Title: Measuring access to medicines: a review of quantitative methods used in household surveys

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Author’s response to reviews: see over
Reviewer's report
Title: Measuring access to medicines: a review of quantitative methods used in household surveys
Version: 2 Date: 18 January 2010
Reviewer: Barbara Mintzes

Reviewer's report:
General comments:
1- The authors have done a good job of responding to most of the comments, and the paper provides more justification and description of methods than previously.
OK

2- However, I felt that the main aims of the review – to evaluate methodologies to measure medicine access, and to standardize methodologies, increasing study comparability, remain relatively weakly implemented. This is because such key issues in the evaluation of a quantitative survey method, such as sampling frames and sampling methods, instrument design, accuracy of self-report, recall bias, and the adequacy of specific outcome measures in measuring access etc. have either been minimally or not at all addressed.
The term “evaluates” used as the goal of the study was replaced by “describes” as the intention is not evaluate methodological quality of the studies but to identify how access to medicines is measured showing downsides and qualities of the different approaches. Therefore, the items mentioned by the referee to evaluate quantitative studies were not explored.

3- I also found myself puzzling at which studies had and had not been included, and the decision to include specific chronic and acute diseases and not others.
The paper did not use as an inclusion criterion studies about specific chronic or acute diseases, we only excluded some medicines prescribed for chronic diseases and unusual medicines, as specific legislations are distinct from country to country, considering that if there are specific laws to supply medicines, the manner to measure access will also be specific.

4- Inclusion/ exclusion criteria for studies
There is now greater detail in the methods section.
We accepted the comments and made the changes specified in the following paragraphs.

However, it could be better organized. The inclusion criteria are briefly described in the first paragraph under methods, as are some of the exclusion criteria.
The first paragraphs of methodology were rewritten, starting by the search strategy and naming the next paragraphs as “inclusion criteria” and “exclusion criteria”.

[last sentence, which is unclear – I presume it means that they excluded studies that looked at the appropriateness of medicine prescribing and use, not whether or not a medicine could be obtained.]
The last sentence states that other dimensions access (geographical accessibility, medicine’s adequacy to condition and acceptability of the individual) are not being considered in this review due to the access definition we have used. To increase understanding of the sentence, we explained as below:
Methods

Quantitative studies that measured medicine access on household level as the main or secondary outcome and were published until July 2008 were included in the analysis. The access was defined as obtaining the medicine for free or by payment [10]. Thus, studies about accessibility (geographical access), adequacy (appropriateness of medicine prescribing) and medicine acceptability by the patient were not included in the review.

5-Under inclusion criteria, the outcome ("access") is now more operationally defined.

OK

It would be useful to have an operational definition of ‘quantitative studies that measured medicine access on household levels’. This can now be partially deduced from the paragraph on exclusion criteria, which states that studies ‘that were not household-based interviews’ were excluded.

This means that demand studies or studies made in a health facilities were excluded and the subjects in the study are not necessarily users of health services.

Presumably the authors included any study using face-to-face, mail, internet-based or telephone surveys for which the unit of analysis is the household or an individual within the household.

The understanding of the referee about the studies included is correct.

Did a specific sampling method need to be used to identify households (for example random samples, systematic samples, by geographical area; population etc.)

We are describing the studies, how they measured access. We are not evaluating their methodological quality, thus the sample method was not considered. It does not interfere with the way access is measured.

Were cross-sectional studies included as well as longitudinal studies (prospective cohort analyses)?

The study design was not considered as an inclusion/exclusion criterion. But during review we could not identify studies using different designs.

Were studies that included the general population from a specific region excluded if they were not based on households but rather on individuals (for example population-based prescription database analyses)? If so, what was the rationale for this?

No, these studies were not excluded, and actually two studies presented in the review have used this approach to select subjects:


6- Organization of this section: the inclusion and exclusion criteria are now divided between a paragraph before and after the search strategy. They should be in the same section.
This section was reorganized as explained in a previous response (4).

7- The description of the data extraction form is not needed in such detail, (points under “from the selected studies…” ) as I mentioned previously. As the authors would like to keep it in the paper, I would suggest making it into a box in the methods section, rather than including in the text, to improve readability.
We thank the reviewer for the suggestion and we believe that information retrieved from papers not only shows data that were not discussed, but also helps the reader to understand the meaning of information presented.
Therefore, the text was included as a “box”.

Results
1- The paragraph that starts “more than nine thousand…” should be in results, not methods, as it refers to what the authors found after they applied these search methods.
This paragraph was transferred to the results section.

2- The authors have described a very comprehensive search strategy, similar to one that would have been employed in a systematic review, but then report very minimally on the process of selection of studies for inclusion or exclusion. The trajectory from >9000 to 9 studies remains unclear. Did the authors do a first triage and exclude irrelevant studies, reviews etc. They would have then had a subset of potentially relevant studies and could have provided the reasons for exclusion, among these studies, as well as describing any methods used such as duplicate independent review, adjudication of differences.
Usually this type of description is part of a systematic review. However, the lack of a specific keyword leads us to an intense manual search, to the exclusion of large amount of papers completely unrelated with the subject, contact with several authors who provided extra material and reference search being hard and not very useful to describe the whole process. This paper aimed at gathering the available quantitative methodologies used to measure medicine access on household level, but it is not a systematic review.

They refer to this step in a general manner -- they state that most were excluded because they were related to excluded chronic conditions (AIDS, tuberculosis) or medicine access of people covered by insurances.
I was puzzled at the latter exclusion criteria, as if access is a measure of a person’s ability to obtain a medicine either for free or by payment, whether or not they are covered under a public insurance systems that are population-wide as well as private insurance would have a profound influence on access.
Surely, to be member of a health plan that covers medicine supply affects the access.
The problem is that this kind of insurance is not usual in most countries and to include this approach would impair comparability between studies.

3- There are also quantitative, population based studies that have examined the way changes in insurance systems affect access. See for example Tamblyn R et al. Adverse events associated with prescription drug cost-sharing among poor and elderly persons. JAMA. 2001 Jan 24-31;285(4):421-9.
I assume this study was excluded because it is population rather than household based. This makes sense if the main aim of this paper is to evaluate a specific research methodology, household surveys. It is inconsistent with an aim to collect the full research evidence on access to medicines at a population level.

We are aware of this study. The study was retrieved during the search performed on 09/25/2007 (Pubmed) using the keywords combination described in the methods section. This search resulted in 2790 papers and one was selected: Piette JD, Heisler M, Wagner TH: Cost-related medication underuse among chronically ill adults: the treatments people forgo, how often, and who is at risk. Am J Public Health 2004, 94(10):1782-1787.

We understand the claim that this study measures access to medicines, however the study that the reviewer refers to was excluded because it was not household based but based on secondary data. If the 93950 elderly people and 55333 adult subjects selected from the database were later interviewed at home, then the study would be eligible.

4- I am also curious about the mention of the multicenter WHO study that included 71 countries. The text suggests that only the Brazilian survey was included, not the survey in the other 70 countries, (under discussion). This is confirmed by the table of included studies – no global WHO studies are included. I did not understand why this global survey failed to meet inclusion criteria, but one of the country studies that contributed to was included.

In the discussion section, now the item “Place of the study/ Year of publication” reads as the follows:
“We could not find publications from the other countries about medicine access referring to this project. However, this is not a limitation of the review, because, as all studies had to use the same methodology, only one study would be included”.

As well pointed by the reviewer, the study carried out in 71 countries relied on a single instrument, protocol and access definition, explaining why only one study with this methodology was included. However, we could not find publications from other countries, as mentioned in the paper.

5- On the other hand, the one study that used adherence to measure access was a puzzle, in that there are many studies of adherence in relation to access (including the one by Tamblyn et al, cited above).

The referred study was included to show that, when lack of adherence is due to cost restraints, actually what is being measured is lack of access, according to our definition. The study mentioned is a dissertation using data from the SABE Project (referenced in the text). In the summary of the dissertation we found information about non adherence due to cost, leading us to ponder if such approach is not measuring access as well (or lack thereof). We did not include the term “adherence” or “compliance” as keywords, and believe that it was the reason why this specific study was included but not similar studies about this theme.

There are also many methodological problems with self-report as a measure of medication adherence, and the assumption that adherence reflects access alone is also likely to be problematic, given that in many cases it is likely to be affected as well by the patient’s experience or expectations of effectiveness, by adverse effects treatment preferences etc.
We agree with all the limitations of adherence self-report and are aware that adherence requires medicine access, but the opposite is not true because simply to have access to medicine does not result in adherence. However, this study focused only on access or lack thereof and do not to discuss other terminology issues. If the study aimed at adherence, it would be necessary to expand the definition, incorporating aspects that lead to non adherence. Actually, a major obstacle to find studies about medicine access lead us to conclude that terminology used in these studies, as access, adherence, rational use need to be clearly defined, in order to gather the available information about the desired subject through the search strategies.

Discussion
1- There is a lot more detail in the discussion than previously, and it goes a long way towards describing how research criteria could be developed and applied, to ensure better consistency of methods to measure medication access.
OK

I am not sure how this relates to the WHO survey in 71 countries and whether the authors believe that the methods used in this survey were unreliable and require improvement. Given that a multinational study has already been carried out with a single instrument, protocol, and definition of access, the call for standardization appears to be a call for something different than what has already been done. I wasn’t sure how the current call differs. If the research methods were not rigorous enough, it is also possible to create a small checklist for more rigorous methodology. It is also unclear how reliable the method were for the 9 studies under consideration. The approach of applying specific criteria and then commenting on presence/absence or rigour (as in a Cochrane systematic review ‘risk of bias’ table) would have been helpful. In spite of evaluation strategies that were already tested in many countries, including the methodology proposed by WHO, this field is a subject under conceptual and methodological development, as is stated in the paper, and this review attempts to show different approaches and advantages and downsides of each strategy. As requested, we added a paragraph at the end of the text highlighting all aspects that must be considered when measuring medicines access on household level, but our considerations do not intend to be a unique and ideal evaluation strategy.

2- I found the discussion of the definition of access useful.
OK

One issue that is not discussed is whether the user attempts to triage between necessary or essential medicines and non-essential medicines, and whether researchers also apply these definitions when measuring medication access. These aspects were not the focus of the review. We believe that such information is relevant, but another review study would be necessary to discuss the issue and our search strategy was not aimed at this outcome.

3- Recruitment strategies: were these all household based? It is also unclear what sampling techniques were used to identify study participants in the various studies. We included household-based studies, regardless of the sampling strategy.
4- Recall periods: in calling for different recall periods for acute and chronic treatments, the authors need to discuss the issue of recall bias, and how to minimize it, particularly in terms of their recommendations on chronic treatment. This issue it discussed in the text. We present below one of the paragraphs about it:

Recall Period
In studies about medicine access recall bias is a potential source of error; respondents may recall better information of the medicines they had access to. In an attempt to control such problem, the recall period to be used in medicine access studies depends on the medicine access characterization, on the type of medicine to be evaluated and on the studied age group.

5- Data collection: do the authors envision any alternatives to self-report?
In face-to-face interviews, one way to avoid self-report problems is to ask for the medicine package, as described in the text:

Instrument administration, dropouts and prescription, packet or leaflet requesting.
Most studies had large samples. On the other hand, the two studies based on phone or internet interviews presented high refusal rates [16, 17]. Despite such strategies allow studying larger samples, the low response rate is a major limitation. Besides, distant inquiry methods do not allow asking for packets or prescriptions, impairing medicines identification. The packets or prescriptions increase the accuracy and completeness of the information obtained, minimizing memory bias. Medicine access may be overestimated by the bias, since people recall better medicine that they could obtain.

6- WHO indicators: a box describing these would have been useful.
We agree with the importance of these indicators; however we believe that it would increase word count substantially. The WHO reference with the indicators is now indicated in the text.

7- Low response rate: at one point the authors describe a <85% response rate as low. It is unclear how this threshold was set. It is very optimistic for many cross-sectional studies. It might be worth reviewing the response rate literature and also briefly discussing methods to ensure generalizability of results – both the sampling method and response rate need to be addressed. The analysis of these aspects is not the objective of the study. The consideration that the response rate was low was deleted.
Reviewer's report
Title: Measuring access to medicines: a review of quantitative methods used in household surveys
Version: 2 Date: 5 January 2010
Reviewer: Anna Birna Almarsdóttir

Reviewer's report:
Minor Essential Revisions:
1) The author needs to narrow the objectives at the end of the background section-stating that the review focuses on quantitative household surveys.

The term “quantitative” was included in the last paragraph of the introduction and in the abstract.

2) Instead of saying "six papers", the authors need to be more specific - are these peer-reviewed articles?

We understood that the reviewer is questioning if a peer review was done to include the six papers in the study. Actually, this study aimed at reviewing quantitative methodologies that evaluated medicine access in an attempt to contribute to standardization in this field; hence it is not a systematic review where only peer-reviewed articles are included/excluded according to a previously established methodology. However, as these six papers were published in peer-reviewed journals, the material is actually peer-reviewed.

3) The manuscript needs thorough language revision. There are many examples of un-English word usage, such as using "that" when "this" should be written, "On Table 1" in stead of "In Table 1", "Refuse rates" which should be "Refusal rates", etc. Some of the following comments may relate to the fact that I do not understand the English used. We review the entire text with respect to this language problem.

4) Discussion - Access definition: I do not grasp how cost-related underuse is not lack of accessibility?

Cost-related underuse is lack of access according to the definition we have used in the paper (obtaining the medicine with or without paying), but not necessarily lack of accessibility. The term accessibility means easy access, nearby access (geographically), there is, the individual is underusing the medicine because needs to travel to obtain the medicine. Therefore, lack of accessibility could be one of the reasons for lack of access, but the term is not similar.

To increase understanding of these terms, some definitions were included in the methodology:

“…The access was defined as obtaining the medicine for free or by payment [10]. Thus, studies about accessibility (geographical access), adequacy (appropriateness of medicine prescribing) and medicine acceptability by the patient were not included in the review.

Furthermore: How can underuse be understood as "rational use"? A sentence was included at the end of the first paragraph about access definition in the discussion section (as described below), hopefully the subject is clearer now:
“…Even though during selection of the studies for this review, a single definition was adopted – “obtaining the needed medicine” [10], an attempt to exclude studies that evaluated different access dimensions such as availability, geographic accessibility and accommodation [9], we observed that such definition may include not only the medicine acquisition but also the cost-related underuse [16], to evaluate if the individual cut back on treatment due to financial restrictions. Medicine obtaining is represented by the affirmative that the individual did not restrict medication or obtained all prescribed medicines. On the other hand, underuse seems to be another access definition, indicating that the individual cut back on treatment or took less medicine than prescribed. However, this approach (underuse) must be taken cautiously as it could be understood simply as not using medicine for any other reason and not lack of access, if it is not clearly stated that the underuse is due to cost.

5) Discussion - Types of medicines: I do not understand the first sentence in this paragraph.
We agree that the sentence was not clear. Therefore, it was changed as shown below:

Types of medicines
A great limitation found in the reviewed studies is the use of the same methodology to investigate access to different types of medicines (prescribed for chronic/acute diseases and even not prescribed), hindering the quality of information.

6) Discussion - Recruitment strategies: Again the first sentence is not clear at all.
The sentence was not clear and was changed as shown below:

Recruitment strategies to evaluate access
Often before measuring access it is necessary to define inclusion criteria or use filter questions to allow or restrict the type of medicine evaluated.

Level of interest: An article of importance in its field
OK

Quality of written English: Needs some language corrections before being Published.
The text language was revised.

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

Declaration of competing interests:
I declare that I have no competing interests.
OK