Reviewer's report

Title: Molecular and Epidemiologic Analysis of County-Wide Outbreak Caused by Salmonella enterica subsp. enterica serovar Enteritidis Traced to a Bakery

Version: 1 Date: 2 February 2004

Reviewer: Meirion Evans

Reviewer's report:

General
This is a substantial Salmonella outbreak in a country where such outbreaks are uncommon. An unusual food vehicle is implicated. Unfortunately Methods are poorly described and the Results are confusingly presented, often with inadequate data. The paper requires extensive revision and especially needs to include more details of the epidemiological and environmental investigations performed.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
1. Abstract
   1.1 Should reflect revisions made to the text as detailed below.
   1.2 Background should be clarified and epidemiological study design should be explained.
   1.3 Conclusion should emphasise not just importance of alertness in the emergency room but role of the microbiology laboratory in surveillance and the importance of prompt and thorough investigation to trace the source of outbreaks and to institute appropriate control measures.
   1.4 The implicated bread is the vehicle of infection, but not necessarily the source of the outbreak. The source may have been a contaminated ingredient, or the cause of the outbreak may have been cross-contamination in the kitchen, or contamination by an ill food handler.

2. Introduction
   2.1 Final two sentences should be moved to Discussion

3. Methods
   3.1 Page 5, line 2. Were these patients attendances at or admissions from the emergency room? Elsewhere (P.8, line 10) 31/34 patients are said to be hospitalised.
   3.2 No case definition is given
   3.3 Details of the case searching exercise undertaken are vague
   3.4 Was an analytic study (e.g. case-control study) carried out? This is is unclear. If it was, it should be described including details of cases included/excluded from the study and selection of controls.
   3.5 How were data on cases (and controls) collected? There is mention of chart review of all patients (P.5, line 12) and review of demographic features and food histories by the infection control team (P.5, line 4) on a sub-sample (?) of patients. How were these two reviews linked? Did the review of food histories include interviews with patients? Was a standard questionnaire used (for both cases and controls) and what kind of questions were asked, especially about food items eaten? Page 7, sentence 1 should be included in this description.
   3.6 There is virtually no description of the environmental investigation. How was the traceback undertaken? Was the implicated bakery inspected? Were food handlers interviewed and food hygiene standards reviewed? Were food and/or environmental samples obtained from the bakery? If so, what and how many? Who carried out the inspection?
   3.7 Food samples were obtained from patient's homes (P.5, line 10) but insufficient detail is provided about this. Were all patients/cases visited and by whom? On what basis was a food sample
'suspected as a possible cause of gastroenteritis'? (These details should ideally be brought together in a section on Environmental investigation along with the information described in 3.6 above.)

3.8 Data analysis (P.7, line 3-4) should include calculation of odds ratios with 95% confidence intervals if a case-control study was done.

4. Results
4.1 This section describes 28/34 cases consuming the implicated food and 6/131 cases not consuming the food as being positive for Salmonella (P.8, line 4-5). Where do these numbers come from? The previous paragraph refers to 162 patients during the week of the outbreak and 506 in the 6 weeks beforehand.
4.2 How are these cases defined (P.8, line 4-5)? According to the Abstract, a person had to be culture positive for Salmonella to meet the definition of a 'case'.
4.3 The association between food and illness is incorrectly described (Page 8, line 4-7) implying that the 'disease' is eating the bun and the 'exposure' is having salmonella infection. It is the proportion of cases (ill) who ate the bun compared with controls (not ill) who ate the bun that is relevant.
4.4 There should be a Table describing associations between illness and a range of relevant items. The associations should be described as odds ratios with 95% confidence intervals both in the table and in the text (if this was a case-control study).
4.5 Three months follow-up is mentioned (P.8, line 16) though there is no reference to this in the methods.
4.6 Control measures (P.8, line 17-18) should be included in a separate paragraph together with further results of the Environmental Investigation.
4.7 The date the bakery was closed should be indicated by an arrow on Figure 1.
4.8 Page 9, second paragraph should be moved to the Discussion section.

5. Discussion
5.1 This should be introduced by a paragraph briefly summarising the key findings including for example the final part of the Introduction (see 2.1) and the penultimate paragraph of the Results (see 4.8)
5.2 There should be more discussion on how the bread may have been contaminated (and any public health implications arising from this).
5.3 P.11, line 12-13. What other food samples were examined from the bakery? - this should be described in the Results.
5.4 P.12, line 3. Why was there no investigation of bakery staff or bread ingredients? This is after all a large outbreak of a type uncommon in Taiwan according to the next paragraph.
5.5 P.12, line 17. If this was an egg glaze on the bread it is difficult to see how it might only be lightly cooked.
5.6 P.13, line 6. Could there be another explanation for the apparent short incubation history e.g. another food vehicle. Only 21% of cases are explained by the bread according to P.8, line 1 - how were the others infected?
5.7 Final paragraph should also emphasis importance of laboratory surveillance for identifying outbreaks. This should allow an excess of Salmonella cases to be identified even if they attend several different ERs.

6. References
6.1 Mention each reference only once - there is multiple duplication

7. Figures
7.1 It is difficult to distinguish different grey shades in this figure. Also indicated date of bakery closure by an arrow (see 4.7).

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
1. Abbreviations should be defined at first usage e.g. ER (P.5, line 12)

Discretionary Revisions (which the author can choose to ignore)

1. Suggest Methods be re-organised under sub-headings for 'Epidemiological Investigation', 'Laboratory Investigation' and 'Environmental Investigation'
2. Sections on 'Serogrouping', 'Antimicrobial susceptibility' and 'PFGE' should be included under 'Laboratory investigation'.

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 limited interest

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

Statistical review: No

Declaration of competing interests:

None