

VECTOR-BORNE DISEASES



The brown dog tick is one of the ticks that spreads Rocky Mountain spotted fever.

FIGHTING THE BITE

Everyone—in the United States and around the world—is vulnerable to diseases spread by infected insects or ticks, also called vectors. Increasing global travel and urbanization are contributing to vector-borne disease outbreaks in new regions and countries. These diseases can be difficult to prevent and control, particularly since vaccines are available for only a few of them. NCEZID's work, directed by national and international leaders in vector-borne pathogens, is focused on priority diseases, including:

- Zika (causes severe birth defects), chikungunya (causes debilitating joint pain), and dengue (can be deadly), which are caused by bites of infected *Aedes aegypti* and *Aedes albopictus* mosquitoes. Forty percent (40%) of the world's population is at risk for dengue infection.
- West Nile virus is now native to the United States, and outbreaks are reported each summer. Although most people infected with West Nile virus will have no symptoms, about 1 in 5 will experience fever with other symptoms, and less than 1% will develop a serious, sometimes fatal disease.
- Lyme disease is the most commonly reported vector-borne illness in the United States, with an estimated 300,000 infections occurring each year. Other tickborne diseases like Rocky Mountain spotted fever are also a serious public health problem and can be deadly within days if not treated promptly with antibiotics.

THE WORK OF CDC'S

National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) is about protecting America's health, safety, and security. NCEZID is ground zero when there's an outbreak of infectious disease. We have world-class scientists, researchers, laboratories, and emergency responders to protect people from diseases spread by bites from infected mosquitoes, ticks, or fleas.



National Center for
EMERGING and ZONOTIC INFECTIOUS DISEASES
Division of Vector-Borne Diseases

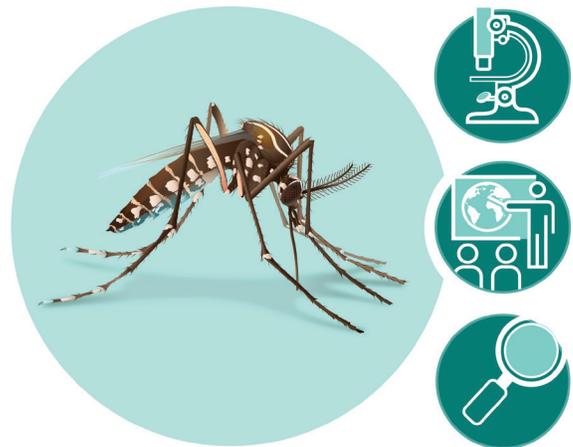




Home treatment kits are ready for distribution as part of the “RMSF Rodeo,” a pilot project targeted at reducing Rocky Mountain spotted fever in a large Indian reservation in eastern Arizona.



A CDC laboratorian performs a test for Zika virus. This test measures antibodies, which are made by the body in response to infection with the virus and usually can be detected after the virus is no longer present in the body.



What we’re doing:

- NCEZID has worked with partners on recent vector-borne outbreaks including Zika and chikungunya in Latin America, dengue in Hawaii, plague in Yosemite National Park, and Rocky Mountain spotted fever in Arizona and New Mexico.
- Early in the Zika outbreak, NCEZID scientists developed a new test called the Trioplex that detects Zika virus, dengue, and chikungunya in a single test.
- CDC is partnering with the Minnesota Department of Health and the Mayo Clinic to obtain up to 30,000 clinical specimens from patients with suspected tickborne illness over a 3-year period. CDC will use genetic sequencing methods to identify the specific tickborne bacterium that caused these patients’ illnesses.
- NCEZID scientists have found nootkatone, an ingredient found in Alaska yellow cedar trees, some herbs, and citrus fruits, to be an effective repellent and insecticide for use against mosquitoes, ticks, and other pests. Efforts are now underway to bring this product to market.

