Reviewer’s report

Title: The spatial distribution of leprosy cases during 15 years in a leprosy control program in Bangladesh, an observational study

Version: 1 Date: 15 February 2008

Reviewer: William W.C.S. Smith

Reviewer’s report:

This paper tackles an issue which is technically very difficult to address. Leprosy has a very low incidence rate and a very long incubation period. The epidemiology of leprosy is always at risk of operational factors influencing the patterns of disease that are observed. The frequency and intensity of the case detection process affects the number of the cases that are found. This study therefore is intrinsically very challenging. The authors have used probably as good data over a reasonable time period as it possible and have used robust methods but the limitations remain. The hypothesis that the disease would cluster is reasonable given the nature of an infectious disease in that it is probably transmitted by air borne means or at least by close contact. However it is difficult to separate such clustering from the added effect of contact surveys or at least heightened awareness in household contacts. This as well as surveys, school surveys, village survey, campaigns to raise awareness and increasing voluntary reporting all cloud the picture of the true epidemiological patterns.

Major compulsory

1. In the methods section a temporal cluster is defined as a period in which case detection is exceptional high but this is not quantified and needs to be specified so that the reader understands what “exceptional high” means. Similarly a geographic cluster is defined as a high excess proportion but this again needs to be specified.

2. In the results the missing cases are reported to show no bias by sex and age but they are claimed to be equal rather than not different. The additional tables show that there is a significant different in the %MB among missing cases but this is not reported in the text.

3. The last few paragraphs of the results suggest that cases within clusters did not live nearer or further to towns but a few lines later it is noted that case detection is higher nearer towns “these statements need to be reconciled.

4. The discussion uses the term outbreak to describe the clusters “this is misleading as it implies an interpretation of the clusters when different explanations need to be considered - particularly whether these are real clusters or an artefact of the operational aspects of leprosy control.

Minor essential
5. The claim in the introduction that leprosy distribution in relationship clinic facilities has never been studied is overstating this as programmes regularly do this in planning the location of clinics.

6. The patient locations are based on location at the time of diagnosis rather than the time of first signs or of original contact — this needs noting.

7. The issue of education and awareness raising among contacts even without contact surveys will increase case detection in this group. The effect of raising awareness is clearly demonstrated in the figure of case detection between 1989 and 2004.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

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