Reviewer's report

Title: Antimicrobial susceptibility and genetic characteristics of Neisseria gonorrhoeae isolates from India, Pakistan and Bhutan - 2007-2011

Version: 1 Date: 16 November 2012

Reviewer: Lai-king Ng

Reviewer's report:

• Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)
  None

• Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

The paper title and introduction indicated the authors want to find out the prevalence and characteristics of N.gonorrhoeae in South Asia. However, the strains were mainly from three countries. It is more appropriate to indicate three countries or indicate the authors definition of South Asia.

L82-84. Disk Diffusion if done properly should be able to classify susceptibility of N. gonorrhoeae. However, intermediate strains should be confirmed with MIC determination. The advantage of MIC determination is the ability to track decreasing susceptibility. Quality assurance and quality control should be performed for both disk diffusion and MIC methods. Therefore, it would be better to reword these two sentences for readers. Do the authors want to say that previous data in this region are invalid due to lack of quality assurance and quality control. It is also important to methods are validated internationally for global surveillance. Therefore, MIC tests become method of choice if affordable.

A reference for genetic determination of ciprofloxacin resistance in strains from this region should be included.

L92. Insert reference of now out-dated DNA-based method. DNA sequencing is one of the DNA based method.

Azithromycin resistance could be caused by ribosomal RNA gene mutation besides efflux. This paper did not sequence the ribosomal RNA genes of resistant isolates. Is that based on the level of resistance or other reasons? 11 of the 15 isolates has increased efflux, what are the mechanisms of the other four azithromycin resistant or reduced susceptible strains (L 182-185). In discussion L245, 13 has Mtr promoter mutations.

L280-281 Do the authors collect epidemiological data of patients so typing could be linked to modes of transmission?

Are ST types in this region different from those in other parts of the world?
Major Compulsory Revisions (which the author must respond to before a
decision on publication can be reached)

L87-91. It is a good idea to have a population based study. However, the sample
size in particular in Bhutan is rather small and has little power for interpretation
for comparison of different communities etc. At the most, the sample is adequate
for comparison at country level. Each year the number of isolates was small. It is
important for the reader to know the incidence of N. gonorrhoeae and
population size in these countries to understand the representativeness of the
selection of strains or clinically specimen and relevance to an epidemiological
study.

L 94-102. To have high discriminatory power, N. gonorrhoeae often is based on
multiple typing methods and not a single method. Of course the most
discriminatory is whole genome sequencing. If the authors indicate NG-MAST or
por sequencing could be used only, it require good evidence. In Line 107-108 the
authors used two molecular typing methods (L 94-95 indicate only one method is
needed).

In the discussion, different rates of resistance were reported from different
studies. Does this study has less biased sampling? What is the confidence level
of the rates of in this study in comparison of other studies? Could the difference
be explained by methodology only as author suggested in the paper or the
difference in sample bias? Does the scenario in L 267-275 affects the results of
this study?

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