Reviewer’s report

Title: Cost-effectiveness of six strategies for Helicobacter pylori diagnosis and management in uninvestigated dyspepsia

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Reviewer: Dorte Jarbøl

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This paper reports a comparison of the cost-effectiveness of six noninvasive testing strategies for H pylori along with empiric proton pump inhibitor trial in the management of uninvestigated dyspepsia. A Markov simulation was used to estimate the cost per symptom-free year.

Overall, I find it a well-written paper. The design seems appropriate for the study design. My major point of criticism is about the assumptions made and the representatives of the results.

Major Compulsory Revisions

1. Some key baseline assumptions were included in the model. It is hard to understand the rationale behind all the assumptions.

Assumption no. 4: If there is no relief of symptoms after initial management, or if symptoms recur, an endoscopy will be offered; However, relief of symptoms will not be expected in all patients with uninvestigated dyspepsia, treated for H pylori infection. Further, the fluctuation of dyspepsia symptoms is well-known and severity as well as symptoms may vary in the same patient over time.

The evidence to support the assumption concerning endoscopy to all people < 55 years with recurrence of symptoms or no relief of symptoms after initial management is not fully reliable. The assumption needs further explanation.

2. Assumption no. 5: The rationale for long-term PPI therapy here is not understandable and needs further explanation.

3. Probabilities employed in the model were based on published literature where available and where necessary, the numbers were supplemented with expert opinion based on experience treating dyspepsia patients. Limitations of this approach should be discussed.

4. The incremental cost-effectiveness ratios for each strategy are presented in table 5. However, the results are not reflected in the discussion

5. The discussion and conclusion is not quit well balanced and supported by the data in the way that the authors conclude that “in the initial choice of noninvasive testing strategy does not have a significant influence on the overall quality and cost for care for patients presenting with previously uninvestigated dyspepsia.
The data does not support much about the quality of care for patients.

6. The authors are aware of the limitations of their analysis in the set of clinical assumptions but I am not convinced about the representatives of the results.

Minor essential revisions:

1 Table. 2: Variable1: Prevalence. I guess it is the H pylori prevalence, but this should be clarified.

Discretionary Revisions

The authors prepare the ground for a debate of the issue of which non-invasive H pylori test strategy should be used in the management of uninvestigated dyspepsia, but also include empiric proton pump inhibitor trial in the model. The reason for this is not fully explained in the text.

2. The authors include serologic tests in the model, and argue that serology is more widely used than would be expected under the recommended approach. However, the serologic tests are not recommended due to inferior sensitivity and specificity, and are therefore not interesting from a clinical point of view.

3 The choice of cost per symptom free year rather than cost per correct diagnosis as primary outcome is discussed in the text.

The aspect considering a correct diagnosis of H pylori, including confirmation of the eradication treatment effect, in the light of preventing future ulcer disease, ulcer complications and cancer disease is, however, not discussed.

4 The cost perspective taken was social, however, the analysis considered only direct costs which mean that the indirect costs were not included, which could have been discussed.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

'I declare that I have no competing interests'