Reviewer's report

Title: Has information technology finally been adopted in intensive care units? A survey and review of the literature.

Version: 2 Date: 8 June 2010

Reviewer: Alan Morris

Reviewer's report:

Reviewer's report: GENERAL COMMENTS:
This version of the manuscript is improved. I believe the authors can contribute new information to the literature. I suggest the authors change the paper emphasis and title to: "Has information technology finally been adopted by Flemish Intensive Care Units? Use of general terms such as "intensive care units" suggest a level of generalizability that is not justified by this study of a small set of intensive care units in Flanders.

In rereading this work I have concluded the main contribution the authors can make is to report and discuss their survey. Their literature review is not comprehensive. The authors omit a number of important issues in health care information technology. The literature review and the report of the Flanders experience are, in my opinion, separate subjects, each of which could be the object of separate manuscripts. I would be more comfortable including the literature review if the authors remove reference to literature review from the title. In the title, reference to literature review suggests a formal and comprehensive literature review - a goal I do not think the authors have reached in this manuscript. For example the authors do not mention that at least one installation of an EPR in a pediatric hospital in Pittsburg, USA was followed by an increase in hospital mortality. This is one reason why uncertainty clouds the issue of widespread EPR installation. I expect a systematic literature survey to deal with issues such as this unfavorable impact of EPR on patient mortality.

The new information they can report is restricted to their survey. I believe this can be enhanced if they focus on specific results and methods of their survey and avoid general and imprecise comments. The authors give support to this opinion because their conclusion section only deals with the results of the survey. They do not mention any of the issues outlined in the first few paragraphs of the Introduction.

I still find the use of acronyms (abbreviations) excessive. If the authors continue to use acronyms, a table of definitions at the beginning of the paper would help readers.

I would choose "electronic" or "computer" and use only one of these two terms consistently throughout the paper. I prefer "computer."

Another example of this general problem can be found on Page 13, Paragraph 4 Line 1: The authors use "electronic prescription of medication (i.e. medication
CPOE)" here for "medication CPOE" defined on Page 6. This is one of many examples of multiple terms used to describe the same construct. The authors should pick a single and unequivocal term for each construct and then use that single term consistently throughout the manuscript. The use of multiple terms for the same construct is confusing.

I would avoid general and non-specific statements like "mostly by using the features of their ICIS" because they do not clarify issues. The English still needs improvement. For example in the Abstract, Results, "...to 19%, but another 31.7% have plans to implementation such a system..." contains two errors: "but" should be replaced by "and" and "implementation" should be replace by "implement". The term "electronic registration" is being used to mean computer storage or recording of an event. In the United States "registration" means completing forms to become a member of a group (like a patient in a hospital). This is different from a computer record of a transaction or of a physiologic datum.

Another example of the need for English improvement is found in the Abstract, Results, Lines 3-5: "The Electronic Patient Record (EPR) and the electronic prescription of medication are fairly widespread (65% and 41.3%, respectively), but only 27% of ICUs also computerized drug administration registration, mostly by using the features of their ICIS." Sentences like this are complex. I advise the authors to use simple sentences (subject, verb, object) in order to more clearly communicate with their readers. I also advise the authors to avoid the passive voice and use the active voice instead. For example: "Sixty-five % of reporting ICUs used an Electronic Patient Record, 41.3% used computer medication prescriptions, and 27% used computer medication administration recording."

SPECIFIC COMMENTS

P 5 Para 1 Line 10-12: In the introductions the authors state: "Several organisations claim that Information and Communication Technology (ICT) could contribute in a significant way to improving the quality of health care while at the same time controlling costs [2]." This is true, but this claim is unproved and much uncertainty exists.

P5 Para 2 Ln 1-2: The authors claim "this can only be confirmed" but their conclusion is an assumption. This issue has not, to my knowledge, been formally studied in the intensive care unit.

P 6 Para 2 Line 1-2: I believe the authors use "intensive care informatization" here to refer to EPR in the ICU, to CPOE in the ICU, to GLIMS in the ICU, to CPOE in the ICU, to PDMS, and to ICUS or to some of these. However, it is not clear what the authors mean. One can see how confusing the use of all these acronyms is. Furthermore, I do not see how a discussion of these acronyms in Paragraph 3 of page 6 informs the survey results.

P 13 Para 2: Discussion: The authors should replace "ICU environment" (a general term with general implications) with "Flemish ICU environment" (a specific term that describes their study set).

P 13 Para 3 Ln 1-3: This is awkward English. There are a number of awkward
statements in the paper - some with mixed present and past tense. Nevertheless, the text is generally understandable.

P 13 Para 4 Ln 1-3: I think the authors could reasonably point out that the small region of Flanders, and its intensive care units, is likely to be more homogeneous that the large region represented by the United States and Canada. This homogeneity is likely to play a role in the distribution differences of intensive care unit computer systems between Flanders, the USA and Canada.

P 26 Figures 2, 3: Figures 2 and 3 could be better presented as simple tables.

P 27 Table 2: The authors list drawbacks to buying an ICIS, but fail to mention in their paper that at least one installation of an EPR in a pediatric hospital was followed by an increase in hospital mortality

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

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

**Declaration of competing interests:**

I declare that I have no competing interests