



# PUBLIC HEALTH PREPAREDNESS TO COMBAT VECTOR-BORNE DISEASE

ESA Transition Document

## OVERVIEW

Vector-borne diseases (VBDs), caused by the infectious bites of arthropods like ticks and mosquitoes, are an urgent public health problem in the United States. According to the Centers for Disease Control and Prevention (CDC), the number of reported human cases of VBDs in the United States tripled during the last 20 years, threatening to cause severe disruptions to the country's public health and economic security. To address this growing problem and prevent the emergence of new VBD epidemics, the Entomological Society of America (ESA) urges the next administration to address pressing needs in VBD surveillance, public health capabilities, and federal cross-agency coordination.

## CHALLENGES

We are facing an unprecedented influx of new, emerging, and re-emerging VBDs in the United States. Locally transmitted cases of mosquito-borne malaria were seen in Florida, Texas, Maryland, and Arkansas for the first time in 20 years in FL, the first in 40 for MD. In early 2024, Puerto Rico declared a state of emergency due to a massive surge in dengue virus transmission, the causative agent of "break-bone fever." Tick-borne diseases are also expanding. Lyme disease, once restricted to the northeastern United States, has now been detected in more than half of all U.S. counties and causes three times the number of human disease cases as it did 20 years ago.

Unfortunately, most of the U.S. lacks trained medical entomologists, robust infrastructure, and adequate funding to conduct surveillance or control of arthropods and the pathogens they carry. This enables the introduction and expansion of vectors and pathogens to go undetected. Further, COVID-19 underscored the persistent threat of zoonotic disease with pandemic potential, exacerbated by various factors including climate change, urbanization, and habitat loss, putting humans and wildlife in closer contact. **Without concerted efforts to improve preparedness and capacity to address new and existing VBDs, the U.S. will remain vulnerable to the persistence and emergence of VBDs that will cause undue harm to human health and the economy.**

## RECOMMENDATIONS

VBDs will continue to rise without active efforts to prevent infections and protect people, pets, and livestock. To protect domestic health and productivity, we recommend the following:

### **Adhere to the National Strategy to Prevent and Control VBDs.**

ESA strongly supports implementation of the National Public Health Strategy to Prevent and Control Vector-Borne Diseases. The National Strategy outlines key federal priorities for detecting, preventing, and responding to VBD threats in the United States, spanning federal health, agriculture, and environmental agencies and emphasizing the need for improved coordination across these entities. Areas for improvement include making regulatory processes for new vector control tools more flexible; boosting communication and resource sharing among agencies dealing with human, wildlife, and agricultural aspects of zoonotic diseases; and developing integrated data systems for quicker decision-making.

### **Expand Disease Surveillance and Control Capacities.**

*Increase vector surveillance infrastructure.* It is essential to invest in nationwide surveillance programs that can rapidly identify when and where VBDs are being transmitted. This infrastructure should integrate passive surveillance, such as infection data reported by healthcare professionals, and active surveillance of arthropod populations by state and local health departments.



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*Improve regulatory pathways for novel vector control tools.* There is an urgent need for novel tools to control disease vectors, but cumbersome regulatory pathways prevent innovative products from getting to market and disincentivize the development of new ones. It is critical to expedite the federal approval processes to ensure that novel solutions can be promptly implemented. New insecticides, vaccines, therapeutics, and diagnostic tools are essential to protecting human, pet, and livestock health from established and emerging threats like Oropouche virus and Japanese encephalitis virus.

*Prepare for VBD introductions in areas without prior exposure.* VBDs are rapidly expanding into areas with no prior transmission. There is a need for federal assistance and coordination to ensure that areas without prior exposure are prepared to mitigate new VBDs when they are introduced, especially in areas that border regions with current transmission and places with high levels of international travel or trade.

*Public health disaster response.* Natural disasters create ideal conditions for VBD outbreaks, but we are largely unprepared to address disaster-driven VBD epidemics. Therefore, it is important to develop preparedness plans for vector surveillance and control activities following natural disasters to reduce the risk of VBD transmission among displaced persons and emergency response workers.

*Increase education and citizen engagement.* New and improved systems are essential for delivering tailored messages, understanding barriers to adopting prevention measures, and engaging individuals in VBD disease prevention. Expanding the funding for VBD prevention expertise within cooperative extension programs and for local-to-national-scale civic outreach holds great promise for increasing citizen engagement and empowerment.

#### **Support Critical Public Health Capabilities.**

*Sustained funding for core public health and epidemiological capacity in CDC.* Frontline state, county, and city health departments rely on resources and support from the CDC to address urgent public health problems. Specifically, the Epidemiology and Laboratory Capacity (ELC) and Advance Molecular Detection (AMD) programs are vital for helping local entities address public health threats, and support for those programs is needed to maintain national preparedness.

*Sustained funding for programs in the CDC's Division of Vector-Borne Diseases.* The CDC directs programs that aim to support reducing VBDs through the Division of Vector-Borne Diseases. Support for VBD programs in the CDC, including the CDC Regional Centers of Excellence in Vector-Borne Disease and the Training & Evaluation Centers, are essential for public health preparedness.

*The Entomological Society of America is the largest organization in the world serving the needs of entomologists and other insect scientists. ESA stands as a resource for policymakers and the general public who seek to understand the importance and diversity of earth's most diverse life form—insects. Learn more at [www.entsoc.org](http://www.entsoc.org).*

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