Reviewer's report

Title: Impact of organizational factors on quality of laboratory testing in adult HIV care in Lusaka, Zambia

Version: 1 Date: 26 June 2011

Reviewer: Mit Philips

Reviewer's report:

The question examined is interesting for ART implementation and quality of care influencing outcomes for patients and programs, as it reflects on how health workers adhere to defined best practices and what reasons underlie the degree of difference between expected and real clinical practice.

The results are interesting because at least for some factors they go somewhat against usual preconceptions. However, the article shows some deficits in linking these results to plausible explanations based on health workers' attitude or motivation and to its consequences for patient outcomes; the chain of evidence could do with some strengthening.

- Major Compulsory Revisions

As the article deals with organisational factors, some more explanations about the organisational context is needed. In particular more explanations on the allocation of staff to various services is interesting in view of the fact that the health worker survey covers all type of staff and all type of services. Without this framework the direct links between predictors for general health care and specific outcomes in decisions for specific protocols by specific staff, are difficult to understand.

The article would also gain from making the link to reasons of non-application of the prescribed protocols. Now the specific motivation of health workers to comply or not with given protocols remains a question mark. Does the staff doubt the adequacy of the protocols? Do other arguments intervene in the decision? Do supervisors insist or support adequate application? If this study points out which general characteristics tell which health workers are possibly most at risk and would need extra control or support, it is less clear what kind of support is needed.

The observed results seem contradicting each other. What makes that the factors seem to influence decisions so differently between clinical staging and the different laboratory tests, even among laboratory tests (CD4, Hemoglobin and liver tests), both in terms of strength of linkage and sometimes odds in opposite direction? Insufficient plausible explanations are provided.

The concrete consequences for quality of care need to be explored further under
discussion. The present explanations are not entirely convincing and the link with patient management (and outcomes such as initiation of ART or continuity of care) is lacking. The case of the individual patient and public health interest of these factors can be further developed.

- Minor Essential Revisions

Overall the article leaves the reader somewhat undecided. What exactly was observed as linkages, how to explain this and what are the implications for health and staff strategies? The following points under minor essential and discretionary remarks try to address some of the points that seem particularly raising questions. But probably an adjusted structure might also help to clarify the main findings and messages.

Under limitations:

Although the authors clearly point out the limitations of the study on basis of data collection for other purposes and its retrospective analysis of these factors, the possibility of links with other factors is scarcely investigated or discussed. From the article there is insufficient possibility to exclude the influence of other important factors in organisation of the health care centres and the ART care process. Can differences in these factors explain at least some of the differences observed? Where they controlled for? Some of these factors that would merit specific mention include:

* Practical organisation of ART care within the health structures described: is ART care integrated in health centres in terms of staff, dispensing drugs, laboratory services? Is there a different management of patients on ART and pre-ART? Are there restrictions in type of staff conducting initiation or follow up visits?

* Is there a specific supervision, mentorship or other support for ART care?

* Practical organisation of laboratory tests: Are all tests done at the health centre and by the same people? Are lab tests done in a decentralised way or rather all/some tests sent to a central point? A basic description is needed of where and how collection, transport, results communication is done and what the role of variation in important factors such as barriers linked to distance, communication tools, availability of reagents or staff at central level might be.

* In case the recording of the tests in the patient file depends on factors other than prescribing health workers’ attitude and practice, these need to be explained, eg availability and speed of performance at reference lab; any specific limitation in terms of qualification required of the person requesting the test or interpreting the results, etc

* Financial barriers to patients and/or financial incentives for staff by payment for the laboratory tests. Often in SSAfrica ARV drugs might be free of charge, but consultation and laboratory tests need to be paid for by patients. Financial access of health centres in general can limit access to free ART. Hasn’t Zambia recently adopted free of charge primary health care, but only/mainly in rural
areas? Even if patient fees are applied in all urban health centres, there might be differences in prices imposed on patients and in ability to pay for the population of certain areas.

Discretionary Revisions

Even if results show statistically significant differences linked to certain factors these concern relatively small effects. This raises the question of overall impact on quality of care and of possible influence to correct potential negative influence by the predictors identified.

Under limitations:

The fact that predictors are expressed as median values for the entire health centre might have reduced the observed differences, as the specific decision for laboratory test request is probably more closely linked to specific staff members (clinicians).

Without additional explanations (under discussion), the difference in outcomes for the same predictors is puzzling.

* E.g. How to explain that staff experience reduces the odds of not requesting CD4 count and Hemoglobin and increases odds of correct who staging?
* Why would CD4 counts in follow up visits be less likely linked to staff burnout while more likely in IHP?
* Is there some influence from type of staff doing certain tasks or type of consultation?

For the predictors there should be systematically a precise information if this applies for the entire health centre or for the ART services in particular (under methodology), so as to grasp the mutual influence this can have (under discussion).

E.g. predictors: time shifts for ART only, floor area for entire clinic, average visits to clinic ART only or for all?

It is difficult to fully grasp the potential influence of staff experience defined as time in this posting (I assume in the same clinic) if all have an average of over 4 years experience and in the earliest case the ART programme has started less than 3 years ago. De facto their job description and clinical tasks will have changed, the training on ART will have taken place for most in the health centre at the same time. I wonder if this is not a proxy for age rather, with possible increased resistance to new clinical management guidelines.

Can these characteristics be generalised outside ART care and is there a similar implication for quality of care for other services? Exploring potential divergence or similarities of effects observed on other decisions by the same staff, both in ARV care as in general care; e.g. reference, change of treatment, malaria test etc.

The readers could be helped by clarification of certain points:
* Under program description: an overview resuming what is the exact protocol for indicated lab tests per type of visit, who (what health worker type) prescribes this, who receives the results and acts upon it.

* A table that replaces the description how expected tests during follow up visits are scored (under outcomes and Follow Up (FUP) visits). The present explanation is not easy to understand. I suggest a 2 by 2 table with expected/not expected and done/not done and symbols for each position, so that it is clear what elements are considered as adequate and which not.

* Where needed make a difference between FUP visits for patients on ART and for those not yet on ART; there could be a different attitude there, a different staff type and there are definitely also different consequences for clinical care and patient quality of care.

* Systematic precision for predictors if HIV related or linked to general health structure aspects (various places in the document).

general information on the ART programme under program description: HIV care and treatement; what are eligibility criteria and the decision process (cut off point CD4, combined or not with clinical staging, CD4 count essential or optional for initiation etc); what are the general outcomes of the programme in terms of survival and continued under ART, pre-ART mortality and/or loss to follow up? What are the other blood tests required by national guidelines? This not only helps to understand what is the standard protocol in place, but also what might be certain of its shortcomings, possibly source of resistance to apply by health workers.

* Role and responsabilities of specific staff members for specific tasks. Is there any task shifting and to which cadres? What are the work load divisions under staff? The statement under discussion on the nurses being less burnt out seems to point at a situation that is quite different from the neighbouring countries (malawi eg). The link with better adherence to standardised protocols might also be linked to less qualified staff (nurses compared to clinical officers, clinical officers compared to Mds), as described in other developing countries.

Minor remarks not for publication:

Title, tables etc

The title would be more accurate when referring to decision making of laboratory request according to protocols and not quality of laboratory testing.

Suggestion: … on adequacy of application of standard laboratory tests at initiation and follow up visits in adult HIV care in Lusaka, Zambia.

Abstract a bit too short and difficult to understand detached from article. I suggest to keep the same outcome “odds of not following standard protocol”

Table 1:

How absenteism and turnover can be indicated as absolute values without information on the average staff count per health centre? Specifiy in all if it
concerns staff in all type of health services or rather ART related care.

Table 2: suggestion to add figures on ART patient visits (initiation and follow up) as indication of work load.

Table 4: Why is the total not the sum of the consultations and the CD4 count in individual clinics? And the total percentage is higher than any of the individual clinic results? Suggestion to use the p value to indicate significancy.

Appendix: Without a conclusive analyisis, the appendix with monthly evolution of staffing ratios is too detailed and insufficiently linked to the points discussed.

Under methods, setting, there is a problem with the second sentence; a word is missing.

**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:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare I have no competing interests.