**Reviewer's report**

**Title:** Diagnostic behaviour of general practitioners when suspecting Lyme disease: a database study from 2010-2015

**Version:** 1  **Date:** 03 Nov 2017

**Reviewer:** Eugene D Shapiro

**Reviewer's report:**

The authors have made many appropriate revisions to the original manuscript. However, there are two points that they seem not to understand. The first is that they seem to think that there is a major difference in the pre-test probability of Lyme disease (ie, the probability that the patient has Lyme disease BEFORE a diagnostic test is done) among patients who present to general practitioners vs those referred to specialists. While it may be true that the proportion of referred patients that have Lyme disease is greater, the PRE-TEST probability of Lyme disease is the same for specialists and general practitioners. The algorithm for who should be tested should be the same for general practitioners and for specialists. More patients referred to specialists indeed may have Lyme disease, but the difference would be accounted for largely by those who already had a positive diagnostic test result or who had an erythema migrans rash. The "pre-test" probability is not much of an issue in those patients, except to the extent that many patients with non-specific symptoms and a false-positive test result are referred to specialists. The second issue is that the authors persist is saying that factors related to the "symptoms" of Lyme disease (type of symptoms, duration of symptoms) are critical to a diagnostic algorithm. There are NO SYMPTOMS that are specific for Lyme disease!!! Patients with Lyme disease do have symptoms (pain, headache, fatigue, arthralgia, etc). However, THESE symptoms ALONE are all very non-specific, and if the patient has only non-specific symptoms without objective signs (eg, erythema migrans, facial palsy, frank arthritis, nuchal rigidity, etc), the pre-test probability of Lyme disease will be extremely LOW, since pain, arthralgia, fatigue, etc are highly prevalent in the population and their presence, by themselves (tick bite or no tick bite), is extremely UNlikely to be an indicator of Lyme disease. This point should be incorporated in their discussion and conclusions.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.
Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.
Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.
Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.
I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:
Needs some language corrections before being published

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?
2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?
3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?
4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?
5. Do you have any other financial competing interests?
6. Do you have any non-financial competing interests in relation to this paper?
If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal