

**Statement for the House Foreign Affairs Committee
Africa, Global Health and Human Rights Subcommittee's Hearing on
Global Challenges in Diagnosing and Managing Lyme Disease — Closing Knowledge Gaps
Submitted by the Infectious Diseases Society of America
July 17, 2012**

Chairman Smith and Members of the Subcommittee, the Infectious Diseases Society of America (IDSA) appreciates the opportunity to submit a statement for the record for the Subcommittee's hearing, "Global Challenges in Diagnosing and Managing Lyme Disease—Closing Knowledge Gaps." IDSA represents nearly 10,000 physicians and scientists devoted to patient care, prevention, public health, education, and research in the area of infectious diseases, including Lyme disease. IDSA is pleased to provide the following information on Lyme disease-related issues, including the latest scientific data, the need for new diagnostics and increased research, and evidence-based treatment recommendations. (The Clinical Assessment, Treatment, and Prevention of Lyme Disease, Human Granulocytic Anaplasmosis, and Babesiosis: Clinical Practice Guidelines by the Infectious Diseases Society of America; *Clin Inf Dis*, 2006, Vol. 43, Issue 9, Pp. 1089-1134.) We hope you will find the information provided useful to you in your deliberations.

Prevention

During 2006–2009, the total number of Lyme disease cases reported to the Centers for Disease Control and Prevention (CDC) increased each year, albeit with no consistent trend across states. In 2010, however, confirmed cases decreased 25% and probable cases decreased 11% as compared with 2009. In addition, regional trends were apparent. Among 12 high-incidence states in the Northeastern and mid-Atlantic regions, all but Virginia reported a decrease in confirmed cases. Conversely, the number of confirmed cases increased >20% in Minnesota and Wisconsin. The reasons for these patterns are unknown. Given the observed regional consistencies, surveillance artifact is an unlikely explanation. (MMWR, Vol. 59, No. 53, June 1, 2012, page 15)

The risk of acquiring Lyme disease for people who live in endemic areas can be lessened by taking simple, preventative steps such as avoiding brushy areas when walking in wooded areas; wearing long pants, long-sleeved shirts; using insect repellents; and thoroughly checking for ticks after being outdoors. IDSA supports efforts to further educate the public about these prevention efforts.

Another strategy worthy of discussion is a vaccine for prevention of Lyme disease. As you may know, in 1998, a Lyme disease vaccine for humans was introduced and initially was popular. Unfortunately, vaccine opponents began making unsubstantiated claims about the vaccine's side effects. These claims were not backed up by clinical data. The trials had not shown such side effects. The Food and Drug Administration (FDA) and the CDC looked into the claims, and then continued to recommend that people in or around tick-infested areas get the vaccine. However, the damage to the vaccine's public image caused vaccine sales to plummet. SmithKline Beecham, the company that manufactured the vaccine, pulled it from the market. A second Lyme disease vaccine-maker, Pasteur Mérieux Connaught, perhaps because of the SmithKline Beecham experience, subsequently decided not to market its own product. Lyme vaccines

remain available for animals, but not humans. IDSA would be happy to participate in discussions with Congress, the Administration, and industry to determine if a Lyme disease vaccine would be a useful tool in preventing Lyme disease and, if so, how to ensure that a safe and effective vaccine reaches recommended populations.

The National Institute for Allergy and Infectious Disease (NIAID) at the National Institutes of Health (NIH) also is funding grants for research and development of a bait vaccine to immunize wildlife in Lyme-infested areas. This effort has the potential to reduce the transmission of Lyme disease by reducing the number of ticks capable of infecting humans. Although this product is still being tested, initial data are very promising. While not a foolproof solution, this effort could be combined with other prevention strategies to strengthen our defenses against Lyme disease. IDSA urges further support to continue this research.

New Diagnostics

IDSA believes that specific and more sensitive diagnostic tests for Lyme disease are needed. NIAID devotes about 20 percent of its funding for Lyme disease to research that relates directly or indirectly to diagnosis. Because of enormous advances in bioinformatics and molecular genetics, significant progress has been made in the development of new diagnostic tests. However, it must be noted that whenever any new diagnostic test is developed, it must be compared to existing diagnostic methods to ensure that it is indeed superior with respect to specificity and sensitivity before it can be widely used and applied.

Studies performed at different institutions may use a variety of experimental methods that make it impossible to compare results in a meaningful way. This is why IDSA strongly advocated for the establishment of a Serum Reference Repository with a computerized data base to accelerate the decision making process by applying uniform standards to a large number of patient cases. The NIH and CDC initiated this repository in 2008 and, at the end of 2011, began making Lyme disease and related serum samples for testing and comparison of new and current diagnostic tests with a common serum sample set for standardization available to the scientific community on a broad basis. The repository now can enable comparison of results of newly developed and existing diagnostic tests under identical conditions using the same panel of well-characterized reference specimens. Though the effort is still quite new, IDSA believes it has the potential to yield positive results in the development of new diagnostic tools for Lyme disease.

Post-Treatment Lyme Disease Syndrome

IDSA recognizes that Lyme disease can be painful and that the disease is not always properly identified or treated. The Society advocates for educational efforts and, as mentioned in the section above, development of improved diagnostics that will enable clinicians to accurately identify patients infected with *Borrelia burgdorferi* so appropriate treatment can be prescribed. We recognize that some patients may continue to experience prolonged Lyme disease symptoms even after a course of antibiotic therapy has killed the Lyme disease bacterium. We sympathize with these patients' suffering, but remain concerned that a diagnosis of so-called "chronic Lyme disease," suggesting that active infection is ongoing, is not supported by scientific evidence and,

more alarmingly, the treatment of long-term antibiotic therapy will do patients more harm than good.

There is no scientifically accepted case definition for “chronic Lyme disease.” Standard courses of antibiotics (between 10-28 days depending on the manifestation of Lyme disease) have been proven effective to clear the infection in the vast majority of cases. IDSA recognizes that some patients continue to experience Lyme symptoms, such as arthritis, after the infection has been cleared by standard antibiotic therapy. According to peer-reviewed studies, these stubborn symptoms may be due to persisting inflammatory responses, by genetically predisposed individuals, to bacterial debris left in the body after the infection is cleared as well as joint damage caused by the initial infection. One study focusing on patients with antibiotic-refractory late Lyme arthritis, published in the *Annals of Internal Medicine*, found that these symptoms may persist for nine years, but the incidence and severity of these symptoms do decrease over time and eventually stop. During the first year following the first onset of illness, 90% of patients had bouts of arthritis, and the number of individuals who continued to have recurrences decreased by 10-20% each year. (Steere, A. C. *et al. Ann. Intern. Med.* 107, 725-731 [1987]).

Long-Term Antibiotic Therapy

Most cases of Lyme disease are successfully treated with 10-28 days of antibiotics. Using antibiotics for a very long time (months or years) does not offer superior results and can be dangerous, because it can cause potentially fatal complications and can promote the development of drug-resistant infections. Whether long-term antibiotics benefit patients with persistent symptoms of fatigue, musculoskeletal pains and neurocognitive dysfunction has been scrutinized using the highest level of scientific evidence: four placebo-controlled randomized trials do not support the use of long-term antibiotics as an appropriate treatment for Lyme disease. Though some patients report feeling better after this treatment, these results are largely anecdotal and study after study has failed to demonstrate any benefit of long-term antibiotic treatment over placebo. It should be noted that these randomized clinical studies reflected that approximately one-third of patients benefit from placebo. (Klempner MS, Hu LT, Evans J, et al. Two controlled trials of antibiotic treatment in patients with persistent symptoms and a history of Lyme disease. *N Engl J Med* 2001;345:85-92.) (Krupp LB, Hyman LG, Grimson R, et al. Study and treatment of post Lyme disease (stop-LD): a randomized double-masked clinical trial. *Neurology* 2003;60:1923-30.) (Fallon BA, Sackheim HA, Keilp J, et al. Double-blind placebo-controlled retreatment with IV ceftriaxone for Lyme encephalopathy: clinical outcome [abstract 196]. In: Program and abstracts of the 10th International Conference on Lyme Borreliosis and Other Tick-Borne Diseases (Vienna, Austria). Austrian Society for Hygiene, Microbiology, and Preventive Medicine. 2005. p. 116.) Hence, it is perhaps understandable why some patients and practitioners might mistakenly endorse long-term antibiotic therapy as helpful. This is precisely why it is important to perform well-designed clinical trials to distinguish if a therapeutic intervention has actual, beneficial effect in contrast to a resolution of symptoms which might merely happen on its own accord.

Further, no reliable evidence exists that supports the designation of Lyme disease as a chronic, actively infectious disease requiring ongoing antibiotic therapy. Two recent reviews -- one published in the *New England Journal of Medicine* (*N Engl J Med* 357:14; October 4, 2007) and

the other in the *American Journal of Medicine* (2008) 121, 562-564 -- give evidence-based assessments of Lyme disease diagnoses and the recommended treatments that substantiate IDSA's position. Neither the diagnosis of so-called "chronic" Lyme disease, nor long-term antibiotic therapy are supported by the NIH, CDC, American Academy of Neurology, the American College of Physicians, and the American Academy of Pediatrics, or by an overwhelming majority of experts in the field of infectious diseases medicine in this country and abroad.

Specific to the issue of global aspects of Lyme disease, although the pathogen that causes Lyme disease in Europe is somewhat different from the one we face in the U.S., eliciting more neurological symptoms rather than the primarily arthritic symptoms Americans suffer, the same short-term course of antibiotics has been proven effective in clearing Lyme disease infections in Europe. It should be noted that the IDSA's recommendations for the treatment of Lyme disease are in agreement with those of the European Federation of Neurological Societies, the European Union of Concerted Action on Lyme Borreliosis, the Canadian Public Health Network, and the German Society for Hygiene and Microbiology. They also are in agreement with recommendations made by expert panels from 10 European countries, including the Czech Republic, Denmark, Finland, France, the Netherlands, Norway, Poland, Slovenia, Sweden, and Switzerland.

IDSA recognizes that medicine is continually evolving, and the Society's members do not claim to have all the answers. Given that long term antibiotic therapy has not been found to effectively treat symptoms that persist after the initial infection is cleared, IDSA supports additional research to determine safe and effective treatments for patients that experience such long-term symptoms. IDSA will continue to periodically review its Lyme disease guidelines and update them as needed to reflect the best available scientific literature.

Conclusion

Once again, IDSA thanks Chairman Smith and Members of the Subcommittee for their attention to this issue and their interest in IDSA's perspective. The Society looks forward to working with you on matters of importance to global health.