NACCHO
National Association of County & City Health Officials
The National Connection for Local Public Health

14-05

STATEMENT OF POLICY

Strengthening and Expanding Local Health Department Surveillance and Research Capacity to Examine the Effects of Climate Change on Existing and Emerging Vectors and Vector-Borne Diseases

Policy

The National Association of County and City Health Officials (NACCHO) urges the federal government to provide sufficient funds to maintain, strengthen, and expand the surveillance and research capacities necessary to track vector-borne diseases affected by climate change. In conjunction with existing positions regarding the local health department role in addressing climate change,[1]

NACCHO supports local public health activities to prevent, monitor, and control such diseases, including the following:

- Providing local health department staff with training and continuing education opportunities on how to investigate outbreaks in humans and animals, collect vector samples, and perform abatement;
- Collaborating with partners from multiple disciplines (e.g., medical entomology, environmental science, veterinary science) and other local, state, and national partners to identify the most appropriate disease and vector control and prevention measures to target vector-borne diseases;
- Expanding laboratory capacity to identify new and emerging vector-borne pathogens in human, animal, and vector samples;
- Improving data collection systems for tracking the incidence of vector-borne diseases in humans and animals;
- Enhancing data-sharing systems to facilitate effective communication between jurisdictions at the local, state, and federal levels;
- Participating in longitudinal monitoring programs for vectors and pathogens to study changes in vector distribution and abundance over time;
- Developing predictive models on the effects of climate change on vector-borne disease risk and the projected distribution and abundance of major hosts and vectors; and
- Creating disease control and prevention plans targeted to reduce the impacts of vector-borne diseases on local communities, including vulnerable populations.

Justification

Climate change may increase the incidence of vector-borne diseases by altering the survival rate, population growth, and habitats of vectors, and by changing disease transmission patterns.[2] The emergence and spread of West Nile virus (WNV) in the United States demonstrates how climate

change can affect the incidence of vector-borne disease and why robust public health monitoring systems are important. The risk of WNV transmission increases with elevated temperature, humidity, and precipitation.[3] In 1999, public health officials first detected the disease during an investigation of human and animal encephalitis outbreaks in New York. Since then, federal funding has helped support surveillance systems for WNV in people, animals, and mosquitoes. However, funding has substantially decreased, compromising the capacity of local health departments to conduct surveillance and control of mosquitos, other vectors, and associated diseases.[4,5]

Other mosquito-borne diseases such as malaria,[2] dengue fever,[6] Ross River virus disease, Chikungunya fever, and Rift Valley fever, are affected by an assortment of climatic factors such as temperature, precipitation, sea surface temperatures, and humidity. Ticks, the vector responsible for tick-borne encephalitis virus,[7] Lyme disease, tularemia, anaplasmosis, ehrlichiosis, and many other diseases are also susceptible to climate change. Human exposure to leishmaniasis, a vector-borne parasitic disease caused by sand flies, is predicted to increase in the United States due to climate change.[8]

The number of vector-borne diseases susceptible to climate change is particularly concerning given that local and state health departments, which are responsible for preventing and controlling outbreaks, have experienced severe funding cuts. Decreased funding for surveillance systems, technical expertise, laboratory capacity, and prevention programs has negatively impacted infectious disease surveillance and prevention activities. For example, the local health department workforce (as measured by full-time equivalents) decreased by approximately 12% from 2008 to 2013.[9]

Given that the current vector and vector-borne infectious disease surveillance and research efforts remain underfunded, it is vital that additional funds are allocated for the maintenance, strengthening, and expansion of surveillance and research capacities to study and examine the effects of climate change on existing and emerging vectors and vector-borne infectious diseases.

References

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Record of Action

Proposed by NACCHO Infectious Disease Prevention and Control Workgroup
Approved by NACCHO Board of Directors
July 8, 2014