Reviewer's report

Title: Design and evaluation of software for the objective and easy-to-read presentation of new drug properties to physicians

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Reviewer: Emmanuel Chazard

Reviewer's report:

I thank the authors and the editor to enable me to review this interesting paper. In this work, the authors design, present and evaluate a computer software that enables to present the main properties of new drugs to physicians, in comparison with existing drugs that can be used for the same therapeutic indication. The outcome is a user-friendly software, which gets good evaluation results. The paper is clearly structured and well written.

***** Major Compulsory Revisions *****

The objective is properly defined at the end of the introduction. Its formulation is perhaps a little too wide compared with the software that is proposed: this software is able to display comprehensive information about new drugs, only when older drugs already exist for the same therapeutic indication. The design that is proposed is probably not suitable if a new drug is the first one for a given indication. Please clarify this in the introduction and, if possible, in the abstract.

Five new drugs have been selected for the evaluation. Among the 40 drugs approved in 2008-2010, are those 5 drugs the only ones with a significant benefit? If not, the readers should be aware of the reasons why those 5 drugs have been chosen: randomly / because more comparative results where available / because the results of those studies where significant / because the SPCs were more complex, etc.

The readers would appreciate to have an idea of the effort needed to document a new drug: what kind of professional is able to enter the information (pharmacist, physician, with or without programming skills, etc.)? How much time should it require for each new drug (1 hour, 1 day, 1 week, etc.)? You could feed the discussion by indicating the average number of new drugs per year, so that the reader could figure out the annual amount of work necessary to update the data. Is the information described in a structured way, or are HTML pages manually designed?

The discussion should discuss what happens if a drug is the first one for a given therapeutic indication.

The discussion should also discuss how to manage situations where the therapeutic indication of two drugs slightly differs (e.g. different ages of the patients, first-line or second-line products, etc.): should the drugs be considered
as independent, or should this difference in the indication appear as an attribute, on the same way as the contraindications?

***** Minor Essential Revisions *****

“analyze the available information he consider” => “analyze the available information he considers”

“we listed all the possible values that the system can use” => “we listed all the possible values that the system could use”

“We developed the prototype in PHP / MySQL.”: MySQL is not a language. The prototype is then developed in PHP & SQL, and is run on an Apache (?), PHP and MySQL server.

About the Banque Claude Bernard: remember that all references, including URLs, must be numbered consecutively, in square brackets, in the order in which they are cited in the text. Please move the hypertext link to the bibliography.

The “young hospital physician specializing in public health” becomes a “public health intern” at the end of the paper. To my mind, the term “public health resident” would be more appropriate, as he/she is already involved in a specialty.

The resolution of Figure 1 is not sufficient. In addition, precise that the elements of Figure 1B are displayed in part 3 of Figure 1A.

In the authors’ contributions, please precise who described the information about the drugs.

Verify that the use of grammatical tense is homogeneous (e.g. past simple and present simple). For instance, “we took into account (...) we consider (...)” => “we took into account (...) we considered (...)”

***** Discretionary Revisions *****

Could you give us some information about the screen size that is necessary to use the software? Could it be used on tablets or smartphones? Is the design responsive?

Eight percent of men are color blind, and are not able to distinguish red from green. Yet, in Figures 6 & 7, both ends of the color scales have the same texture, and appear to be the same for color blind people, or for normal people once printed in white & black. I suggest the authors would add a texture, or a printable character (+/-, etc.) or would discuss it in the discussion section.

In Figure 7, I notice that, when there is an automatic linebreak in a cell, then the colored area is increased (see the line “hypersensibility...”), which could falsely lead the user to think the difference is more important. To avoid this kind of problem, it is usual to use colored pictograms with a fixed size instead of colored background for table cells. The table would also look more modern.

In figure 7, the active substance may not be the same between the 2 drugs, so it
is strange and confusing to use only one line: it would be probably better to have a line “hypersensibility to XXX” and a line “hypersensibility to YYY”, which would enable to have 2 different colors on each line if the active substances are different.

At first sight it is hard to make one’s opinion on which drug is the best when a problem is a contraindication and is also a potential adverse reaction, such as hepatic impairment in Figure 7. Let’s imagine that Drug A is not contraindicated in case of hepatic impairment, but could induce such a reaction, and Drug B has a higher hepatotoxicity, so that it was contraindicated in this case even before the clinical trial: then the proportion of hepatic SAR cannot be compared. How does it appear in the SAR comparison? Could you discuss that point?

In Figure 10, I think that the users would appreciate to have bibliographic references for each paragraph, or at least the date of the report, as updates may exist for each document.

An appropriate evaluation design would be to measure the time needed by physicians to answer correctly some simple questions about a new drug, with the full-text documents or with the software. Perhaps you could do that in this paper or propose this kind of evaluation protocol in the discussion.

**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 declare that I have no financial competing interests.

I know personally some of the authors.