Reviewer’s report

Title: Assessment of routine surveillance data as a tool to investigate measles outbreaks in Mozambique

Version: 2 Date: 6 August 2005

Reviewer: Rick Speare

Reviewer’s report:

General

This is a valuable paper addressing a critical issue essential for improving health in Mozambique. It is disappointing that the authors have not dealt with the topic adequately. With extensive rewriting this manuscript can be a valuable contribution to the communicable disease control literature as well as useful to advocate for change in Mozambique.

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

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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)

1. Title: The title does not accurately reflect the main focus of the MS. Suggest “detect” be substituted for “investigate”.

2. Abstract:
   2.1 Aims - line 4: “administratively” is a vague term and actually conveys little to readers. Authors should use a more precise term or description.

   2.2 Methods: Authors also used provincial weekly reports. This should be included in abstract. Authors should also include a brief description of how the “baseline” was established.

   2.3 Conclusion line 3: The sentence “This may lead to delays in taking action.” has two problems. Firstly, it is out of context and, if included, should follow, not precede, the next sentence in the Conclusion. Secondly, since the study did not examine timeliness of reporting nor action taken, the comment is not based on data in the study. I think it would be better to say that the poor quality data may result in failures of detection of epidemics rather than refer to delays in taking action.

3. Introduction:
   3.1 Page 3 first para last sentence: Are the “catch-up” campaigns for polio or measles? If for polio, is measles vaccination also given in every campaign or just opportunistically. What is happening on the ground needs to be clarified.

   3.2 Page 3 second para 2nd line: “both of extrinsic or intrinsic nature” – should be “and”. However,
the wording is clumsy.

3.3 Page 3 third para last line: “epidemics” instead of “the epidemic”.

3.4 Page 3 last para: The authors miss the opportunity to highlight the concept of public health surveillance being data collected for action. Planning is one of these actions, but short and long term disease control interventions are the main focus of an effective system. The paper describes a system that collects data and does not appear to use it. Hence, it is very important that they emphasise the “data collected for action” concept.

4. Methods:
4.1 Some general questions need to be addressed: When was the study carried out? Was it retrospective or prospective? Did the people reporting data know that the surveillance system was being monitored? This latter point is important as increased data capture in a system that is poorly functioning can create a pseudo-epidemic. This point must be addressed in both Methods and Discussion.

4.2 Attack rates are given in Results Table 2. How were these calculated? Should be given in Methods.

4.3 Page 4 Section 2.1: It is difficult for the reader to understand clearly how the data flows in the system. I suggest that the authors construct a flow diagram to clarify this.

4.4 Page 4 Section 2.1 line 5: Who holds the “patients’ register books”; each individual patient or the HF?

4.5 Page 4 Sect 2.1 line 7: Suggest “about” is changed to “such as”.

4.6 Page 4 Sect 2.1 line 11: Upper case not needed for “The”.

4.5 Page 5 first 2 sentences: The case definition is out of place and break up the description of how data flows. Either place before or after the data flow section.

4.6 Page 5 para 1: Is the “daily-summarized sheet” a line listing with patient details, or a summary of number of patients and their details? Similarly, for the weekly summarized sheet? What is meant by “meant to help the reporting system”? Can authors be more specific and describe how this is supposed to assist.

4.7 Page 5 para 2: Are the summarized sheets used to report data to BES or does it come directly from the patients’ register books? Authors do not clearly state where the data comes from. Are names and details reported to BES or summarized data?

4.8 Using the term “HF is reported to BES” contradicts the comment on page 2 that BES starts at the HF. Authors should consider being specific and state data is reported to province health department (if this is the case) and then to national.

4.9 Page 5 Section 2.2 sentence 1: Give reference for the number of inhabitants. Also for Manica.

4.10 Page 5 Sec 2.1 line 7: Replace “introduced” with “entered”.

4.11 Page 6 line 7: Change date format – omit “of”, “in” and “st”.

5. Results:
5.1 Presentation of data is very confusing. The authors should first give an overview of the comparative picture, and then present finer details.

5.2 It would be much more informative and easier for readers if Table 2 included all data from both patients’ register books and BES. When I tried to extract data from the text to complete a section of this Table for Maputo City, it highlights that data is missing from text (see below). I would have expected that a comparative table could be constructed to put the data from both sources side by side. Very important.

Table 2: Measles cases by age diagnosed at health facility in patients’ register books (HF) and reported in Weekly Information Bulletin System (BES).

<table>
<thead>
<tr>
<th>Age group (mths)</th>
<th>Maputo City 1998</th>
</tr>
</thead>
<tbody>
<tr>
<td>HF</td>
<td>BES</td>
</tr>
<tr>
<td>&lt; 9</td>
<td>?</td>
</tr>
<tr>
<td>9-23</td>
<td>?</td>
</tr>
<tr>
<td>≥24</td>
<td>24 735</td>
</tr>
<tr>
<td>No age recorded</td>
<td>533</td>
</tr>
<tr>
<td>Total cases</td>
<td>1981</td>
</tr>
<tr>
<td>Deaths</td>
<td>87</td>
</tr>
<tr>
<td>CFR</td>
<td>4.3%</td>
</tr>
</tbody>
</table>

5.3 Suggest that in subheadings “record” is omitted; e.g., “3.1.1 Age record” becomes “3.1.1 Age”, “3.1.2 Mortality record” becomes “3.1.2 Mortality”, “Vaccination status recorded in books” becomes “Vaccination status”, etc.

5.4 All Tables must be referred to in text. The authors’ failure to do this results in a confusing story.

5.5 Page 7 sect 3.1.1 line 1: Use consistent format throughout MS – change “registry books” to “patients’ register books” or whichever term is correct.

5.6 Page 7 sect 3.1.1 line 2: Omit “only” as it is possibly judgemental.

5.7 Page 7 sect 3.1.1 line 4: Space needed after comma.

5.8 Page 7 sect 3.1.2 line 1: Change “lethality rate” to “case fatality rate”.

5.9 Page 7 sect 3.1.2 line 2: Change “lethal” to “fatal”.

5.10 Page 7 sect 3.1.2 line 4: Omit first “the”.

5.11 Page 8 Sect 3.2.1: How were attack rates calculated? Give in Methods.

5.12 Page 8 Sect 3.2.1 line 4: Remove space after “(".

5.13 Page 8 Sect 3.3: “Alarm” seems too dramatic a word. Authors should comment how the pattern of the outbreaks were different.

6. Discussion:
6.1 Suggest that the Discussion start with comments on completeness of reporting rather than on epidemics.

6.2 Page 9 Sect 4.1.2: I am confused again. Are hospitalised patients excluded from the system entirely (i.e., the system does not collect data on hospitalised individuals), or do authors mean that
data on hospitalization status is not collected although the individual case will be recorded in system

6.3 Page 9 Sect 4.1.2 para 3: Do the authors mean that fatal cases occur at home and do not enter the health system?

6.4 Page 10 first para: Authors should also comment on why vaccination status is not recorded for older children and the advantages and disadvantages of recording this.

6.5 Page 10 Sect 4.2.1 para 1 line 3: Table 1 is incorrect; it should be Table 2.

6.6 Page 10 Sect 4.2.1 para 2 line 4: Table 1 is incorrect; it should be Table 2.

6.7 Page 11 Sect 4.3: It is absolutely essential that authors discuss the reporting pyramid and how notifications in a surveillance system may be markedly influenced by changes in reporting rate at any of the steps. This is particularly so in a system that is inefficient as described for Mozambique. The epidemics may be real or they may merely be due to more complete reporting during the periods of the study as a result of the study. What evidence do the authors have outside this data that a true measles epidemic did occur?

6.8 Overwork may be one reason for the incompleteness of reporting. However, this is a simplistic assessment. Clinicians in most countries will not put data into a surveillance system that gives them little in return. The “Data collected for action” concept has to be seen in clinicians’ terms for them to become involved fully. Authors have not commented at all on the response arm of the system, how information is used and communicated back to clinicians.

6.9 Page 12 dot point 3: The study did not look at timeliness. Hence, making a comment on timeliness is not justified by the data. Although one would suspect timeliness to be poor in a poorly functioning system, can authors comment on this aspect without providing evidence?

7. Figures:
7.1 In both figures and tables authors use a mix of commas and periods to indicate the decimal point. Since period is more usual in scientific literature, suggest this format is used.

7.2 Figure 1: Year is incorrect (1998 not 1997). Title is not fully descriptive of data. Suggest “Measles cases in Maputo City for 1998 compared with baseline of geometric mean over 5 preceeding years.”

7.3 On page 7 authors say 1993-97 was used; in Figure 1 they say 92-97 was used. Please clarify.

7.4 Figure 2: Same comments about completeness of title as for Fig 1. In legend, years used to generate geometric mean are omitted.

7.5 Page 15: Is “Bibliography” the correct term for the Journal?

7.6 Page 16 Reference 11: Format for authors initials needs attention.

8. Tables
8.1 Table 1: Is unnecessary. Data can be adequately described in text.

8.2 Table 3: List source for this data in title, not as a footnote. There is a mismatch between data in Table 3 and in text; Table 3 has 125 with missing age, text has 533 with age missing, or does the 1448 with age on page 7 refer only to children under 24 mths.
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 importance in its field

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** No

**Declaration of competing interests:**

'I declare that I have no competing interests'