Reviewer's report

Title: Advancing Laboratory Medicine in Hospitals through Health Information Exchange: A Survey of Specialist Physicians in Canada

Version: 0 Date: 10 Oct 2019

Reviewer: Xavier Gansel

Reviewer's report:

This manuscript presents findings that are important to those with closely related research interests.

It surveys specialist physicians use of health IT to access patient lab results. This comes as a follow-up of the authors previous publications in a related field on 'family physicians' and 'primary care' as presented in literature n° 24 & 40, but also a recent systematic review published in 2018 (https://doi.org/10.1016/j.ijmedinf.2018.05.009) between others.

Background

* p3, lines 8-12: contains references (n° 13, 14, 15) to rather old publications on the field of EHR adoption in the US. Given the impact of the HITECH acts (2009) and the 'meaningful use' regulations of EHR, those documents are likely to be obsolete. The authors should use more recent publications in this domain and update that section.

* p4, line 20: the aim described for the study is really interesting "which laboratory information exchange (LIE) systems and features" nevertheless I do not see much conclusions on the "features" that are used. We will come back to that aspect at the end.

* p4, Line 23: the notion of 'features' is also present and still appealing

Methods

* p5, line 8: it is not clear how the framework present in fig1 guided the design of the survey to find answers to the research questions. Please elaborate.

* p5, line 23: pleases elaborate on the link between the framework in fig1, the HIE literature and the actual content of the questionnaire. Displaying all or part of the questionnaire would also help, could authors do that ? at least key items, section titles, samples of most critical questions and link with content of table 3 &amp; 4 (likely to be part of the survey if I do not misunderstand)
* p6, line 5 : once again, inside on the survey questionnaire would be very welcome

* p6, line 16 : Author should qualify the statement that respondents are "quite representative" of the target SP population. No data are presented in support of that, please provide some.

Results

* p8, line 4 : If I am not mistaking, content of table 2 starts to be presented with the phrase "In addition, most SPs…". Please update to prevent reader from looking across the figures to identify the source of the information presented

* p8, line 22 & p9, line 1-2 : Could authors comment on the CPOE feature? "electronically request a laboratory analysis and print identifying labels for the samples."

* p13, line 2 : I am afraid that phrase "holistic view of the use of HIE by physicians for laboratory" is misleading. The manuscript deals with SPs and reference 40 with family physicians in Canada. This phrase should be more specific.

* P14, line 13-16, one may expect comparison of results extracted for SPs with authors' previous results and conclusions from family physicians (publication 24 & 40). Do both group face similar functionalities, use them similarly, etc.

Discussion

* p15, line 11 : incomplete phrase spanning line 10, 11, 12. At least 1 word missing

* p16, line 4 & 6 : "additional analyses performed on our data" those are undisclosed analysis. Author should present the analysis they mentioned

* p16, line 10 & 16 : intriguing result indeed, but what is the basis for the hypothesis made? one may make many other hypothesis than emergency interventions. It is hard to believe that emergency alone can account for the 49.7 unit reduction.
Discussion & conclusion

Systems studied were designed with features supposed or expected to answer users' needs. Part or all of these systems & feature usage level (known in the author vocabulary as the 'extended use' of the system) are the subject of this manuscript, as well as system complementary nature.

It would be interesting to read a critical analysis of the system(s) & feature(s) design goal(s) and use cases compared to the system(s) & feature(s) usage / 'extended use'.

This may help ensure in the future (p19, line 9&10) "extensive use of HIE for laboratory medicine"; HIE as well as all combinations of EHR and LRV.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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Please indicate the quality of language in the manuscript:

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