Author's response to reviews

**Title:** Tracking and Monitoring the Health Workforce: Implementation and Analysis of a New Human Resources Information System (HRIS) at the Uganda Nurses and Midwives Council

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**Author's response to reviews:** see over
Dear Dr. Dal Poz:

Thank you for your email dated September 2, 2010. We were pleased to know that our manuscript was rated as potentially acceptable for publication in Human Resources for Health, subject to adequate revision and response to the comments raised by the reviewers.

We are resubmitting the revised manuscript. We have modified the Title, Introduction, Methods, Results, Discussion, and Conclusions sections, based on the comments made by the reviewers. We have enclosed a copy of the original manuscript marked with all changes made during the revision process. The new text is underlined and colored blue, while the crossed-out text in red refers to the deleted original text. We have also enclosed a “clean copy” of the manuscript with all revisions made.

Please find the point-by-point response to the comments raised by reviewers attached to this letter. We agreed with the majority of the comments raised by the reviewers. We would like to thank the reviewers for their time and their valuable comments.

Thank you for the opportunity to submit a revised copy of the manuscript. We hope that the revised manuscript is accepted for publication by Human Resources for Health.

Sincerely,

Julie C. Spero
IntraHealth International
Response to comments of reviewers

Reviewer: Jennifer Nyoni

Reviewer's report:

The subject is an interesting one and one of the HRH areas that has little information on in publications. The subject is well defined and the methods are well defined and the details are okay and can be repeated elsewhere with the following suggestions for improvement.

1. Minor essential revisions

The title and the abstract initially give the impression that the HRIS being discussed covers all categories of health workers to be used for HRH planning including other aspects of HR details normally found in the HRIS until one reads the results and the last part of the methods that it is focused more on registration and licensure with the council. I would therefore suggest that the title be revised to reflect that. The suggestion for the title could be something like “Tracking and monitoring ………at the UNMC in Uganda”

Response: To correct this impression, we have altered the article’s title to read, “Tracking and Monitoring the Health Workforce: Implementation and Analysis of a New Human Resources Information System (HRIS) at the Uganda Nurses and Midwives Council”

The writing is acceptable, simply put and clear -with the following suggestions for improvement:

- There is a mix of past and present tenses in some of the sentences that can confuse the reader that the authors may consider reviewing. The examples of these are third paragraph in the introduction;

Response: To reduce confusion regarding verb tenses, we have made edits to paragraphs in the introduction. In the 2nd paragraph of the introduction, we have clarified that the data from the nursing vacancy rate in Uganda is from 2009. In the 3rd paragraph of the introduction, we have reordered the structure of the paragraph to reduce the change in tenses and improve the paragraph’s flow.

- The use of wrong words e.g.:
  o First chapter on introduction, second sentence where there is ‘distribute’ instead of administer (I think health workers do more than just distribute medicines)

Response: We have replaced the word “distribute” with “administer” as per the reviewer’s suggestion.

- Fourth paragraph last sentence recommendations were ‘passed’ instead of made. Normally resolutions are passed and recommendations are made

Response: We have rephrased this sentence to read, “At the 2008 East, Southern and Central Africa Health Community (ECSA HC) Forum on Best Practices, recommendations were made and subsequently, a resolution was passed by the ECSA Health Ministers to support the development of comprehensive HRIS at training institutions, regulatory bodies and employers, and to build capacity for HRIS use to inform policy and decision-making [9].”

- The second sentence in the first paragraph- ‘building HRIS stakeholder leadership’. The sentence on the Malawi example is misplaced as it confuses the flow. It can come later in the paragraph

Response: We have moved the sentence with the Malawi example earlier and added a transition sentence to improve the flow of the paragraph.

2. Discretionary revisions
A bit more information on how the SLG contributed to the exercise and how the SLG benefitted also on this process so that replication can be clear on how they played their role.

Response: We have clarified the role of the Health Workforce Advisory Board as a sub-group of and an advisor to the Human Resources Technical Working group in paragraphs 9 and 10 of the Introduction, under “Building HRIS Stakeholder Leadership”. In addition, we have added paragraphs 9 and 10 in the Discussion section to elaborate on the role and benefits of the SLG/HWAB/HRTWG.

A bit more can be shared on how the MOH is benefiting from the much improved HRIS for the council for the broader HRIS nationally as this would be useful for other countries those who would like to replicate or are already in the process.

Response: Please see paragraphs 5, 7, 8, 9, and 10 in the discussion section. We have added these paragraphs to illustrate how the HRIS has benefited the Government of Uganda in matters of licensure verification, the creation and use of evidence-based semi-annual HRH report, and in the provision of data for the supplement to the Uganda Human Resources for Health Strategic Plan.

Reviewer: Scott Barnhart

Reviewer’s report:

Recommend: Publish if essential revisions are satisfactorily completed.

This is a descriptive study of the implementation of a human resource tracking system which was implemented at the Uganda Nurses and Midwives Council. The article provides important documentation of the process for implementation, some system design, and a description of the data and numbers of nurses entered into the system. As the authors point out there are multiple stakeholders, (UNMC, MOH, employers, nurses etc). The ability of the system to serve these stakeholders and to also shape policy needs greater amplification in the introduction and discussion and conclusions.

Response: Please see paragraphs 5, 7, 8, 9, and 10 in the discussion section. We have added these paragraphs to illustrate how the HRIS has benefited the Government of Uganda in matters of licensure verification, the creation and use of evidence-based semi-annual HRH report, and in the provision of data for the supplement to the Uganda Human Resources for Health Strategic Plan.

There are several ways this article could be strengthened.

1. Describe the UNMC in greater detail. What is statutory authority of the council? How does it relate to the MOH. How does it relate to licensure and how does it serve as a repository for information for hiring? What services does the council provide (noted in the article are test fee receipts- are tests given).

Response: To clarify the UNMC’s role regarding both licensure and hiring information repository, we have added paragraphs 5 and 6 to the introduction, which detail A) the UNMC’s legal authority as per the 1996 Uganda Nurses and Midwives Act, B) the UNMC’s role as an arm of the MOH that makes recommendations to the Government regarding issues pertinent to nurses and midwives, C) the UNMC’s role providing and tracking nursing and midwifery registrations and licenses, and D) the UNMC’s repository of licensure and registration data that can be verified at time of hire. In response to the reviewer’s question about services, specifically tests and test receipts, we have noted the UNMC’s former role and the Ministry of Education and Sports’ current authority in this regard. We have removed the paragraph in the discussion section that mentioned test fee receipts.

2. The UNMC should be described in the context of the Ugandan Health system.
Response: We have described the role of the UNMC in the context of the Ugandan Health System in the 5th paragraph of the introduction, which begins, “The UNMC is an official body charged with regulating standards for nursing and midwifery in Uganda.”

3. Describe any activities of UNMC around accreditation. In the table it notes who has graduated. Are there criteria for accrediting schools and is that necessary to register a person in the database.
Response: We have clarified the UNMC’s historical and current role regarding school accreditation in the 5th paragraph of the introduction using the following language: “(The UNMC used to be responsible for accrediting schools of nursing, but a later statute has since granted the Ministry of Education and Sports authority to govern nursing and midwifery training curricula, examinations, and training institution accreditation. Legal structures within the country have determined that the most current law takes precedence until both statutes are harmonized.) The UNMC also provides recommendations and contributions to the Ministry of Education regarding nursing and midwifery training and accredited curricula.”

4. Along with the helpful clarification of definitions of enrolled and registered please include licensure.
Response: We have included the following definition in the 2nd paragraph of the methods section: “The term “licensed” means that a nurse or midwife has obtained a license from the UNMC that allows her to practice nursing. Licenses must be renewed every three years, and a mandatory continuing professional education requirement that must be completed prior to renewal.”

5. Describe in detail (perhaps as an appendix) the data fields collected;
Response: We have included an appendix with the data fields collected at the end of the manuscript.

6. Describe the process for ascertaining data quality.
Response: In addition to the paragraphs in the methods section regarding the elimination of duplicate entries, we have added the following text in the 5th paragraph of the methods section: “To further ascertain data quality, frequencies were run on all data fields to identify and eliminate obvious outliers due to errors in data entry. Analyses were also conducted on all dates to ensure that dates were entered in a way that made sense chronologically (ex. ensuring that dates of birth preceded dates of training and ensuring that dates of training at lower levels preceded dates of training at more advanced levels). In cases where data appeared to be in error, comparisons were made to hard copy records. However, it should be noted that in many cases, the hard copy records themselves were incomplete or were filled out incorrectly. The hope of the UNMC is that, once the UNMC’s new on-site verification process (during which individual nurses and midwives review a print-out of their record from the UNMC database and recommend updates if needed) becomes routine, the number of errors in the database will decrease over time.”

7. Describe in greater detail limitations. How much can or cannot be learned about whether someone is actually working, where they are working, or whether they are even in the country or alive?
Response: In order to further clarify the limits of the data set, we have added paragraph 7 to the section on limitations: “The UNMC is clearly still in the beginning stages of a transition from an entirely paper-based system to an electronic HRIS. Because the data are largely limited to the historical records, unless a nurse or midwife has verified the information in person, it is not possible to use these data to definitively determine whether that individual is currently active in the workforce. This uncertainty is a major limitation of the dataset and should be considered when interpreting our results. However, at the same time, the HRIS represents an enormous step forward for the UNMC and the larger Ugandan health system. Previously, this workforce information was only accessible in hard copy files; now, these data are electronically available and can be aggregated and analyzed for decision-making. It is the hope of the HWAB and the UNMC that as the system continues to be used and nurses and midwives regularly review and update their information, the data in the system will become increasingly more reliable and accurate.”
8. Perhaps consider a section on improvements based on preliminary uses.
Response: We have elected not to include a section on improvements based on preliminary uses. As we have noted at several points throughout the manuscript (please see the 5th paragraph of the Methods section, the 7th paragraph of the limitations section, and the 4th and 6th paragraphs of the Discussion section) the greatest improvement to the system will be the on-going validation of the data, which is currently taking place as nurses review their records during licensure. As the data continue to be updated and used over time they will become more accurate and current.

9. There is a considerable drop off from enrollment to graduation to licensure. This drop off needs to be explained. Does it represent poor data capture or poor rates of progression through the educational system.
Response: As we noted in the original draft in the fifth paragraph of the limitations section, “Licenses to practice, which must be renewed every 3 years, have only been recorded in the database if they were obtained in 2005 or later.” However, we have further clarified this in the fourth paragraph of the discussion section, noting that “Our analyses demonstrated that the rates of licensure were very low, due to the fact that licenses to practice were only recorded at the UNMC from 2005 onward.” Although we did not directly address the drop off from enrollment to graduation, we did point to this area as a starting point for future research as was noted in the original draft in the 3rd paragraph of the discussion section: “Data on graduation and registration rates from training institutions can be used to identify successful training programs. Follow-up studies can then be conducted to determine the reasons why some programs graduate a greater percentage of students than do others. Lessons learned from the successful programs can be applied to institutions where graduation rates are not as high.”