Reviewer's report

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

Version: 2 Date: 14 May 2004

Reviewer: Meirion Evans

Reviewer's report:

General
There is still a lack of clarity about the epidemiological study design and consequently in interpreting the validity of some of the results.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. Abstract
1.1 Revise abstract to clarify methods and results (see comments below and minor revisions).

2. Methods
2.1 Page 5, line 6. I am still unclear exactly which patients were interviewed. Was it the 162 patients presenting with gastroenteritis during the outbreak period? If so, were interviews successfully completed for all 162 patients or only some of them?

2.2 The study design is not described. It appears that a cohort study of all 162 patients attending the ER with acute gastroenteritis between Jul 28 and August 3 2001 was performed in order to test the hypothesis that salmonella infection was associated with eating bread from a particular bakery. This should be clearly stated.

2.3 Page 5, line 13. The case definition is unsatisfactory. Cases should not be defined in terms of their exposure (consuming the suspected food) but in terms of their illness (salmonella infection). Otherwise it is not possible to test the hypothesis that illness is associated with eating the bread. The only way in which the analysis makes sense is if cases are defined as patients with gastroenteritis confirmed due to salmonella and non-cases are patients with gastroenteritis who were negative for salmonella or from whom no stool sample was obtained.

2.4 The term 'case' should be restricted to people who meet the case definition. Other individuals should be referred to as non-cases or patients.

2.5 Page 7, lines 11-13. This sentence needs to be rephrased.

2.6 Page 7, lines 13-14. Presumably food samples were collected from the homes of patients (not brought in to the ER). What kind of food samples were collected (only bread or other foods as well)? Within what timescale was the sampling done?

2.7 Page 8, line 2. Since both aspects of the study relate to cohorts (everyone attending the ER from 6 weeks before until 2 weeks after July 28; everyone presenting to the ER with gastroenteritis between July 28 and August 3) the appropriate measure of association is relative risk not the odds ratio.

3. Results
3.1 Page 8, line 8. Substitute 'patients' for 'cases', and elsewhere.

3.2 Page 9 line 1 and line 5. Give relative risks not odds ratios

3.3 Page 9, line 7. Substitute 'patients' for 'cases'.

3.4 Page 9, line 11-13. Rephrase this sentence and give the relative risk: 'Twenty eight of 34 (82%)cases had consumed the buns compared with 6 of 128 (5%)non-cases (RR 17.6, 95%CI 7.9 - 39.0) [NB. this assumes that cases are defined as people who were Salmonella positive]
The relevant 2x2 table should be constructed as follows:

<table>
<thead>
<tr>
<th></th>
<th>Cases</th>
<th>Non-cases</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ate bread</td>
<td>28</td>
<td>6</td>
<td>34</td>
</tr>
<tr>
<td>Did not eat bread</td>
<td>6</td>
<td>122</td>
<td>128</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>128</td>
<td>162</td>
</tr>
</tbody>
</table>

3.5 The authors should include a table summarising the epidemiological analysis of food exposures including bread and some of the other foods that were statistically analysed (particularly those often associated with salmonella outbreaks).

3.6 Page 9, line 16 to end of paragraph. This description should relate to people with salmonella (cases) not people who ate the bread (exposed) and the whole paragraph should ahead of the previous section describing analysis of exposures.

3.7 Page 11, line 1. How many of the 162 people with gastroenteritis who presented during the outbreak period submitted stool samples? If samples were only sought from people who ate the bread then this introduces an unacceptable bias in the investigation. Elsewhere, the authors mention at least 6 salmonella positives among patients who had not eaten bread.

3.8 Page 11, line 2. It is odd that the number of patients presenting to the ER doubled during the outbreak week (from 80 per week to 160) but only 34 salmonella positives were identified - this merits further discussion.

3.9 Page 11, line 5. How many food samples were tested in total, and what kind of foods?

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

Abstract

1. Background. Delete 'inconspicuous' and 'with no common source'.
2. Background. Add details of time and place e.g. 'An increase..............was noted at one hospital emergency room in Taiwan over a six day period in July to August 2001.'
3. Method. substitute 'tested' for 'isolated'. Move third sentence to Results. Delete fourth sentence.
4. Results. Line 1, line 3 and line 7 - substitute 'patients' for 'cases'.
5. Results. Rephrase sentence 2: 'During the week of the outbreak, 34 of 162 patients with gastroenteritis were positive for Salmonella...'
6. Results. Insert new sentence 3: '28 of 34 salmonella cases reported eating the same kind of bread compared with only 6 of 128 non-cases (relative risk, etc....).'
7. Results. Delete sentence 4.
8. Results. Give relative risks and 95% CI not just p values.

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Discretionary Revisions (which the author can choose to ignore)

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