

NIH strategic research plan addresses tickborne diseases threat

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The new NIH Strategic Plan for Tickborne Disease Research focuses on five scientific priorities for advancing research and development over the next five years



The incidence of reported cases of tickborne diseases in the United States has significantly increased in recent years. It is expected to continue to grow as tick species expand their geographical reach and new tick-transmitted pathogens emerge, raising the potential for serious human illness and death. A new strategic research plan from the National Institutes of Health aims to build on — and accelerate — new and existing research initiatives to improve scientific understanding of ticks and the pathogens they may transmit and to develop the necessary tools and strategies to better diagnose, prevent and treat tickborne diseases.

The new NIH Strategic Plan for Tickborne Disease Research focuses on five scientific priorities for advancing research and development over the next five years. First, the plan calls for improving fundamental knowledge of tickborne diseases, including the biology of tickborne pathogens; how they are transmitted to humans, evade the immune system, and spread within the body. This area also includes determining the cause of persistent symptoms in some people infected with tickborne diseases, such as Lyme disease, and furthering the understanding of how tick-derived factors contribute to the establishment and severity of disease.

Second, the plan calls for improving detection and diagnosis of tickborne diseases by developing rapid diagnostic tests that can detect a pathogen both early and late in infection and distinguish between active and past infections. Third, NIH will support the development of diagnostics capable of predicting treatment success and identifying human biomarkers of infection and persistent symptoms.

The new plan also prioritizes the acceleration of research designed to prevent tickborne disease infection, including vaccines, and immune-based treatments, as well as strategies to reduce the transmission of tickborne pathogens to animal populations that serve as hosts.

Fourth, the plan focuses on research to develop new treatments for tickborne diseases and techniques to reduce disease complications. Fifth, the plan prioritizes the development of tools and resources to advance tickborne disease research by improving scientists' access to biological samples, tickborne disease genetic data, and supporting preclinical development of promising products.

NIH intends to expand collaborations across its institutes and centers to promote a multidisciplinary approach to tickborne disease research, answer complex biological questions and encourage the application of state-of-the-art technologies used successfully in a range of scientific disciplines.

The new NIH strategic plan builds on the activities of the Department of Health and Human Services Tick-Borne Diseases Working Group, which issued a 2018 report to Congress outlining research recommendations. NIH sought input from the research and medical communities, patient advocacy groups, pharmaceutical industry, and the general public in developing this strategic plan.