Reviewer's report

Title: Evolving health information technology and the timely availability of clinical diagnostic data from ambulatory visits: A natural experiment in an integrated delivery system

Version: 1 Date: 19 January 2009

Reviewer: Hardeep Singh

Reviewer's report:

Thank you for the opportunity to review 'Evolving health information technology and the timely availability of clinical diagnostic data from ambulatory visits: A natural experiment in an integrated delivery system' by Drs. Bardach, Huang, Brand and Hsu. The paper evaluates the availability of diagnostic data in an electronic database of a large integrated health care system. The authors find that use of more advanced HIT leads to an improvement in availability of diagnostic data. They have also attempted to put into context the relevance of their findings although don’t offer any specific outcome data. However, the significance is clearly conveyed through concepts such as disease surveillance and return patient visits. Overall, the paper is well written, addresses an important topic and the authors have very carefully addressed its several limitations. It was pleasure to see a paper discussing the benefits of HIT compared with much recent talk about harm from HIT, which unfortunately can get more attention sometimes than benefit.

Major revisions highly recommended before publication (The authors should try their level best to address most of these)

1) Overall, I think this paper offers valuable information for HIT skeptics and non-adopters. The biggest change I would advise the authors to make is to “sell” their paper better i.e. give more concrete examples of how timely data availability through large databases can be beneficial. For instance, in addition to discussing syndrome surveillance can the authors come up with additional benefits for general readers? Although the authors have done a nice job of talking about data availability at return visits and have used this as a benefit (which it is), availability of signed notes in the EMR itself can do that. But I think their paper is more than just that; I believe it is more about the benefit of being able to do rapid surveillance on a large scale using large electronic databases.

2) I would also recommend that the authors clarify what they mean by diagnostic information right at the outset. Readers may be expecting to hear about diagnostic lab tests, imaging etc. which I don’t think is the main focus of the paper.

3) Abstract needs work: The author should add a research question or hypothesis and strengthen conclusion in terms of the significance of the paper.
4) Perhaps, one of the main weaknesses of the paper (as acknowledged by the authors) is inability of the paper to show that timely access to diagnostic information brought about a change in outcome for instance in workflow, patient care, or disease management. Any further light the authors could shed on these issues would make the paper much stronger. Also, do the authors have any data from their own system on surveillance of either influenza or similar disease even if it is collected now in retrospect? The point is to show that they could have got to the data much faster. What about opportunities to access other types of data in real-time at Kaiser?

5) I also think they need to elaborate more about benefits of SNOMED, so that future general readers without an informatics background can understand the benefits of HIT.

Discretionary Revisions

One would expect to see more diagnostic codes being used as HIT used grew but that did not happen (Table 1). Once would expect that advanced HIT would lead to more diagnostic information available per visit over time. This would be another benefit of HIT. Any speculations?

Is there a reason why 2007 data was not shown; If possible, it would be nice to see that too.

Page 6: Who entered the data from paper?

Background: On page 3 “These systems include many….” sentence is a bit unclear—I think “these” refers to newer EMRs but authors should check the writing.

I would also encourage the authors to think of significance outside Kaiser to enhance benefit and generalizability. For instance, could this facilitate accurate and faster billing for others?

One would anticipate that the SNOMED-CT diagnostic codes communicated to the database would be more accurate although the authors have appropriately pointed out that errors in advanced HIT data entry may also occur. Given potential data entry problems and forms getting lost in the paper systems, certain advantages are very likely. It would be helpful if authors have any data on entry errors in paper i.e. accuracy or reliability of entered information.

Regarding return visits, was ER included? If so they could give the amount of return visits to ER within 3 or 7 days and make a point about some potential benefit. Essentially this will build on their example of asthma. Related to this benefit, they could choose to talk about electronic access of diagnostic test information—allows results to be viewed earlier etc., which essentially is a universal EMR benefit.

Minor Essential
Page 4 last line needs a comma.
Page 10-clarify 2nd sentence in discussion.
Page 13: Shigella-S should be in caps

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

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 competing interests