Reviewer’s report

Title: A Fast Healthcare Interoperability Resources (FHIR) Layer Implemented Over i2b2

Version: 0 Date: 22 May 2017

Reviewer: Kavishwar Wagholidar

Reviewer's report:

This work investigates the feasibility of applying the HL7 FHIR standard to modeling and exposing EHR data of the Georges Pompidou European Hospital (HEGP) i2b2 clinical data warehouse (CDW). The authors have implemented a FHIR server over the i2b2 CDW in order to expose EHR data for 5 FHIR resources. Results have been validated by requesting the i2b2 database using an ad-hoc SQL query.

Overall the paper presents a good perspective on FHIR specification and would be useful for research community. However the paper lacks critical details about the presented work.

Following are suggestions for improving the paper:

1) How was the evaluation carried out? Was it a manual comparison of results provided by the FHIR API compared with the SQL queries on the i2b2 database. How many patient records were used for validation?

2) How is the presented work different with the approach provided by the i2b2 FHIR cell. These differences need to be highlighted, to demonstrate novelty of the paper.

3) What is the mechanism for securing the FHIR API?

4) Is the resultant FHIR resource compliant with the SMART profile?

5) How are the local codes converted to the standard coding system?

6) There are several grammatical corrections needed.

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.

Yes
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.

Not relevant to this manuscript

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

This paper presents an alternative to the work I described in

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal