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Docket No. [HHS-OASH-2021-0012-0001](#)

### **Re: Request for Information (RFI) from Non-Federal Stakeholders: Developing the National Public Health Strategy for the Prevention and Control of Vector-Borne Diseases in Humans**

Dear Dr. Honey,

The Infectious Diseases Society of America (IDSAs) thanks you for the opportunity to share recommendations for the development of a national public health strategy for the prevention and control of vector-borne diseases. IDSAs is the largest infectious diseases medical society in the United States, representing more than 12,000 physicians, scientists, public health practitioners and other health care providers specializing in infectious diseases, including vector-borne diseases.

We appreciate the Department of Health and Human Services' (HHS) commitment to developing this five-year strategy and establishing goals to address vector-borne diseases including improving surveillance, diagnosis, prevention, treatment, and research. Below we offer feedback on the RFI regarding top priorities, proposed strategies, and additional recommendations in response to the questions posed in the Department's request for information.

#### **Top priorities to address vector-borne diseases in the United States**

IDSAs has identified the following priorities for addressing vector-borne diseases, including Lyme disease, in the next five years:

- Develop rapid, sensitive and specific diagnostic tests for *B. burgdorferi* and emerging vector-borne diseases (e.g., ehrlichiosis, anaplasmosis, babesiosis). Given the potential for disease transmission via blood transfusion, developing screening diagnostics for babesia and other vector-borne pathogens may also be important.
- Invest in vaccine development and prevention research for vector-borne diseases that are likely to expand in geographical tandem with climate change, such as dengue fever and Zika virus infection. Consider novel vaccine approaches and potential diagnostic improvements given recent mRNA vaccine technology breakthroughs.

- Develop novel strategies for control of vectors and pathogens in the wild to maintain lasting vector control and reduce overall public health expenditures.
- Improve vector surveillance and pathogen detection, and target geographically emerging areas to inform clinicians and the public (e.g., Midwest).

### **Proposed goals, objectives, and strategies for top priority areas**

- Support the development of direct diagnostic methods for vector-borne diseases, versus indirect detection such as serology. Rapid diagnostics for *B. burgdorferi* and other vector-borne pathogens have lagged due to the need for invasive procedures, such as skin biopsy, which has poor sensitivity compared to indirect serologic methods. Support for systematic oversight and rigorous clinical vetting is needed in tandem with innovative diagnostics. Ideally, a network of clinician-scientists in well-structured clinical research settings could assess new approaches if infrastructure support is provided.
- Reconsider state public health reporting needs to decrease burden where appropriate and reassess Lyme disease reporting requirements to emphasize states with emerging human infections. Increase monitoring for babesiosis, which is only reported in certain states.
- Invest in public education and outreach regarding the primary vector-borne illnesses in non-Lyme endemic areas (e.g., Zika, Rocky Mountain spotted fever, anaplasmosis, ehrlichiosis) to increase early and appropriate treatment.
- Increase public health surveillance for diagnosis of Zika virus infection, especially in people who are pregnant, since Zika virus can cause birth defects. The 2016 Zika virus outbreaks in Florida and Texas nearly became epidemics, and with continued climate change the mosquito vector that causes Zika infection is expected to become more prevalent in North America.
- The development of novel containment strategies for vectors and pathogens in the wild requires investments into integrated pest management strategies at local, regional, and national levels.

### **Recommendations for specific research or programmatic efforts to improve surveillance, diagnosis, prevention, and treatment of vector-borne diseases**

IDSA recommends advancing the following efforts via a “One Health” approach that encourages collaboration between all parties engaged in infectious disease surveillance and control, including public health professionals, entomologists, veterinarians, physicians, and researchers.

- Create a multi-center network for prospective evaluation of diagnostic tests and therapeutic trials for vector-borne diseases within HHS. In the U.S., a clinical research network coordinated by academic medical centers and other partners could answer lingering questions on vector-borne diseases and fill in gaps on less common tick- and mosquito-borne pathogens (e.g., babesia, *B. miyamotoi*, *Ehrlichia*, flaviviruses). Outstanding research needs include identifying specific biomarkers of the innate or adaptive immune system that may help detect stages of acute and resolved Lyme disease infection and examining T cell and antigen-specific gamma-interferon responses to infection.

- Increase investment in tick and mosquito vector surveillance in the wild, as innovative projects in this realm are currently underfunded. Develop a comprehensive surveillance strategy that involves epidemiologic tracing of major mosquito vectors (*Anopheles*, *Aedes*, *Culex*) and key mosquito-borne viral pathogens (West Nile virus, chikungunya, Zika) along with more exotic viral pathogens (Eastern equine encephalitis, Western equine encephalitis) as warranted. Maintain vigilance surrounding previously eradicated viruses (e.g., dengue, yellow fever). Increase research on the outcomes and ecological impacts of introducing genetically engineered mosquitoes into endemic environments.
- Create educational tools and materials for health care professionals responsible for the diagnosis and treatment of vector-borne diseases, particularly for lesser-known pathogens. Develop targeted social media campaigns and community engagement efforts to local populations and solicit feedback on the values, priorities, and knowledge of these communities. We also recommend additional investment in entomology training programs, given the dearth of trainees in recent years.
- Another important research area in need of funding is tick biology and ecology, particularly for the *I. scapularis* species, which is responsible for more than 95% of all tick-borne illness. Ecological and climate change are causing large-scale changes in the distribution of vegetation and animal species, and a fundamental understanding of vector ecology is key to developing innovative approaches to managing tick and mosquito populations for disease prevention. It is also important to analyze the reservoirs of these agents (e.g., deer, bats, birds), which are likewise influenced by climate and population spread.
- Create a special study section within the National Institutes of Health comprised of professional ecologists and environmental scientists from academic, government, and private institutions and organizations to review proposals solicited in a specific, targeted RFP in basic tick ecology.

Thank you again for the opportunity to provide comments on the development of a national strategy on vector-borne diseases. If you have additional questions or would like further information, please contact Jaelyn Levy, IDSA Director of Public Policy, at [jlevy@idsociety.org](mailto:jlevy@idsociety.org).

Sincerely,



Barbara Alexander, MD, MHS, FIDSA  
President, IDSA