Reviewer's report

Title: An Expanded Age Range for Meningococcal Meningitis: Molecular Diagnostic Evidence from Population-Based Surveillance in Asia

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Reviewer: Andrew Vyse

Reviewer’s report:

Given the very limited data currently available describing the epidemiology of meningococcal disease in Asia, this is a valuable paper that contributes much needed data to an important knowledge gap.

Whilst I feel there are no major compulsory revisions are necessary, I think there are a number of minor essential revisions the authors should consider which would improve their paper. The paper would particularly benefit from some reorganization and brevity.

Background:
• Two recent review articles are now available that provide detailed commentary on the epidemiology of meningococcal disease in Asia and should be mentioned:
  o Halperin et al (Vaccine 2012; Suppl 2: B26-36)
  o Vyse et al (Epidemiol Infect. 2011; 139 : 967-985)
• The limited data and extent of the knowledge gap in Asia, and need to undertake studies in the region using modern diagnostic techniques should be highlighted
• The objective of this paper should be made clear i.e. are the authors describing an analysis of samples collected at the end of the 20th and beginning of the 21st century from cases of suspected meningococcal disease using modern diagnostic techniques...was this undertaken retrospectively or prospectively

Methods:
This section needs some clarification/re-organization:

Study samples:
• Were they collected prospectively or accessed retrospectively (1999-2002 is now quite historical and it is not clear if the samples were accessed retrospectively or if the authors are describing a prospective study that has been on-going for some considerable time)…?
• A descriptive summary/overview of the samples used would be valuable (when/where were the samples collected etc)
• A summary of the patient demographics also available/collectioned would be valuable

Results:
I feel text is often used to describe much of the data that are already clearly presented in the figures/tables. The paper could be considerably shortened if this was avoided and the figures/tables relied on to present the results and the text used to draw the attention of the reader to those points of particular significance/interest.

A table summarizing serogroup distribution resulting from this study would be valuable

The approach used to estimate incidence should be moved to the statistical methods section.

Discussion:
This section is rather lengthy. Detailed descriptions of results from other studies are not needed (pages 12/13)

Page 12, last sentence paragraph 1: plain polysaccharide vaccines are not considered to confer herd (indirect) benefits.

Key points of interest that could be highlighted/discussed further:
• Comment on those serogroups identified in the context of the existing information on serogroup distribution in Asia.
• What are the implications for quadrivalent meningococcal conjugate vaccines that are now available…?
• To what extent do these data suggest there may be a role for a serogroup B vaccine in the region…?
• Serogrp X has previously only very rarely been found outside of the African meningitis belt. It is therefore very singular that this study should highlight a significant number of cases due to serogrp X. Does this work suggest a vaccine that includes serogrp X should be seriously considered for Asia

Limitations of the study are currently very unclear (page 15)

Additional value and relevance of the MLST testing is not clear…what to the results of the MLST testing add…?

Some comment on the historical nature of these data is needed. What might the authors expect a decade later…? What are the implications for the current contemporary epidemiology in the region…?

Level of interest: An article of importance in its field

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

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

Declaration of competing interests:
I am currently employed by a pharmaceutical company that has close interests in the development and use of meningococcal conjugate vaccines.