Reviewer’s report

Title: Appropriate Antibiotic Use for Patients with Complicated Urinary Tract Infections in 38 Dutch Hospital Departments: a Retrospective Study of Variation and Determinants

Version: 2
Date: 18 July 2015

Reviewer: Biao Xu

Reviewer’s report:

Major Compulsory Revisions

General comments:

The manuscript describes an important public health issue in the Netherlands regarding appropriate antibiotic use in patients with complicated urinary tract infections. The study was carried out in a relatively large study population (1,964 patients) with a complicated urinary tract infection treated at Internal Medicine and Urology departments of 19 Dutch hospitals, and it was based on the accurate diagnosis by treating physicians. The dependent variables used in this study were the QIs applicable in the Dutch health system. The independent variables covered both demand sides and supply sides. However, I have several concerns with the way that the paper has been written, in particular with its overwhelming information and remarkable variations of the findings.

1. Is the question posed by the authors well defined?
   Yes. But the scope of question is huge, which might be difficult to answer as a whole.

2. Are the methods appropriate and well described?
   The study setting, data collection, analytic variables and indicators were well described. But there were too many aspects and dimensions, including type of departments, kind of UTI (febrile or non-febrile), demographical and clinical characteristics of patient, a group of stewardship elements, and 9 QIs. Although multivariate analysis was applied, the large variation in QI performance between departments, type of patients, QIs, and the variables having a significant OR suggests the uncertainty of findings, and the impacts of findings might also been diluted due to put everything together. Stratification should be taken into consideration. My suggestion is targeting patients who are under the most concerns regarding antibiotic treatment, and stratifying them into comparing groups according to the research questions such as febrile and non-febrile, teaching hospital or non-; department A or B,C, inpatient or outpatient, etc. Also I don’t think the stewardship elements should be included in this paper. With so many dimensions and aspects, the contribution of each element is hardly counted. Let alone, quite a few of these elements has the potential for collinearity.
3. Are the data sound?
Yes. Although there are missing data, data collection is well organized.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
- To present the most meaningful and important results, the performance of each QI should be described in details, instead of being graphed together in Figure 1. What the readers/users would like to know is: what kind of patients had the lowest QIs, and which QI was at the lowest?
- For each QI, it is better to report the results (OR, CI%) of all variables in the multivariate analysis, rather than only report the results for variables with statistical significance.
- Tables should be presented in the 3-line format

5. Are the discussion and conclusions well balanced and adequately supported by the data?
Discussion and conclusions are well balanced but due to the abundant information it is difficult to see the impacts of findings.

6. Are limitations of the work clearly stated?
Limitations of the work are partly clearly stated.

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
I think so.

8. Do the title and abstract accurately convey what has been found?
Yes.

9. Is the writing acceptable?
The writing is acceptable. The results should be presented consistently in the past tense.

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

**Quality of written English:** Needs some language corrections before being published

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

**Declaration of competing interests:**
I declare that I have no competing interests