Reviewer’s report

Title: Diabetes and insulin use are linked to Helicobacter pylori eradication

Version: 5 Date: 24 February 2012

Reviewer: David Whiteman

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Diabetes and insulin use are linked to Helicobacter pylori eradication
Chin-Hsiao Tseng

This is an interesting analysis of a population database in Taiwan. The author has used routine health data (in this case, insurance data) to explore the relationship between type 2 diabetes and treatment for Helicobacter pylori infection. They are attempting to infer a causal association from this retrospective analysis.

A number of issues present themselves when attempting to interpret this paper.

1. Is the question posed by the author well defined? No, the author has not explicitly stated their research question as a clearly testable hypothesis; rather, the question is implied in the title and in the Introduction to the study. This is a MINOR ESSENTIAL REVISION

2. Are the methods appropriate and well described? No. I am not clear that I understand how exposure and outcome were defined. It is not stated explicitly whether the intent of the analysis was to constrain H pylori eradication to occur only AFTER diabetes was diagnosed, or whether it could occur at any time within the study interval. The former would imply that diabetes preceded H pylori treatment, and might therefore imply some temporal order. This has major implications for interpreting the analysis. Most readers would be expecting a retrospective cohort design, in which the cohort has been defined by date of assembly, and that the diagnosis of diabetes must precede the date of eradication of H pylori. Is this what happened? It appears not, and that there is simply an attempt to assess a cross-sectional association. This is a MAJOR ESSENTIAL REVISION

3. Are the data sound? The data were obtained from the national health insurance records of Taiwan. They are likely to be reasonably complete, and are not likely to be biased with respect to diabetes status or records of H pylori eradication. However, I suspect that there is considerable under-diagnosis and under-treatment of H pylori in this population. Some comment from the investigators is required. This is a MINOR ESSENTIAL REVISION

4. Does the manuscript adhere to the relevant standards for reporting and data deposition? Yes.

5. Are the discussion and conclusions well balanced and adequately supported by the data? Yes.
6. Are limitations of the work clearly stated? Yes
7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished? Yes.
8. Do the title and abstract accurately convey what has been found? Yes
9. Is the writing acceptable? Yes.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.