Author's response to reviews

Title: Assessment of the core and support functions of the Integrated Disease Surveillance system in Maharashtra, India.

Authors:

Revati Phalkey (rphalkey@gmail.com)
Pradip Awate (dr.pradip.awate@gmail.com)
Sharvaree Shukla (sharvareeshukla@gmail.com)
Savita Shardul (drsavitadb@yahoo.com)
Michael Marx (michael.marx@urz.uni-heidelberg.de)

Version: 2 Date: 16 March 2013

Author's response to reviews: see over
To,
The Editor in Chief
BMC Public Health

Sub: Submission of revised manuscript for publication

Dear Sir,

We wish to submit the attached revision of the manuscript “Assessment of the core and support functions of the Integrated Disease Surveillance system in Maharashtra, India.”

We thank you and the two reviewers for the valuable inputs and the opportunity to revise the manuscript. Please find below our point-by-point response to each of the reviewer comments. Thank you for considering our manuscript and we look forward to your decision.

Yours’ sincerely,

Ms Revati Phalkey
(On behalf of all contributors)
Editor's Comments

Overall the paper makes an important contribution to the literature on the capacity of health systems to implement sound data collection, analysis and reporting processes. However, as Dr. Gaturuku points out, the results are presented in large paragraphs of text, making it difficult to assimilate the data and to identify the critical areas for improvement. While the paper is thorough and presents a large amount of valuable data, it is difficult to draw conclusions because of the lack of tables or summaries of the key insights. I would make the following recommendations to the authors:

1) It would be useful to put IDS in a global context and briefly explain its global history, the countries in which it has been implemented, and the experience that these countries have had with IDS implementation. This will allow a reader to assess the progress on India relative to a broader context.

Thank you for the comment. We have revised the entire background section accordingly. It now defines surveillance and its current day challenges, outlines the drawbacks of single disease surveillance strategies and the basis why the integrated disease surveillance strategy was designed, its aims and scope, and its current implementation status in the WHO regions. The background also covers the basis of disease surveillance in India and the state of Maharashtra to lay out a justification for the study.

2) Similarly, a brief summary of IDS implementation in other states and experiences compared to Maharashtra would be helpful.

Thank you for this comment. However, no evaluations were conducted to date in other states. Some vague estimates and opinions are available but cannot be referenced.

3) I would request the authors to pay very close attention to Dr. Gaturuku's comments both in his evaluation form and in the text that he has attached. He has done a thorough assessment and I agree with all his points, especially the ones relate to better organization of the data into tables.

Thank you for the emphasis. We have noted all points from Dr. Gaturuku’s assessments from the form and the attachment and modified the manuscript accordingly. We also respond to each of his comments below including those from the attachment. We have organized the main findings into Tables 1 and 2 as advised by Dr. Gaturuku.

4) Both reviewers have asked for definitions of core and supporting functions and what goes under each category and that will be important for the general reader.

Thank you to the reviewers and you for bringing this to our notice. Figure 3 has been added to the revised manuscript which provides an overview and describes the exact scope of the assessment and enlists the functions assessed. The following text “Core functions included nine aspects namely case detection; case registration; case confirmation; case notification; data management; data analysis; outbreak preparedness; outbreak response; and feedback. Support functions included six aspects namely manuals and guidelines, laboratory capacity; supervision; training; resources (financial, human, material and equipment) and coordination. Results of the system’s attributes are described elsewhere (Phalkey et. al unpublished manuscript)” has been added to last paragraph of the “study design and sampling” subsection within the methodology section in the revised manuscript.

5) In the discussion session, there is a long list of recommendations, but there is no categorization or prioritization, so it is difficult for a reader to ascertain what needs to be
addressed immediately and what may can be left to be considered in the future. While all the factors identified may be important for improving the operations of the IDS, not all can be implemented immediately. A prioritization of recommendations would help identify the immediate opportunities for change.

Thank you for this valuable input. We have restructured the conclusion to highlight the prioritization in the revised manuscript. It now reads as “In conclusion, the findings of the study confirm that the IDS in Maharashtra has made satisfactory improvements on a majority of core and support surveillance functions. Chief amongst them are the development of standard case definitions, laboratory manuals and adequate outbreak response. However, data management and analysis were weak at all levels. We note that all support functions were key to the performance of core surveillance functions. Specifically:

• Case and outbreak detection depended heavily on definitions and job aids developed and on the knowledge and skills of surveillance personnel
• Case confirmation was dependent on laboratory infrastructure and the knowledge and skills of laboratory personnel
• Case notification was dependent on communication and logistic equipment available at every level
• Data management and analysis was dependent on communication equipment and the knowledge and skills of surveillance personnel
• All of which were primarily affected by three things
  o Availability of adequate human resources
  o Training of surveillance and laboratory staff
  o Supervision
  o Feedback

It is essential to note here, that although laboratory functions; feedback and training were weak at the peripheral levels, a majority of the logistic and equipment issues; and more importantly coordination was weak at the district levels. Strengthening each aspect is unrealistic. As a first step, the support functions (except financial resources) need to be targeted for improvements.

The average performance of the IDS, despite a well-designed structure and the availability of adequate financial resources indicate that certain other barriers hinder its optimal functioning. Incomplete adoption of the original project implementation plan, which theoretically addresses a majority of the shortcomings identified in our assessment, is probably the main amongst them and incomplete structural integration of the IDS within the state health service system the other. Given that the IDS is now in transition from an externally funded project to an independent core central program in the state, structural alignments at both ends- IDSS itself and the state health service system which receives it are necessary. Chief amongst them is establishing the state and district surveillance units as permanent structures within the state health infrastructure in order to avoid the integrated disease surveillance system from ending up isolated! Improving surveillance quality should be the next on the agenda for the state.” in the revised manuscript.

Also, please make the following formatting changes during revision of your manuscript. Ensuring that the manuscript meets the journal’s manuscript structure will help to speed the production process if your manuscript is accepted for publication.

1. Please remove the authors’ qualifications (e.g. PhD / MD) or job titles from the manuscript
file.

The job titles and qualifications have been deleted from the revised manuscript.

2. Please change the title 'Introduction' to 'Background'.
   The title has been changed to read “Background” in the revised manuscript.

3. Please remove the visible vertical lines of the Tables.
   The vertical lines of all the tables have been removed in the revised manuscript.

4. Tables: Please ensure that the order in which your tables are cited is the same as the order in which they are provided. Every table must be cited in the text, using Arabic numerals. Please do not use ranges when listing tables. Tables must not be subdivided, or contain tables within tables. Please note that we are unable to display vertical lines or text within tables, no display merged cells: please re-layout your table without these elements. Tables should be formatted using the Table tool in your word processor. Please ensure the table title is above the table and the legend is below the table. For more information, see the instructions for authors on the journal website.
   We have taken note of all the points in the above paragraph with respect to the tables in the revised manuscript.
Reviewer: Leonard Mboera

Title: Assessment of the core and support functions of the Integrated Disease Surveillance system in Maharashtra, India.

Version: 1 Date: 1 January 2013

General comments: This is an important area of health system. The manuscript is well written and brings up very interesting information as regards to infectious disease surveillance in India.

Thank you for the appreciation and the opportunity to revise the manuscript.

Title: Ok

Abstract: No abstract availed

Background: OK

Methods
Under “study design and sampling” it would make lots of sense if the authors could mention the core and support functions of IDS

Thank you to the Editor and both reviewers including you for bringing this to our notice. Figure 3 has been added to the revised manuscript which provides an overview and describes the exact scope of the assessment and enlists the functions assessed. The following text “Core functions included nine aspects namely case detection; case registration; case confirmation; case notification; data management; data analysis; outbreak preparedness; outbreak response; and feedback. Support functions included six aspects namely manuals and guidelines, laboratory capacity; supervision; training; resources (financial, human, material and equipment) and coordination. Results of the system’s attributes are described elsewhere (Phalkey et. al unpublished manuscript)” has been added to last paragraph of the “study design and sampling” subsection within the Methodology section.

Results
Page 8: Case confirmation – Last sentence is a repetition of what is described on page 12.

Thank you for bringing this oversight. The sentence has been deleted from page 8 of the revised manuscript.

Page 10: Outbreak detection: The authors make reference to two documents namely “rumor log book” and “rumor register”. Are these two different or same documents?

Thank you for bringing this to our notice. Ideally these are two different registers- but essentially serving the same purpose. In order to prevent miscommunication- we have changed the word “rumor log book” to “rumor register”.

Page 11: Outbreak/epidemic preparedness and response: The authors state that “Fourteen (41%) districts had a method in place to forecast an outbreak based on institutional learning and analysis of previous data”...It would be important if the authors can mention for which diseases or drugs is the forecast?

The forecast is for the 13 diseases and 7 syndromes covered under the IDSP. We have added the list as an annex file to the manuscript.
In the same paragraph, last line: “All 34 districts reported use of outbreak data for action in the past year” We need clarification on how were the data used and for what purposes? Thank you for this important comment. We have revised the paragraph to now read as “All 34 districts reported use of outbreak data for action in the past year which included additional rounds of water purification, container surveys, health promotion and population awareness, stockpiling medications; preventive measures such as mass chemoprophylaxis for diphtheria and a doxycycline prophylaxis strategy in the district following increase in the incidence of leptospirosis in the last 3 years.”

Legends for Figure 1 and 2 not availed: The figure legends at the end of the document have been checked.

Discussion and conclusion
Page 16, paragraph 2: “The authors state that: Staff at periphery printed or used carbonated copies at their own cost” – I am surprised the authors are discussing issues that were not reported under the Results Section. Thank you for the comment. We would like to bring to your notice that in paragraph two of “data management” sub section within the core surveillance functions results we state “All subcenters photocopied S forms weekly. At the PHC/GMC/RH level forms were electronically filled and printouts taken. No additional costs for photocopies or printouts were available and therefore the staff hesitated to maintain office copies of the submitted forms.” which is then discussed accordingly in the discussion section.

Recommendations: Accept with minor corrections

Level of interest: An article of outstanding merit and interest 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
Reviewer: Peter Gaturuku

Title: Assessment of the core and support functions of the Integrated Disease Surveillance system in Maharashtra, India.

Version: 1 Date: 20 January 2013

Reviewer's report: Response to the key questions based on the BMC guidelines

1. Is the question posed by the authors well defined?
The actual purpose of the study is well defined in paragraph 4. However, the context of the study including the introduction of the IDS strategy, the geographic context, and operation of the system do not give the reader enough information to understand what IDS is and why it has been adopted. This is an important contribution to our understanding of how disease surveillance systems work in low- and middle-income countries and the study has potential to contribute to the literature if the introduction of the topic of surveillance is clarified, definitions of IDS and its priorities and goals, and the data display is improved so that findings are easier to access.

Thank you for the comment. We have revised the entire background section accordingly. It now defines surveillance and its current day challenges, outlines the drawbacks of single disease surveillance strategies and the basis why the integrated disease surveillance strategy was designed, its aims and scope, and its current implementation status in the WHO regions. The background also covers the basis of disease surveillance in India and the state of Maharashtra to lay out a justification for the study.

2. Are the methods appropriate and well described?
The methods were appropriate although providing the reader with a list of the topics included in the assessment guide would have helped to set up the link to the response section. Many readers may not be familiar with the contents of the assessment guides referred to, and some explanation of the general areas of interest would be useful: standard case definitions, reporting, case confirmation, data analysis, etc. There should be a table stating what core functions are and what support functions are.

Thank you to the Editor and both reviewers including you for bringing this to our notice. Figure 3 has been added to the revised manuscript which provides an overview and describes the exact scope of the assessment and enlists the functions assessed. The following text “Core functions included nine aspects namely case detection; case registration; case confirmation; case notification; data management; data analysis; outbreak preparedness; outbreak response; and feedback. Support functions included six aspects namely manuals and guidelines, laboratory capacity; supervision; training; resources (financial, human, material and equipment) and coordination. Results of the system’s attributes are described elsewhere (Phalkey et. al unpublished manuscript)” has been added to last paragraph of the “study design and sampling” subsection within the Methodology section.

3. Are the data sound?
There appears to be sound and adequate data. However, it is quite difficult to follow in the text format and its utility may be hampered by having so many comparisons within each paragraph. A suggestion is to prepare a table with headings for the key function areas assessed, then findings from the districts, and then findings from health facilities. That would help the reader to see the differences and comparisons. The table should also include the number of health facilities and districts assessed. The very detailed tables about laboratory
tests done at a particular level are interesting, but by themselves without a companion table listing some key comparisons, it could confuse readers. The table about logistics is most interesting. But there is no paragraph in the results section that explains this table. Thank you for the very valuable comment to improve the readability of the manuscript. We have organized the results in a table as advised by you (Tables 1 and 2) in the revised manuscript. The number of health facilities and districts has been added to the tables. The laboratory table 3a cannot be revised because these are results with respect to the referral labs which are supposed to have the capacity to confirm all 13 identified diseases—what was not the case in most laboratories. The PHC and RH/SDH laboratories perform very basic tests and this has been mentioned in line one of the “laboratory function” subsection of the support functions results. Table 3b has instead been added to the revised manuscript to show the differences between the laboratories in terms of facilities. Further, the following text “Availability of logistic and communication resources were better at facilities than at district surveillance units as shown in Table 4b” to the results section to support the Table 4b which describes the resources available within the system.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition? It is sufficient but could be displayed for easier access to the information as noted in #3. Thank you for the emphasis on better readability of the manuscript. We have revised it accordingly to address all points raised by you in comment 3 above.

5. Are the discussion and conclusions well balanced and adequately supported by the data? The discussion presents points supported by the data and insights from the study. Thank you for your comment and appreciation.

6. Are limitations of the work clearly stated? The limitations are satisfactorily stated. Thank you for your comment and appreciation.

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished? Yes, although they may want to consider including a reference to WHO-AFRO IDSR Technical Guidelines and WHO-AFRO IDS Strategy Document as work that influenced the IDS strategy in SEARO. Thank you for pointing these references and their importance. These have been added (Reference numbers 13 and 15) in the revised manuscript within the context of the WHO SEARO strategy.

8. Do the title and abstract accurately convey what has been found? Yes. Thank you for your comment and appreciation.

9. Is the writing acceptable? The writing would benefit first from improving display of the data as mentioned above. That would help the authors to more clearly organize the results and conclusions in a simpler, clearer way. Editing for Standard English would also benefit this manuscript. Thank you very much for the important comment to improve the readability of the manuscript. We have organized the results in comprehensive Tables 1 and 2 as advised by you and also edited the manuscript for standard English. We hope to have done so in a satisfactory way.
In Summary:
i. This is an interesting paper but it needs structural reorganization and refining of the introduction to ensure the reader understands the IDS strategy in general and within the context of Maharashtra State.

Thank you for the comment. As stated in point 1 above- we have revised the entire background section accordingly. It now defines surveillance and its current day challenges, outlines the drawbacks of single disease surveillance strategies and the basis why the integrated disease surveillance strategy was designed, its aims and scope, and its current implementation status in the WHO regions. The background also covers the basis of disease surveillance in India and the state of Maharashtra to lay out a justification for the study.

ii. The authors’ should endeavor to highlight what factors were evaluated since the reader might not have access to the detailed assessment guide or questionnaire.

Thank you to the Editor and both reviewers including you for bringing this to our notice. Figure 3 has been added to the revised manuscript which provides an overview and describes the exact scope of the assessment and enlists the functions assessed. The following text “Core functions included nine aspects namely case detection; case registration; case confirmation; case notification; data management; data analysis; outbreak preparedness; outbreak response; and feedback. Support functions included six aspects namely manuals and guidelines, laboratory capacity; supervision; training; resources (financial, human, material and equipment) and coordination. Results of the system’s attributes are described elsewhere (Phalkey et. al unpublished manuscript)” has been added to last paragraph of the “study design and sampling” subsection within the Methodology section.

iii. A comprehensive table comparing key questions and findings from district and health facility levels could help the authors to more clearly organize the results and conclusions.

Thank you very much for the important comment to improve the readability of the manuscript. We have organized the results in comprehensive tables 1 and 2 as advised by you. We hope to have done so in a satisfactory way.

iv. Editing for Standard English would also benefit this manuscript.

Thank you for the comment. We have attempted to revise the manuscript for standard English.

Level of interest: An article whose findings are important to those with closely related research interests

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

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
Introduction

We have completely revised the introduction to address the points raised by you in the attachment. We also provide a point-by-point response below-

1. Some definitions would help the reader who is unfamiliar with this context. For example, the authors have not yet defined “surveillance components” so the context of this problem is not clear. The authors may consider a broader introduction to the definition and purpose of public health surveillance before beginning these specifics.

Thank you for the comment. We have now added a clear definition, components and aspects of surveillance and surveillance systems in the opening sentence of the revised manuscript.

2. What are some key factors related to the strategy? Why is it a good thing to implement? What is the strategy? What are the priorities? What is the value of implementing this strategy?

Thank you for bringing this to our notice- we have now added a brief description of the IDSR, its components, advantages over single disease surveillance systems and also a brief background about where and how this has been implemented so far. We hope we have addressed your concerns adequately.

3-4-6-7-8:

The introduction has been revised to address these issues with a clearer explanation to the context and setting of the IDSP in India.

Materials and Methods

9. A conceptual diagram may help the reader better imagine the organizational structure.

Thank you for the comment. We provide optional figure for the organizational structure- but request its exclusion because then the paper has too many figures and tables- The figure 1 which shows the data flow does provide a comprehensive overview of the structure. However, we leave it to the discretion of the reviewers if we include the optional figure in the final manuscript or not.

10. This section is not clear…Is there separate forms each for surveillance, for probable cases and for lab cases?

Thank for highlighting this. Yes there are three types of surveillance forms as described in the introduction- S, P and L which stand for Syndromic, Presumptive and Lab Confirmed cases respectively. Even the facilities that report the data are classified accordingly.
11. It may be useful to include the study topic areas that were assessed as they are used below to organize the results: SCDs, lab, response, etc.

Thank you for the comment- we have added Table 1 and 2 to restructure the results and provide any overview of comparisons between types of facilities and also difference by facilities and districts. Additionally we have added the following text to the study design and sampling section of the methods - “Core functions included nine aspects namely case detection; case registration; case confirmation; case notification; data management; data analysis; outbreak preparedness; outbreak response; and feedback. Support functions included six aspects namely manuals and guidelines, laboratory capacity; supervision; training; resources (financial, human, material and equipment) and coordination. Results of the system’s attributes are described elsewhere” in order to describe the areas of assessment.

12. What was the total number of districts visited?

Thank you for this comment. We used two questionnaires at the district level- one for the core and support surveillance function and the other for system attributes. There are 34 districts in the state- of which 10 were personally visited to administer both these questionnaires. Remaining 24 districts were sent electronic questionnaires. Thus all 34 (100%) districts were included in the analysis. Mann–Whitney test was performed on responses from the electronic and visited district questionnaires and no significant differences were observed. This has been specified in the data collection and the analysis sections of the manuscript.

13. Number?

Thank you for bringing this oversight to our notice. Number (percent) have been added to the case confirmation paragraph section one. The sentence reads as “At the district level, thirty (88%) districts maintained a documented list of referral laboratories and twenty nine (85%) acknowledged a mechanism for timely referral of samples.” in the revised manuscript.

14. Majority of the facilities referred the patient against sending samples due to unavailability of functional cold chain (71%) and appropriate transport media (50%). Rather than?

Thank you for your comment. We have revised the sentence to now read as “Majority of the facilities referred the patient rather than sending samples due to unavailability of functional cold chain (71%) and appropriate transport media (50%).” in the revised manuscript.

15 Majority of the districts (33, 97%) received data hand delivered in paper based formats. Although the IDSP data portal is functional since 2009- the paper based system is still maintained and a majority of the districts still received data in paper based formats.

16. What was the timeliness and completeness of reporting?

The results of the timeliness and completeness are submitted in a follow- up manuscript which describes the systems attributes. Nonetheless- the graphs below show the attributes over the year’s 2009- 2012. Presumptive surveillance (70% RUs) was more timely followed by lab surveillance (67% RUs) and syndromic surveillance (62% RUs). Although improvements were obvious the target of over 80% reporting on time was not met by any type of the RUs to date. Reporting completeness has significantly improved over the last years and is the best for presumptive surveillance (82% blocks) followed by lab (77% blocks) and lastly
by syndromic surveillance (73% blocks). Although improvements are obvious, the target of over 80% of blocks reporting data is achieved only by presumptive surveillance units.

Figure 1: Timeliness of S, P, and L data reporting on the IDSP portal (2009-2012)

Figure 2: Completeness of S, P, and L data reporting on the IDSP portal (2009-2012)

18. Photocopies?
The word carbonated copies has been replaced by “photocopies”

19. ??
The sentence has been revised to now read as “Sample collection and transport was the weakest for stool samples, even when the maximum outbreaks and the burden from diarroheal diseases remained high in every district.”

20. Not clear- Availability of transport media and cold chain boxes needs immediate attention even in light of vaccination programs.

Thank you for the comment. What we meant to say by this sentence is that availability of the transport media and cold chain boxes at the respective level to transport stool samples and vaccines as relevant is important not only for surveillance functions but also for vaccination programs such as the polio eradication program. The sentence has been revised to read as “Availability of transport media and cold chain boxes for sample transport needs immediate attention even in the light of vaccination programs such as polio.”