

14-07

## STATEMENT OF POLICY

### Arbovirus Surveillance, Prevention, and Control

#### Policy

The National Association of County and City Health Officials (NACCHO) strongly urges the federal government to restore funding to state and local health departments to enable rapid and early detection, and prevention and control, of existing or emerging arbovirus activities and disease.

#### Justification

“Arboviruses” are viruses transmitted by arthropods (primarily but not limited to mosquitoes and ticks) to humans and domestic animals. Surveillance for these arthropods and human/animal disease is necessary for prevention and control. Reductions in arbovirus surveillance and prevention capacity compromise local and national ability to detect changes in arbovirus activities.

The need for a robust arbovirus surveillance infrastructure is critical. The nation experienced one of the most intense outbreaks of West Nile Virus (WNV) in 2012, with 2,873 cases and 286 deaths.<sup>1</sup> Dengue has established itself in continental America, with transmission documented in Florida, Texas, and New York.<sup>2</sup> The United States periodically experiences outbreaks of mosquito-borne encephalitis viruses like Eastern, LaCrosse, St. Louis, and California Group encephalitis. Tick-borne Powassan virus is expanding its range in the nation. Chikungunya, another mosquito-borne disease that until now has not been seen in the Western Hemisphere, was documented in the Caribbean for the first time in 2013 and has already been found in Mexico.<sup>3</sup> Not only are viruses expanding their range, but vector-competent species of mosquitoes are doing the same. After introduction of *Aedes albopictus* (Asian Tiger mosquito) into the United States in the mid-1980s, this mosquito, which is able to transmit Yellow Fever, Dengue, and Chikungunya viruses, has been expanding its range throughout the southeastern United States into the northeast and western parts of the nation.<sup>3</sup> A survey of the arbovirus surveillance infrastructure, conducted in 2013 and compared to a similar survey in 2004, showed substantial erosion of the public health capacity to detect disease and mosquito infection, and to conduct essential laboratory testing.<sup>1,4</sup>

Prior to the introduction of WNV in the United States in 1999, there was no federal support for state or local arbovirus surveillance infrastructure.<sup>4</sup> In response to the introduction and subsequent spread of WNV, approximately \$45 million federal dollars supported surveillance in all 50 states and the six largest cities/counties. A survey in 2004 showed that this funding had created a robust and well-integrated national arbovirus surveillance infrastructure. ArboNET, a national platform created in 2000 to monitor arbovirus activities, depends on each state and local



health department having capacity to submit human case information, mosquito testing data, and laboratory testing data. Beginning in 2004 and continuing into 2012, this funding declined by 61% to \$17.5 million. These reductions in the state or local capacity have affected national surveillance capacity.

The 2013 survey revealed that active surveillance for human cases declined: only 29% of respondents conducted surveillance compared to 51% in 2004. Active surveillance is more effective in identifying cases since it is not left only to the physician to report the diagnosis. Neurologists and infectious disease physicians, who were more likely to diagnose cases of arbovirus disease, were less likely to be involved in active surveillance compared to 2004.

Mosquito surveillance also declined in 2012 (86%) compared to 2004 (95%) among the health departments surveyed. Only 34% of states indicated that more than half of local health departments and/or mosquito control districts were conducting mosquito surveillance in 2012 compared to 48% in 2004. The sophistication of mosquito surveillance also diminished, with 46% of health departments calculating minimum mosquito infection rates compared to 58% in 2004. Reductions in mosquito surveillance affect the health department's ability to know if new mosquito populations have become established in their area; if mosquito populations are increasing or decreasing; which control measures might be most appropriate and cost-effective; if control measures are having the desired impact; and the extent to which virus is present within the mosquito population. Staffing levels dedicated to arbovirus surveillance have declined. Compared to 2004, the number of people employed to work at least 50% of their time on arbovirus surveillance decreased 38%.

Reductions in funding were handled by 64% of jurisdictions by eliminating dead bird surveillance; 67% reduced the number of mosquito trapping sites; 70% reduced the number of mosquito pools tested; and, 46% decreased the number of tests performed on human specimens. Each of these reductions affects the community's and the nation's ability to measure the risk of infections and disease caused by arboviruses.

New guidelines from the Centers for Disease Control and Prevention for WNV surveillance, prevention, and control provide a set of evidence-based recommendations for state and local health departments to use for early detection of arbovirus activity.<sup>5</sup> Restoring appropriate funding levels will ensure this guidance will be used effectively to protect against these serious and potentially devastating diseases.

## **References**

1. CDC. (2014). National capacity for surveillance, prevention, and control of West Nile Virus and other arbovirus infections – United States, 2004 and 2012. *Morbidity and Mortality Weekly Report*; 63(13):281-284.
2. CDC. (2010). Locally-acquired dengue – Key West, Florida, 2009-2010. *MMWR*; 59:577-581.
3. Ruiz-Moreno, D., Vargas, I.S., Olson, K.E., & Harrington, L.C. (2012). Modeling dynamic introduction of Chikungunya virus in the United States. *PLoS Negl Trop Dis*;6:e1918.
4. CDC. (2006). Assessing capacity for the surveillance, prevention and control of West Nile Virus infection – United States, 1999-2004. *Morbidity and Mortality Weekly Report*; 55:150-153.
5. CDC. (2013). *West Nile Virus in the United States: Guidelines for Surveillance, Prevention and Control*. 4<sup>th</sup> revision. Fort Collins, CO: US Department of Health and Human Services. Retrieved June 11, 2014, from <http://www.cdc.gov/westnile/resources/pdfs/wnvguidelines.pdf>

**Record of Action**

*Proposed by NACCHO Epidemiology and Infectious Disease Prevention and Control  
Workgroups*

*Approved by NACCHO Board of Directors July 8, 2014*