**Reviewer’s report**

**Title:** Systematic Review of Clinical Decision Support Interventions with Potential for Inpatient Cost Reduction

**Version:** 1  **Date:** 8 June 2013

**Reviewer:** Ning Zhang

**Reviewer’s report:**

Discretionary revisions

Summary: This systematic review was conducted to find trials of clinical decision support (CDS) interventions that could possibly reduce inpatient costs in order to identify any promising interventions for widespread implementation and also to inform future research in this area. MEDLINE was the database used to search for articles. Many of the articles were either pre-post comparisons or randomized controlled trials. Only one was a cost-effectiveness analysis. In the majority of included studies, the clinical focus of CDS systems was pharmacology. Other clinical focuses were venous thromboembolism prophylaxis, blood transfusion management, sepsis management, and heparin-induced thrombocytopenia diagnosis. Only nine out of the sixty included studies use direct measurements of cost rather than proxy cost measures. Therefore, there is a lack of empirical evidence on the potential benefits of health IT and CDS. Further research on the cost implications of CDS systems is needed.

Abstract – Background: No comments

Abstract – Methods: No comments

Abstract – Results: The paper states that 63.3% of the studies were pre-post comparisons, and 13.3% of the studies were randomized controlled trials. What type were the other 23.4% of articles? In a similar way, it states that 56.7% of the studies focused on pharmacology. What is the focus of the large percentage of other studies?

Background: No comments

Methods – Data Source: In the first sentence, a search strategy was adopted, rather than “adapted,” from a previous systematic review.

Methods – Inclusion and Exclusion Criteria: What is an ED setting? Use the words rather than an abbreviation. The paper states that one of the inclusion criteria is “a proxy measure for cost (e.g., length of stay).” Would it be more appropriate to list all possible proxy measures here, despite the list being available in the Data Extraction section? It states that one of the exclusion criteria is “study not in English.” Could “English language” be added to the inclusion criteria instead?

Methods – Study Selection: No comments
Methods – Data Extraction: No comments
Methods – Data Analysis: No comments

Results & Discussion: The setting and scope of the included studies were not mentioned within the paper, but they are given in Table 1. However, it may not be necessary to discuss these characteristics like the other characteristics.

Results & Discussion – Study Timing: No comments

Results & Discussion – Study Designs: The first sentence with the definition of quasi-experimental design may be reworded to “Almost all (87.7%) of the studies were quasi-experimental trials, which can be defined as studies that aim to evaluate interventions without the use of randomization [72].”

Results & Discussion – Clinical Focus: No comments

Results & Discussion – Cost Effectiveness: Should this section be moved underneath Study Designs? This may make sense because it discusses a particular type of study and the reasons why it is not prevalent in this research area.

Results & Discussion – Direct Measure of Cost: No comments

Results & Discussion – Use of Proxy Cost Measures: In the discussion of limitations of the use of proxy measures for cost, the limitations can be more clearly stated before their explanations. The first limitation is...The second limitation is...The third limitation is...

Results & Discussion – Improvement in Cost/Proxy Measures: The title of this section may lead to an idea that cost/proxy measures were improved. However, this section is explaining how improvements and benefits of CDS systems were found through the use of cost/proxy measures. Changing the title of this section may be a good idea.

Conclusions: No comments

Conclusions – Competing Interests: Should these be called competing interests or conflicts of interest? It may be better to spell out the authors’ full names.

Conclusions – Authors’ Contributions: It may be better to spell out the authors’ full names.

Conclusions – Authors’ Information: No comments

Proofreading: The number of studies is shown in different sections throughout the paper with both numerals and percentages. Can this number be consistently shown in one way or the other? Also, there are several suggestions for the punctuation and grammar within the paper. If you would like a list of possible changes, please let me know.

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable
Statistical review: Yes, and I have assessed the statistics in my report.

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