Author's response to reviews

Title: Mapping Turnaround Times (TAT) to a Generic Timeline: A Systematic Review of TAT Definitions in Clinical Domains

Authors:

Bernhard Breil (bernhard.breil@ukmuenster.de)
Fleur Fritz (fleur.fritz@ukmuenster.de)
Volker Thiemann (volker.thiemann@ukmuenster.de)
Martin Dugas (martin.dugas@ukmuenster.de)

Version: 3 Date: 18 April 2011

Author's response to reviews: see over
Dear Sir/Madam,

Hereby I submit the revised manuscript "Mapping Turnaround Times (TAT) to a Generic Timeline: A Systematic Review of TAT Definitions in Clinical Domains" for publication in BMC Medical Informatics and Decision Making.

On the following pages I answered the comments of the reviewers and described the changes to this submission.

I am looking forward to hearing about the acceptance of the revised manuscript.

Best regards,

Bernhard Breil, M.Sc.
Reviewer's report

Title: A Review of Turnaround Time (TAT) Definitions in Clinical Domains

Version: 2 Date: 22 March 2011

Reviewer: Ann Mckibbon

Reviewer's report:

1. Is the question posed by the authors well defined?
Yes, the questions are appropriate and well formed.

2. Are the methods appropriate and well described?
Methods are good.

3. Are the data sound?
Yes. Quite thorough.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
Yes. Some editing things below that indicate some laxness in the document but these are mostly in the style and writing.

5. Are the discussion and conclusions well balanced and adequately supported by the data?
Yes.

6. Are limitations of the work clearly stated?
Please put in a concise section on limitations and strengths.
We included such a paragraph in the discussion section.

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
Yes.

8. Do the title and abstract accurately convey what has been found?
I think the title could be expanded to include more information. I would also like to see the abstract strengthened and lengthened. Researchers and others interested in this paper would benefit from more data. For example the 15 steps in Table 2 would be useful if listed here.
We changed the title to “Mapping Turnaround Times (TAT) to a Generic Timeline: A Systematic Review of TAT Definitions in Clinical Domains” to introduce the main result (the generic timeline). We also updated the results part of the abstract, as suggested, to incorporate the steps on the generic timeline.
9. Is the writing acceptable?

Yes but problems with too many abbreviations and very inconsistent use of them. I would suggest taking out about half of them and then using the ones that are left consistently.

We took out the less frequently used abbreviations and used the others consistently.

- Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)
- Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

See my comment above with respects to fewer abbreviations and consistent use of the ones that you do use. Strengthening the abstract should also be done

Please see above.

- Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached)

To the authors: All minor essential revisions.

2. Page 3 Background: What is “rather”? Not needed. It is either difficult or not.

   Changed.

3. Page 3 Third paragraph: please used TAT.

   Changed.

4. Page 4 More need of TATs. This is the final time I will list the need for use of TAT. Use your find feature to help get to consistency for abbreviations.

   Changed.

5. Page 6 Pubmed is a front end to the Medline database and not a database itself. Minor point but important.

   Changed.
6. Page 6 “...users are medical staff and patients.” Are you sure that all users are medical? Are nurses, allied health workers, etc involved? If so, would “hospital” or clinical or some other term be more appropriate? Hospital would be more appropriate and we changed that.

7. Page 6 missed a HIS abbreviation.... Changed.

8. Page 8 Your listing of order...laboratory (19), radiology (11) followed by...whole clinical”. Should the whole clinical come first? The listing was content-based but we now changed it in order to reflect the numbers.

9. Page 16. Your discussion of dates is not appropriate in the discussion section. It should start in the results section. The discussion section, in my understanding is only used to discuss what you have already presented in your results section. Therefore please consider putting something about dates in the results section. Because the date discussion was only a coincidental finding and not a main result we chose to present it in the discussion. In addition we did not consider this finding to be notable and relevant for the purpose of our review. We will therefore leave it in the discussion section.

10. Good job on the citations. Citation 10—does it have an issue number? There is no issue number; we checked the citation.

Citation 22. Needs more information such as the data of access and the title of the site.

Citation 98. Starts funny. Changed.

11. I also like the charts. Very useful presentation of data. Thank you.
12. In summary, a very nice paper that will be even better with a good proof read and some movement of data.

Thank you, we took your comments into account.

**Level of interest:**
An article of outstanding merit and interest in its field

**Quality of written English:**
Needs some language corrections before being published

**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

---

**Reviewer's report**

**Title:** A Review of Turnaround Time (TAT) Definitions in Clinical Domains

**Version:** 2 **Date:** 22 March 2011

**Reviewer:** Arie Hasman

**Reviewer's report:**

The question posed by the reviewers - which definitions exist in the literature concerning turn around times - is in itself well defined, although I wonder whether the question will give useful results when not also the related question is answered: for what purpose was the TAT defined in the way it was defined.

Our focus was the illustration of different time definitions on a generic timeline which can be interpreted as a first step of an extensive analysis including also the purpose for which TATs were defined.

TATs can be used for benchmarking or for determining whether changes in a process have had positive consequences. That 162 different definitions for turn around time have been found does not have to be a problem. These turn around times were defined for answering certain questions. Of course unique names for specific TATs and identical definitions
improve comparability but there will always be a need for specifying TATs that are useful for a certain research purpose.

Also I did not get the impression from the literature that authors complained about the fact that there were different definitions. On the contrary some added new definitions for specific (sub)processes.

It is true that, while analysing TAT, it is important to consider the purposes for which it was defined. However, seeing that the term TAT is widely used by many researchers it is worthwhile to exclusively analyse the components of the definitions like we did and provide an overview of TAT’s. We noticed that many definitions were not based on existing definitions; most researchers defined TAT from scratch even if there might have been an already existing definition suitable for the same purpose. With our review of TAT definitions we might raise awareness of existing definitions and provide a guideline of points in time which can be used to define new time intervals.

The literature review was performed adequately.

As will be apparent from the above critique I am of the opinion that the results description is inadequate. It should provide an indication of the purposes for which the various TATs were used. Only then can you say something about the presence of so many definitions. The comment in the Discussion that TAT is not a standardised measure and our results clearly show that there are many different time intervals, which all claim to be a TAT already shows that the authors think that there is only one or as they suggest in the discussion there are only a few relevant TATs.

Our generic timetable with 16 points in time demonstrates that we consider more definitions than the suggested ones from the discussions section. These can be interpreted as generic terms to classify/order the existing definitions.

But once more what is relevant depends on the purpose the TAT is used for. The authors refer to different purposes in the Discussion. There they state that an important aspect that arises during the analysis of TAT is to clarify the purpose behind measuring or optimizing
process times. They should have done that themselves in the Results part. The authors of course can critique the use of TATs in publications when these TATs are not clearly described, for example referring to difficult to measure time points for example.

The main purpose of using TAT - according to our literature review - was to measure the effects of using IT and to describe analysed processes.

Our suggested TAT definitions are not an exhaustive list but present general TAT’s for the main clinical domains. We totally agree that there will be further definitions for the respective sub-processes. It shall be seen as a starting point for a discussion to harmonize different definitions and thus improve comparability.

The authors state in the conclusion that it is difficult to compare studies because of the many different definitions in use. They do not state whether these different definitions were due to different purposes of the study. That laboratory and radiology studies use comparable TAT definitions can be understood: these ancillary departments provide services based on similar processes. But also here one can be interested in the TATs of certain subprocesses and this will again lead to new TAT definitions.

Therefore, we introduced the generic timetable to demonstrate the connection between different TAT definitions. It visualises that a sub-process can be a part of another process.

The authors acknowledge the work upon which they are building in an extended reference list. The title and abstract accurately convey what has been found. As said before, a review of TAT definitions alone is not so worthwhile in my opinion if it is not accompanied by a discussion of the purpose. Different TAT definitions for the same purpose should be discussed to see whether one definition would be better. Different purposes can lead to different TAT definitions that should not be considered as a reason why benchmarking clinical workflows is difficult.
Again, we do acknowledge the different purposes behind the different definitions. However, from our point of view it will be important for future TAT studies to use existing definitions or to precisely define new ones in order to make studies more comparable.

**Level of interest:**
An article of insufficient interest to warrant publication in a scientific/medical journal

**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.