Author's response to reviews

Title: How to Successfully Select and Implement Electronic Health Records (EHR) in Small Ambulatory Practice Settings

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Author's response to reviews: see over
Toward Successful Implementation of Electronic Health Records (EHR) in Ambulatory Practice Settings

This reviewer suggests that the authors review each of the research studies identified in the article and clearly identify which of them relate to EHR implementation in small physician offices. The familiarity of the authors with these studies identified in the text suggest that this need not be a lengthy or difficult endeavor. This was done to the extent possible.

In addition to this suggestion, there are a few minor grammatical issues that remain in the text. For example, in the first paragraph of the Summary, it is noted that Ambulatory practices are drawn towards (toward) team work etc. The authors need to do one more reading of the text in order to eliminate these errors. These were corrected.

Since the paper is very much a "How To", perhaps the title should be modified to "How To Successfully Implement ......This suggestion was implemented.

The Schoen Commonwealth Fund paper should perhaps be referenced in the opening paragraph, as should the recent Emperica European Commission study 'Benchmarking ICT use among General Practitioners in Europe'. This suggestion was implemented.

On page 2, a bit more discussion between the terms EMR and EHR -- including the recent NAHIT definitions would be of value to the reader. This suggestion was implemented.

On page 5, reference could be made to the 2005 Protti & Graham paper about New Zealand -- it reinforces the importance that Practice Managers play. This suggestion was implemented.

On page 6, when discussing "leadership", reference should be made to Sittig's seminal 2001 paper 'The Importance of Leadership in the Clinical Information System Implementation Process'. This suggestion was implemented.

In the second last paragraph, surprised not to see 'a less stressful worklife' in the list -- as has been found in Denmark. Acknowledged.

On page 8 it might be worth saying a bit about the difference between a leader and a clinical champion which discussed in the Lorenzi Riley text if memory serves me right. This suggestion was implemented.

Page 9 in the opening paragraph, the three items mentioned should be compared to the lists in the Schoen paper and Protti et al paper which compared Denmark's use of HIT to the province of Alberta. This suggestion was implemented.

On page 10, some mention should be made of Open Source options such as the office version of the VA VistA system. Similarly, it might be worth saying a few words about using an ASP approach which appears to be gaining momentum -- This suggestion was implemented.

1. Throughout this manuscript, the concept of EHR implementation seems to be intertwined with the separate (but closely related) concept of providing physicians with more complete records. The implementation of an EHR in a physician practice serves solely to improve access to information in that practice unless there are interfaces to outside information systems that result in more comprehensive patient records. Many of the benefits of EHRs are a result of
more comprehensive information that is not available within the practice. Explaining this concept and differentiating the "internal" EHR benefits from the advantages of adding external information helps both to clarify the sources of benefit and keep physician expectations realistic. This point could be made in the first paragraph of page 2, but is also relevant elsewhere, e.g., in the box on page 7 where the benefits are described as coming from the interface to the hospital information system. Suggest that the authors consider whether this concept should be explicitly mentioned in the guidance provided for various stages of the implementation process. This suggestion was implemented.

2. There needs of be a clearer linkage between the two parts of the manuscript. For example, the authors could add: "Before embarking on an EHR implementation project, it is essential to be familiar with the benefits and barriers. Therefore, before providing detailed guidelines for such an effort, a synopsis of what is known about benefits are barriers is given, with special attention to those issues relevant to small ambulatory practices." This suggestion was implemented.

3. The review of benefits and barriers is not comprehensive. This should be stated, and the specific selection of the material included explained (e.g. "This paper is not intended to be a comprehensive review of EHR benefits and barriers. The material included was selected to be illustrative of some of the key issues that small practices encounter.") This suggestion was implemented.

4. Policy implications of barriers are not discussed. The manuscript should include a statement that these are beyond the scope of the article. This suggestion was implemented.

5. There is not much discussion about the differences between large and small physician practices. This should either be included or it should be a bit clearer that the focus of the manuscript is exclusively on small practices. While this latter point is stated once on page 1 ("... especially practices of five physicians or less."), it needs a bit more emphasis to be sure the reader understands that this relates to small practices only. This suggestion was implemented.

6. The experience of the "Greenhouse Internists" is discussed and referenced multiple times, but there is no description of the practice. This should be included with the first reference to this group on page 3. This suggestion was implemented.

7. Part of the "Introduction to Change as a Key Factor in EHR Implementation" (page 5) should include the caveat that change management cannot address the external financial barriers to adoption as described in the previous section (e.g. "... Enhanced reimbursement models will be needed for wider adoption" on page 4). Rather, once a decision has been made to embark on EHR implementation, managing change is invaluable in the process. This suggestion was implemented.

8. At the beginning of the "Toward Successful Ambulatory EHR Implementation and Greater Adoption" section (page 6), it would be helpful to provide an overview of what is to come, e.g. vision, phases, key role of a physician champion, workflow redesign, etc. Also, "$... and Greater Adoption" probably should be dropped from the title of this section because that is not really the focus (since many financial and policy issues are not addressed). This suggestion was implemented.

9. Issues related to patient privacy are not addressed. Assuming that the authors do not wish to cover this topic, a statement indicating that it is important but beyond the scope of the manuscript should be added (perhaps with a reference for readers who wish to explore further). This suggestion was implemented.
10. Throughout the EHR change management guidance, there is a theme of reinforcement as an element of behavioral change. Would be worth mentioning this theme. **This suggestion was implemented.**

**Minor Essential Revisions:** **These suggestions were implemented.**

1. page 6, last paragraph, "... allows to create ..." should be "... that allows creation of ..."
2. page 7, last line, "field guide" is missing a closed quote
3. page 8, second to last paragraph, "... failure involves failure to plan ..." is awkward and should be rewritten
4. page 9, second paragraph, "... to not allow unfounded allegations about the new system to go unanswered." is essentially a double negative and is confusing. Suggest rewording.
5. page 10, "Selection Phase", 4th bullet, "... possible talk ..." should be "... possible, talk ...
6. page 12, last bullet: Shouldn't evaluation be institutionalized into an ongoing monitoring and improvement program for the system? This is an important point, as it makes the evaluation more than a "post mortem" or academic exercise.
7. page 12, "Timely Training", 3rd from last line: "... physicians' needs." Isn't this too restrictive? What about the rest of the staff?
8. page 13, box, first paragraph, line 2, "Physicians are working ..." should be "Physicians need to be working ..."
9. page 13, box, second paragraph, line 3, "... system had to be ..." should be "... system has to be ...
10. page 13, "Implementation Phase, first paragraph, second to last line, "... EHR productivity will initially decline, no ..." should be "... EHR productivity will initially decline no ...
11. page 14, "Encourage the Practice", line 2, "... who have contributed directly ..." should be "... who contribute directly ..."