Reviewer's report

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

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**Reviewer:** Paul G Shekelle

**Reviewer's report:**

This paper presents the results of a survey of Flemish ICUs about their use of health information technology, and compares data from a 2008 survey to one done in 2005. The authors report that almost two thirds of ICUs now use the electronic health record, compared to about half in 2005; that almost half now have CPOE, compared with only 29% in 2005, that the proportion of ICUs who have a global laboratory information system is now 100%, etc. The authors also report, based on data from the 2005 survey alone, the major expected advantages and the major barriers to implementation of HIT in the ICU. The latter follow the usual pattern seen in numerous other surveys - cost, the need for certain specialized personnel, training, etc. (I was a bit surprised that "physician resistance" was not on this list, it usually is). The authors conclude that the adoption of HIT is increasing, but still low, particularly in general hospitals. To cross this implementation chasm, "more investigation of the potential benefits of (health information technology) is urgently warranted."

This paper will be of some interest to those interested in HIT implementation and also ICU, and the results, although limited by the lower response rate in the 2005 survey, "are what they are". My only suggestions for improving this for readers is to be careful about the use of language ("substantially more frequent" when comparing 49.2% to 29.0%; however no statistical testing; and "there is a significant difference between the type of hospital and the availability of an ICIS (p < 0.001)"). When comparing proportions between 2005 and 2008, I would suggest using language like "a greater proportion reported using such and such in 2008 compared to 2005" if you are presenting the descriptive data, and reserve words like "substantially more frequent" and "a difference" for hypothesis tests, which then of course need to be accompanied by the data to support the statement.

I would also suggest looking for and removing or qualifying statements like "Flanders, Belgium, which is quite representative for the other European regions", when there are no data to support that statement.

And is anyone else surprised that in just 3 years the number of ICUs in Flanders increased 17%? Is there any reason to expect such a rapid expansion in ICU care in terms of need?

Also, the language usage will need editing. I am certain these authors did much
better in English than I can do in Flemish, but even so the paper would benefit from editing for English language usage.

My main suggestion for the authors is that for this paper to be of use to those interested in adoption of HIT there needs to be some presentation of the context in Flanders. For example, I assume from the text in the paper that there is no governmental or other financial incentives offered to spur HIT adoption (as was done in the UK and now also in America)? what about lay media interest in this? I would suggest that the authors conclusion - that more investigation into the benefits of HIT in the ICU - is probably very unlikely to have much effect on adoption. Rather, I would suggest they consider context in these four domains, and report on what they can, in terms of adoption of HIT in Flanders: organization characteristics - they touch on this some with their designation of hospitals as general, tertiary non-academic, and university, but what about size? location? existing HIT infrastructure?; external factors - financial incentives or disincentives for adopting HIT, the use of public reporting or pay for performance that might spur HIT adoption (as in the UK GP contract), patient safety problems that have widespread media coverage that might be a catalyst for change; the presence of culture/teamwork/leadership at the various ICU level; and then the presence or availability of various implementation tools to make things work: consultants, internal incentives, etc. It is far more likely that differences in these contextual factors are likely to produce changes in the adoption of HIT than any more information about the effectiveness of HIT in the ICU.

**Level of interest:** An article of limited interest

**Quality of written English:** Not suitable for publication unless extensively edited

**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