Reviewer's report

Title: A typhoid fever outbreak in a slum area of South Dumdum, West Bengal, India, 2007: Evidence for foodborne and waterborne transmission

Version: 2 Date: 28 August 2008

Reviewer: Roland L Salmon

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This is a well structured and interesting investigation that uses classical field epidemiology techniques to demonstrate convincingly that an epidemic of fever in an Indian slum was due to typhoid and to show plausibly that the source was a sweet stall, subsequently amplified by the water system. All my suggestions are ultimately discretionary revisions.

Discretionary Revisions

Some better indication of where South Dumdum actually is would be helpful. Are all of the other rates quoted (eg Darjeeling district) strictly comparable?

Why did the outbreak come to the authorities attention? Was it simply from reviewing routine surveillance or did some event prompt the authorities' attention? Please state.

Did mention of the sweet shop arise simply from trawling questionnaires? If not, why did cases mention it in hypothesis generating interviews when, one surmises, many potential sources for typhoid existed? More detail of the procedure followed here would be helpful.

Perhaps the most contentious aspect of the paper is the attempt to attribute the responsibility for the cause of the outbreak to the sweet shop rather than to the water supply. Were the implicated water supply outlets near the sweet shop? Fig 2 seems to suggest that they were but this should be stated. Cases that ate food from the sweet shop (fig 1) occurred for 5 weeks after treatment of the food handler. Did the foodhandler continue to excrete S.typhi following treatment? Please give some indication if this was or was not the case. If it is not known that should also be stated. By contrast, when the water supply was chlorinated, as the authors’ note, the outbreak came to an end. I would like to see a demonstration that the two risk factors (food from sweet shop and drinking only piped water) were independent. This could be tested in EpilInfo 3.3.2 with the Mantel Haenszel test, examining typhoid (outcome) by sweetshop (exposure) stratified for piped water and then repeating the calculation switching the exposure and stratifying variables (ie to typhoid by piped water stratified for sweetshop). Finally Fig 1 is not convincingly bimodal and could be seen as unimodal but right skewed. What does a similar epidemic curve, shaded according to whether or not the cases drinking piped water look like?
Ultimately I am prepared to believe the investigators’ explanation for the cause of the outbreak, based on the data that they have presented but it could be strengthened by including all or some of the above suggestions. Of course if exposure to the water supply, rather than the sweet shop, were, after all, more important, that would change the emphasis of the public health message.

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.