Author's response to reviews

Title: Monitoring the referral system through benchmarking: an entrance gate for evaluating health care systems.

Authors:

Paul Bossyns (paul.bossyns@pandora.be)
Ranaou Abache (Aranaoudf@yahoo.fr)
Abdoulaye M Sani (Abdoulayemsani@yahoo.fr)
Hasmi H Miye (Hasmihamidou@hotmail.com)
Anne-Marie Depoorter (Anne-Marie.Depoorter@vub.ac.be)
Wim Van Lerberghe (vanlerberghew@who.int)

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Systematic reply on remarks from reviewers:

Review remarks from Dr Jean Macq:

1. A. In the methodology, some more information was provided on who and how the clinical guidelines were revised and where they came from.

1. B. In the first paragraph of the discussion, these considerations were added by stating and explaining that probably the benchmark was relevant for the whole country in rural areas, but most probably not for many other countries. Costs were indicated as well.

2. A small sentence was added to clarify further what is meant with 'operational significance': whether staff is applying the guidelines correctly or not. Even if some guidelines in certain circumstances might lead to wrong decisions (the perfect tool does not exist) large deviations from the benchmark referral rate indicates that the staff is applying the guidelines wrongly.

3. In this paragraph an additional sentence explains that we choose for medical students because they have better clinical skills to understand the decision trees and to interpret them if they would turn out to be incorrect. In the first paragraph of the discussion is mentioned that by having 3 medical students, consistency between the 3 field researchers could be tested.

4. It was added in the methodology that wet and dry season were covered and that therefore no seasonal bias can be withheld

5. We agree that it is more precise to speak about rates rather than ratios and we changed the wording in the text. For all the rates considered in this article, the numerator is completely within the denominator.

6. The authors opted for not changing the graph.

7. In the paragraph on IMCI benchmarks it was more explicitly said that the proposed IMCI referral rates for Niger are unrealistic and that they jeopardise the programme’s credibility

8. It is indeed the acceptance rate which has no relevance. The sentence was adapted.
9. A sentence was added to indicate that beside rendering the hospital functional by offering the necessary range of care, it is necessary to organise also emergency transport.

Review remarks from Dr Guy Kegels:

1.: No remarks were given for major compulsory revisions

2. We did not find back the typing errors in our original references such as "integratiod". We will pay attention to it when the file is transformed in a PDF file.

3. Change was introduced

4. Changes were made as to increase the easy understanding

5. A short sentence was added to indicate why this paragraph was important: deficits are likely to be underestimated.

6. The text is now more explicit: the first paragraph refers to the first line services, the second paragraph to second line services where vertical programmes support specific activities and ignore other pathologies that might be equally important in the perception of the population. Most district hospitals indeed try to provide a broad scope of answers to health problems but maternity programmes provide for example training to perform caesarean sections but hardly ever for treating prolapsed uterus.

Review remarks from Albrecht Jahn:

Major revisions

1. Establishing the referral criteria: more detailed information was given on how the guidelines were revised. It was more explicitly stated that the guidelines were decision trees. There are as such no separate referral guidelines. Referral is one of the possible outcomes of a decision tree. The authors could provide an example of one of the decision trees (in French) but suppose that decision trees are widely known and that with the additional explanations the situation might be clarified enough.

2 and 3. The methodology describes now more accurately that this referral benchmark concerns curative patients and that at-risk patients are not included in the benchmark. Utilisation rates for the district are provided and situated in Niger's context. In the discussion it was added and explained that referral benchmarks are utilisation sensitive and that therefore extrapolation to other countries cannot be automatic. Other indicators like vaccination coverage and ANC coverage can be provided but the authors considered these not relevant for the study considering the explanation added on the inclusion criteria. As already said, at risk women identified during ANC were not included, neither healthy children attending the under-fives clinics.

In the light of the explanations given in the previous paragraph, stratifying for sex and age further then considering children would not provide significantly more interesting data with respect to this study. The small numbers and the large range of imprecision that one would obtain would furthermore reduce its interest.
The 50% proportion of emergency referrals for obstetric reasons in some articles describes observed emergency referrals in certain field conditions most of the time only dealing with emergency care and sometimes not dealing with comprehensive first line health services. Such situations cannot be compared with a benchmark exercise where proposed referrals, cold and emergency referrals confounded, are considered. If one subtracts the non compliant emergency referrals, which are predominantly children, the proportion of emergency referrals for obstetric reasons would increase considerably.

Minor revisions

1. More precise information on the nominator and denominator were included in the methodology part and the text on page 6 was adjusted

2. Total numbers are inserted

3. Severe malnutrition was a criterion for referral. The explanations in the discussion are now made more explicit. There might be a poor application of the instructions regarding malnutrition cases that should be referred, but the fact that people do not consult with severe malnutrition as the major symptom is surely the case. Although foreseen in the national policy, in rural HC or district hospitals, there is no effective treatment for children with severe malnutrition at either level which is an additional factor for people not to consult for this reason.

4. Population based referral rates would be indeed interesting to have. A first problem to realise such indicator is that the catchment area population should be known. The authors have populations for people living in areas of 5, 10 and 15 km from the HC and even for agreed catchment areas. But the real catchment areas cannot be well defined because some people are simply not reasonably covered by any HC. In Ouallam some people live more than 50 km from the nearest HC. Cut-off points are difficult to determine, especially because normal utilisation or utilisation for emergency events might be different and change differently according to distance.

Population-based referral benchmarks would suggest measuring the referral need within a population. But utilisation rates vary considerably with distance, and the benchmark is indeed utilisation rate sensitive. Referral proposals among users is not a proxi for need in the community.

The referral rate benchmark and the observed under-referring indicate an aspect of the quality of care : the number of patient-users that should have been referred and how many were not. For emergency referrals it is a proxi for avoidable mortality because the health service was not able to save the patients despite the patient presenting. This is an essentially different problematic than mortality among patients that never used the services.

The abstract was revised.