Reviewer's report

Title: How effective are common medications: a perspective based on meta-analyses of major drugs

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Reviewer: Bruce Guthrie

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Thank you for asking me to review this interesting paper, which addresses an important topic and I looked forward to reading it and enjoyed it. However, I had some difficulty trying to decide what type of paper it was, not really being that familiar with the BMC Medicine definition of “correspondence”, and the paper does sit rather uneasily in a grey area between editorial (because the discussion goes well beyond the data) and research (because the data presented is all from the authors’ own study rather than being a broader overview which most editorials would be). As it stands, I think it is neither one nor the other and would be better deciding if it’s a research paper (in which case the methods need clarifying) or an editorial (in which case it should spend more time editorialising in a broader way).

Major compulsory

1. The main manuscript is vague about how the drugs examined were selected. It says “We would like to present a realistic perspective on the general efficacy of the most frequently prescribed drugs in medicine (as measured by the number of on-therapy patients in the US, according to the IMS Institute for Healthcare Informatics [3], Figure 1).” (p3), but I think that’s misleading. What I think they have done is to select a drug from the top 20 therapeutic areas, but that doesn’t neatly translate into ‘most frequently prescribed drugs). For example, narcotics is the fifth highest therapeutic area in the IMS report, but the selected systematic review is of one-off oxycodone+paracetamol use post-operatively which isn’t the same thing at all, although the text then talks about “analgesics” (p4) which implies a broad examination that hasn’t been done. There is inconsistency in the language in other ways too, for example use of the phrase “therapy types” (p3) last paragraph.

I think the authors need to describe their methods more clearly in the main text in terms of how they selected the topics (therapeutic areas as listed by IMS as affecting the largest number of people in the US), how they selected which drugs to examine within these (not sure, some choices look rather odd), and then use consistent language to name what they’ve examined.

2. I am also unsure how the authors chose the meta-analyses to include. For example, for hypertension, I don’t know how or why they decided to ignore the large number of Cochrane systematic reviews and meta-analyses of
monotherapy for hypertension, which would appear to have been excluded on title and abstract review (even though they are called things like “Blood pressure lowering efficacy of partial agonist beta blocker monotherapy for primary hypertension” and being in the Cochrane Database of Systematic Reviews and having abstracts saying they have done a meta-analysis would seem certain to make it to full text review).

Linked to this, they include studies which don’t appear in supplementary file 1, for example for hypertension they include “Collaboration BPLTT. Effects of different blood-pressure-lowering regimens on major cardiovascular events: results of prospectively-designed overviews of randomized trials. Lancet 2003;362:1527-35” as well as the Law paper cited in the supplementary file. I don’t think that’s a problem because different papers may report different outcomes, but it all looks rather non-systematic. Which isn’t necessarily a major problem in an editorial, but as I said above, I couldn’t decide what kind of paper this was.

Minor essential

1. The authors cite “212.5 million” Americans as being treated with drugs in their therapeutic groups, which I think they arrive at by summing up the numbers in the IMS figure, but that assumes that no-one takes more than one of the drug classes which is clearly not very likely. They should remove this number from the text or justify it.

2. Says “trails” first line p4 instead of “trials”.

3. Supplementary file 1 p7 hypothyreosis would more normally be hypothyroidism in English.

4. I liked the idea behind figure 1, but it would be better if the abbreviations were in a footnote rather than main text or a list of abbreviations to avoid flicking backward and forward eg “D=83%, ARD=58%, PRR=256%, N=5, n=645”.

5. I’m not sure how they have calculated their “percentage response ratio” and suspect that many readers won’t know what it is or how they are meant to interpret it. Please define it and explain its relevance (or drop it).

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I declare I have no competing interests