caused by several factors; therefore, both infectious and non-infectious aetiologies should be considered. To limit the debate to Lyme disease alone is highly unproductive, because this disease is unlikely to be the universal explanation of our patients' persisting ailments. These syndromes with possible microbial involvement should be investigated with the best available tests and with a fresh and open-minded scientific approach.

I declare that I have no conflicts of interest.

Christian Perronne
c.perronne@rpc.aphp.fr

Infectious Diseases Department, Groupe hospitalier Hôpitaux Universitaires Paris Ile-de-France Ouest, Assistance Publique-Hôpitaux de Paris, University of Versailles-St Quentin, 92380 Garches, France

1 Auwaerter PG, Bakken JS, Dattwyler RJ, et al. Antiscience and ethical concerns associated with advocacy of Lyme disease. *Lancet Infect Dis* 2011; **11:** 713–19.
2 Lee DJ, Vielmeyer O. Analysis of overall level of evidence behind Infectious Diseases Society of America practice guidelines. *Arch Intern Med* 2011; **171:** 18–22.
3 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.
4 Mavin S, Milner RM, Evans R, Chatterton JMW, Joss AWL, Ho-Yen DO. The use of local isolates in Western blots improves serological diagnosis of Lyme disease in Scotland. *J Med Microbiol* 2007; **56:** 47–51.
5 Mantovani E, Costa IP, Gauditano G, Bonoldi VLN, Higuchi ML, Yoshinari NH. Description of Lyme disease-like syndrome in Brazil: is it a new tick borne disease or Lyme disease variation? *Braz J Med Biol Res* 2007; **40:** 443–56.
6 Miklossy J. Alzheimer's disease—a neurospirochetosis: analysis of the evidence following Koch's and Hill's criteria. *J Neuroinflammation* 2011; **8:** 90.

Paul Auwaerter and colleagues[1] are among the handful of individuals who have controlled the Lyme disease research agenda for decades and ultimately which data have been reported. Why is it that, in my experience, many people in New Hampshire have been severely debilitated by Lyme disease or know someone who has, whereas Auwaerter and co-workers claim that the disease is easily diagnosed and treated with a short course of antibiotics? Seven states have now passed legislation to protect clinicians who treat late-stage Lyme disease with long-term antibiotics (CT, MA, MN, NY, NH, RI, and TX) and support groups exist in nearly every state, with 19 in Pennsylvania alone.

The ELISA first-line screening test produces false-negative results and patients are told they do not have Lyme disease. A follow-up western blot test that is much more sensitive is not allowed when the ELISA test is negative. In a two-tiered testing algorithm, western blots can only be used after a positive ELISA test to rule out a false-positive result. Therefore, we have no way to rule out a false negative. Clinicians who exclusively treat Lyme disease no longer use the ELISA test.[2–4] The German Borreliosis Society has recognised that the two-tier system we presently use for Lyme disease testing is inadequate.[5]

Misinterpretation of laboratory results is the main reason why the medical community is dismissive of patients with Lyme disease and their symptoms. Faulty diagnostic tests create confusion, causing physicians to miss the small period in which they can give successful short-term treatment. As a result, many patients have late-stage Lyme disease. Since we only test for antibodies against the infection and not the bacteria itself, we have no way to rule out active, continuing infection.

If the Infectious Diseases Society of America and the Centers for Disease Control and Prevention are correct with their single-treatment approach for all stages of Lyme disease and two-tier method of testing, why do we have so much legislation involving Lyme disease?

I declare that I have no conflicts of interest.

Carl Tuttle
runagain@comcast.net

33 David Dr, Hudson, NH 03051, USA

1 Auwaerter PG, Bakken JS, Dattwyler RJ, et al. Antiscience and ethical concerns associated with advocacy of Lyme disease. *Lancet Infect Dis* 2011; **11:** 713–19.
2 Ang CW, Notermans DW, Hommes M, Simoons-Smit, Herremans T. Large differences between test strategies for the detection of anti-*Borrelia* antibodies are revealed by comparing eight ELISAs and five immunoblots. *Eur J Clin Microbiol Infect Dis* 2011; **30:** 1027–32.
3 Tuttle C. Lyme Disease Discussion. Aug 18, 2011. http://home.comcast.net/~runagain/Dept%20of%20Health%20Agenda.pdf (accessed April 2, 2012).
4 Carey J. Task force takes Lyme disease fight to Loudoun County. June 30, 2011. http://www.nbcwashington.com/news/health/Task-Force-Takes-Lyme-Disease-Fight-to-Loudoun-County-124824524.html (accessed April 2, 2012).
5 Deutsche Borreliose-Gesellschaft e V. Diagnosis and treatment of Lyme borreliosis. December, 2010. http://www.borreliose-gesellschaft.de/Texte/guidelines.pdf (accessed March 29, 2012).

Authors' reply

Although we support efforts to educate clinicians and the public alike with high-quality, evidence-based information about infection with *Borrelia burgdorferi*, the comments from Stella Huyshe-Shires regarding our Personal View misleadingly suggest that the UK is untainted by antiscience concerns. A report by Cottle and colleagues[1] showed that most patients referred to an infectious diseases unit in Liverpool, UK, for Lyme disease (n=115) did not have the disorder. Of 38 patients with chronic fatigue syndrome, 45% were incorrectly labelled as having chronic Lyme disease by alternative practitioners. These patients had received unnecessary antibiotics instead of other targeted management strategies, supporting the case that overdiagnosis and inappropriate management of Lyme disease also occurs in the UK and reinforcing concerns cited by the British Infection Association.

Both Christian Perronne and Carl Tuttle believe that present serological testing for *B burgdorferi* is inaccurate. Although the human immune system can take 2–3 weeks to produce detectable concentrations of antibodies in the early phases of Lyme disease, this delay is also reported in many other bacterial infections. This delay in no way negates the usefulness of two-tier