Reviewer's report

Title: Examining Characteristics, Knowledge and Regulatory Practices of Specialized Drug Shops in Sub-Saharan Africa: A Systematic Review of the Literature

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Reviewer: Birger Carl Forsberg

Reviewer's report:

- Major Compulsory Revisions

The author must respond to these before a decision on publication can be reached. For example, additional necessary experiments or controls, statistical mistakes, errors in interpretation.

1. General comment: In the text, the articles are referred to by the country in which they were carried out. As the article stands now it is not possible to tell how representative the different studies were for the countries in which they were carried out.* In the results section, the authors should provide more information on the sampling used in the studies reviewed.

*To exemplify: In Tanzania, drug stores (duka la dawa baridi or part 2 drug stores) are presently being upgraded into ADDOs on a roll out basis. To become an ADDO the drug store must go through an accreditation process after which a broader selection of drugs are allowed to be sold, including some antibiotics. Consequently today there are both the old type: duka la dawa baridi (OTC only) and the new type duka la dawa muhimu (ADDO) operating. For example, reference 19 concerns ADDO while reference 24 concerns duka la dawa baridi. On page 8 this has been correctly separated but not on page 3.

2. Results, Paragraph 3, page 4. ……Nearly all Tanzanian and Ugandan drug shops were reported to have health-related-college qualifications (11,23,24). Comment: What is meant here by college qualification? I am not sure that “nurse assistant” in the Tanzanian drugstores in reference 24 is a college degree, rather a high school degree. This should be verified.

3. Discussion, paragr. 3 (Page 12): "Shops operating in rural areas also charged higher prices for medicines overall, presumably to cater for transport costs and compensate for low business activity (although higher competition may also explain lower prices in urban locations). " This should be further discussed. The finding is a bit surprising given that the purchasing power of the urban population often is higher than the rural. The higher competition in cities may make up for this market difference but is it really a sufficient explanation for the assumed difference? And how robust is the finding? Is there enough evidence to allow a general conclusion like that for SSA? In fact, the findings presented in the article seems inconclusive on this: "In Tanzania, ADDOs operating in more rural areas
were found to have higher mark-up prices compared to those in urban locations [42], whereas medicines prices were higher in pharmacies operating in more affluent parts of Mozambique's capital [16]. In Somaliland, four-fifths of rural pharmacies offered credit facilities compared to only half in urban locations [27]. Prices also varied with shop type, with non-pharmacy drug shops having lower prices compared to pharmacies in Nigeria, Uganda, Benin and Zambia [29, 31, 32, 69]." First finding is supportive, second one (Mozambique) contradicts conclusion while the finding from Somaliland does not provide information on prices but tells us that credits are much more frequent in rural areas, something that my explain higher mark-ups (to cover credit losses) but could also work a price-pressure in rural areas. Instead of providing credits, the salesmen may lower their price to the customer. The last sentence says that non-pharmacy shops had lower prices than pharmacies in several countries. As non-pharmacy shops are proportionally more common in rural than in urban areas, one would assume the finding would mean that drug prices are lower in rural areas. Overall, one would like to see the conclusion that "shops operating in rural areas also charged higher prices..." supported with facts from the studies reviewed.

Along the same line, we find that the next conclusion in the same paragraph on page 12 "The implication is that while SDSs improve access to essential medicines in most areas, individuals living in low population remote areas may still face sizeable physical and financial barriers." cannot be fully supported (however true it may be). From where does the evidence come? The assumed higher mark-up on prices in rural areas (which can then be questioned as described above) does not tell us whether or not this means that some people cannot access the medicines for financial reasons (again: however true it may be). In fact, none of the studies chosen are reported in the article to have studied the access issue.

- Minor Essential Revisions

The author can be trusted to make these. For example, missing labels on figures, the wrong use of a term, spelling mistakes.

4. Background, paragraph 1, Page 1:…increased frequency of interventions…Comment: there is limited earlier evidence for this claim. It is rather a result of the present study.

5. Knowledge and perceptions, paragr. 1, last sentence: "One retailer, for instance, stated that he only sold amoxicillin without a prescription when clients wanted 'just a little bit'. This is an analysis of 61 articles listing characteristics of Private Medicine Retailers. It therefore seems a bit odd that reference is made to "One retailer". The validity of the example used to retailers' behaviour is difficult to assess for the reader. We therefore suggest that the sentence in question is deleted from the manuscript.

6. Dispensing practices, paragr. 3: "Patient history taking was poorly done overall. This was seen in Ghana, Nigeria and Sudan [9, 55, 59]". If the word "overall" is used one would expect it to apply to all or most of the articles.
However, only three out of the 61 are quoted as support to the statement. So, was it “overall”, “sometimes seen” or “documented in a few studies”?

7. Discussion, paragraph 7: The conclusion "The high willingness to refer clients reported in majority of studies is encouraging,...” seems overly positive given that authors in their results section write: "However, actual referral practices were rarely investigated, and where this was done, the practice was scarcely reported.” We suggest that the sentence in the discussion be somewhat modified.

- Discretionary Revisions

These are recommendations for improvement which the author can choose to ignore. For example clarifications, data that would be useful but not essential.

8. Methods, paragr. 3, last sentence: Error in sentence: "Consequently, a structured narrative synthesis of was undertaken.”

9. Discussion, paragr. 2 (Page 11): "Majority of studies came from Anglophone countries, possibly due to any one of two reasons; a weakness in the search strategy, or an overall lack of interest in SDSs by the biomedical communities in Francophone countries.” Is it possible that articles in French are published in journals that are not found in the search engines used by the authors? How common is it with non-pharmacy drugstores in Francophone countries? Is the number of pharmacists greater? (Something to consider)

10. Discussion, paragr. 2 (Page 11): "Studies included in the review were highly heterogeneous, reporting a wide range of outcomes including characteristics of staff and shops, knowledge, and reported and observed practices. This made it impossible to pool estimates or assess overall patterns using any quantitative methods. As a result, a structured narrative synthesis was undertaken to describe the findings from the studies.” It would be useful for the reader to get this information in the methods section, before reading the results section.

11. Discussion, paragr. 5, last sentence (Page 14): "The idea of manipulating preferences to influence private sector behaviour has been reported to be effective in some settings [1].” This idea is dominating marketing of pharmaceuticals today. Consumer-targetted marketing of drugs is quite common in the US and Europe ("Tell your doctor to prescribe...."), a fact that could be considered in this discussion. One would assume there are several powerful references to bring out in this context.

12. Dispensing practices, paragraph 3, Page 9 The sentence starting: This was seen in Zimbabwe and Kenys;… is a bit difficult to understand.

13. Reference: Viberg et al. BMC Infectious Diseases 2010, 10:270 should be relevant to include.

Level of interest: An article of importance in its field
Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I have declare that I have no competing interests. Birger Forsberg (1st reviewer)
I have declare that I have no competing interests. Nina Viberg (2nd reviewer)