipped out that month



**A robust Zika response strategy** clearly and consistently shares information between all levels of the government, health care providers, and the public.

See our report and testimonies on responding to seasonal and pandemic outbreaks (GAO-13-374T, GAO-11-632, GAO-06-221T).