Author's response to reviews

Title: Implementation of infection control in health facilities in Arua district, Uganda: a cross-sectional study

Authors:

Peter Wasswa (pwasswa@afenet.net)
Christine K. Nalwadda (cnalwadda@musph.ac.ug)
Esther Buregyeya (eburegyeya@musph.ac.ug)
Sheba N. Gitta (sgitta@afenet.net)
Patrick Anguzu (yanguzu@yahoo.com)
Fred Nuwaha (fnuwaha@musph.ac.ug)

Version: 2 Date: 17 February 2015

Author's response to reviews: see over
Response to Reviewers’ comments

Reviewer Report 1

Manuscript Title: Implementation of infection control in health facilities in Arua district, Uganda: a cross-sectional study

Version: 1 Date 23 September 2014

Reviewer: Jeremy Schwartz

Reviewer’s comments

Major Compulsory Revisions:

Background Section
We have revised this section to focus on pathogens transmitted through unclean hands. We have replaced citations from studies on blood-borne pathogens with those on MRSA and Clostridium difficile in LMIC.

Discretionary Revisions
We have removed all results and discussions on marital status.
Reviewer Report 2

Version: 1 Date 16 December 2014

Reviewer: Mareli Claassens

Reviewer’s comments

Major Revisions

1. General comments
   a. The data sources have been specified and the results have been revised into separate
      sections for each source, beginning with questionnaire data, key informant data and
      observation data.

2. Abstract
   a. Data analysis as described in the abstract has also been included in the main body of
      manuscript under the methods section

3. Introduction
   a. Line 53: The denominator is infections from admitted patients

   b. The countries and types of healthcare workers (HCWs) where the reference studies were
      done have been added to the manuscript

4. Methods
   a. Clustering was not accounted since cost was not a major limitation and we were able to
      get the sampling frame of the HCWs. We therefore sampled respondents from all the
      health sub districts so as to increase precision.

   b. Sampling of the types of health units was based on a number of factors; the area and
      population served by the health facility, the type of HCWs working in the facility and the
      kind of services provided by the facility. Health Centre (HC) II serves a parish, HC III
      serves as sub country while a HC IV serves a county. (More description of these health
      centres has been added to the manuscript). Based on the total number of units, we felt it
      prudent to select HC II and III randomly since they were the most common, and select
      HClVs and hospitals purposively as they were few and were expected to perform major
      surgeries where we would expect a higher risk of nosocomial infections. The health sub
      districts (HSDs) differed quite significantly, since two of them had hospitals, one of
      which was a regional referral hospital (Arua Municipality). Also, Arua municipality has
an urban/per-urban population and all the private clinics. The number of HCWs from each HSD was different. We selected 90 HCWs from Arua municipality and 60, 27 and 9 for the other three HSDs, again based on the type of facilities that were predominant in these HSDs. The number of HCWs for each type of facility was estimated based on records at the Arua District Health Office. The two hospitals, HCIV, HCI II, HCII and clinics were estimated to have 150, 40, 75, 50 and 50 staff respectively. We selected the facilities for the key informants purposively and the latter did not fill in the questionnaires. They were interviewed separately in addition to the 186 HCWs.

c. All HCWs that were approached agreed to participate in the study, except one key informant from the regional referral hospital who was too busy to be interviewed and travelled out of the district during the data collection period. However, we replaced him with his deputy. The number of HCWs per facility has been added.

d. Secondary outcomes were reported using univariate analysis only; although we used frequency tables, graphs and tables, we later excluded them in the final manuscript due to table limits. There are several ways of assessing knowledge that have been used from the literature we read although we can’t say confirm whether they are standard. We adopted a method used by Suchitra (2007) in which he did a KAP study on nosocomial infections among HCWs in India. Eight measures were assessed because they were all part of the MOH guidelines although emphasis is placed on five. Also, the eight the standard measures were defined by WHO, under which organisation of which Uganda is signatory. The knowledge assessment and eight measures of infection have been referenced. The definitions of the IC measures have also been added.

e. A p-value of <0.1 was used based on literature that states that a cut-off of 0.05 often fails to identify variables know to be significant (Zoran Bursac, 2008, J Mickey and S. Greenland, 1989 and R.B. Bendel, 1977).

f. Yes, this information was provided and included in the consent form. The explanation has also been added to the manuscript.

5. Results

a. Observation of IC measures: This was based on observing any of the five key moments during the 30 minute observation spells when a HCW should have washed their hands.
So, the number of steps varied depending on length and type of procedure that was being performed. Some measures where reported for health facilities and not health care workers because they were more suited as such, for example, housekeeping and waste disposal. It was not appropriate to tag individual HCW’s actions to the entire facility for such IC measures. We were also guided by literature on how these two IC measures (housekeeping and waste disposal) were assessed and reported. Some of the facilities were missing simply because many of the HCII and clinics did not have the structures given the nature of their operations. For example, HCII’s and clinics are not supposed to perform deliveries, so they do not have theatres or maternity wards.

b. We could not validate whether HCWs always followed all the IC measures because they are several and yet we had only a limited time of observation. This was only reported, which we have acknowledged as a limitation in the discussion section.

c. Availability of supplies: This has been included in the methods section as well (line 222). Line 260 was an error, innovative structures was meant to be specific structures and has been corrected.

Discussion
a) No. The facilities/HCWs were not informed beforehand, but we cannot rule out the possibility that some of them may have known that they were being observed.

b) The association has been shown in results (line 350).

c) Assessment of availability of water has been mentioned in the methods section (line 223)

d) Availability/lack of waste and placenta pits is shown in table 3 of the results

e) The research team mostly observed without touching. In a few instances cases where had to scour through the waste pits, they used long sticks. However, many of the pits were open and shallow.

Tables
a) Any health facility that had any recapped needle after use or in the waste pits was classified as recapped. Two facilities we observed lacked containers for sharps and so did not separate sharp and non-sharp waste. A unit was adequately cleaned if it did not have visible bio hazardous waste such as blood and any body fluids as well as used needles
and syringes, cotton wool or any substance that could potentially transmit infections on the table or floors. This explanation been added as foot note to the table. The data collectors had observation checklists which were pretested. They also underwent training on how to observe respondents and the health facilities before we collected data.

b) The crude OR and p-values have been added to table 4. Only variables with p-value < 0.1 were added to the model.

**Minor revisions**
All minor revisions 1-5 have been addressed and the suggested changes have been incorporated in the manuscript.

**Discretionary revisions**
All discretionary revisions 1-4 have been addressed and suggested changes have been incorporated in the manuscript.