Author’s response to reviews

Title: Using Total Quality Management Approach to Improve Patient Safety by Preventing Medication Error Incidences

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Response to Review Comments

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"Using Total Quality Management Approach to Improve Patient Safety by Preventing Medication Error Incidences"

Dear Editor,

I am very much thankful to the reviewers for their deep and thorough review. I am also grateful for their positive feedback and their praise of the research. I have revised my present research paper in the light of their useful suggestions and comments. I hope my revision has improved the paper to a level of their satisfaction. Number wise answers to their specific comments/suggestions/queries are as follows.

• Response to Terri Warholak (Reviewer 1) Comments:

General comment: I REALLY like the concept behind this manuscript. This manuscript provides incredibly rich detail of an example of using the Total Quality Management (TQM) approach in a real-world setting that will help readers employ TQM in their own institutions. However, I feel that the manuscript is in need of significant rework mostly because of English as a second language (ESL) issues (i.e., the entire manuscript needs a heavy edit to resolve grammar, consistency and clarity issues). In addition, the entire manuscript should be written in the past tense as the project is now completed.

General response:
Thank you very much for appreciating our work. I hope I presented a valuable work that gets readers' satisfaction. Yet, I have revised the manuscript as you suggested and got benefits of your valuable comments. As English is my second language, I asked for English expert help to correct Language mistakes in my paper, as you suggested.

Specific comments: I have outlined additional issues I see below…

Comment 1: Abstract

* Several things are left out of the abstract. For example, in the objective, the baseline medication error rate was mentioned. The reader would expect that the post measure would be reported in the results.

Response 1: In this research I suggested a way to decrease medication errors related to administrated medication doses by taking precaution in a previous phase of treatment process. But, unfortunately, I was not able to apply this strategy in the governmental hospital the study took place in, because it needs many administrative approvals from the hospital, the directorate of health of the local area, and the ministry of health, as well.

Comment 2: Background

* This section is far too long (I'd cut at least half of it) and needs an edit for ESL issues.

Response 2: As Reviewer suggested, I have revised and pared down the length of the Background to 40%. This was accomplished by, as reviewer suggested, following SQUIRE guideline as possible as could be, and eliminating unnecessary studies. And, as I mentioned above, an edit for ESL issues was done, as well.

Comment 3: Methods

* Medication error and other operational definitions should be placed in this section. In addition each one should have a reference.

Response 3: Done

Comment 4:
* One way to better organize the paper is to make sure it follows the SQUIRE guidelines. At this point it does not.

Response 4: As Reviewer suggested, I have checked and followed SQUIRE guidelines in Background, Materials and Method sections, as the Results and Discussion present Six-Sigma Approach steps.

Comment 5: Table 1: DMAIC should be spelled out in the title of the table
Response 5: Done

Comment 6: Table 3: CTQ should be spelled out in the key
Response 6: Done

Comment 7: Table 8: Add a key that describes how scores were calculated
Response 7: Done

Comment 8: Table 9, 10, 11, and 12: Add n=x so the reader can see how many events are being described.
Response 8: Done

Comment 9: Table 15: Add N=x for total events described and a column for number and percent for each row.
Response 9: Done

Comment 10: Figure 1: SIPOC should be spelled out in title
Response 10: Done

Comment 11: Fig 5, 6, 7, and 8: Add n=x and include key for figure 5
Response 11: Done (As reviewer suggested, I added N=x, (x is equal to 318) to the figures. However, I would like to mention that Pareto diagrams are cumulative diagrams. In other words, N=x does not reflect the usage of 318.

- Response to Ross Koppel (Reviewer 2) Comments:

  General comment: The article attempts a useful synergy among six sigma, TQM, and the study of medication errors. Although very sincere, I fear the authors' lack of familiarity with the complexity of medication errors hampers their paper.

  General response:

  I appreciate your positive point of view to our research. Because English is my second language is probably the reason why the paper reflected as I lack of familiarity with this complex issue. Yet, and because there are no clear barriers between medication error types, I tried as possible as I could in this paper to define each one of them according to W.H.O (World Health Organization) and different studies in this field.

  Comment 1: There review of the literature is too much of an undifferentiated collection of studies. There is an established literature on the topic, of which the authors don't appear to be familiar. A lot of the discussion feels like they are encountering this field for the first time…and presenting study after study without full consideration. For example, taking lessons from an eye clinic's medication errors makes little sense because the clinic has such a small range of medications. This also leads to massive redundancies—as they seek to convince readers that med errors are important and frequent. But everyone in the field knows this.

  Response1: As reviewer suggested, I revised and wrote off more than half of the Background. We meant by clinics poly ones as well, though as reviewer mentioned medication errors are less to happen in these healthcare sectors. However, I eliminated unnecessary studies or massive redundancies.

  Comment 2: Typo: (missing article before the word "event.") Because a medication error is harmful event that may cause or lead to inappropriate medication use or patient harm when the medication process is in the control of the health care professional….  

  Response 2: Done

  Comment 3: Here is a quote from the paper:
"Prescribing errors represent the majority of medication errors. They occur as a result of a prescribing decision or prescription writing process, when there is an unintentional significant reduction in the prospect of treatment being timely and effective or an intentional significant increase in the risk of adverse result when compared with generally accepted practice.[8]"

However, overdose can be unintentional, also. More important, it misses wrong drug, drug to which pt is allergic, DDIs, bad CDS, not following good CDS, and wrong patient errors.

Here is another quote that indicates a serious lack of understanding of the field:

Another predominant cause of medication errors is drug administration error. Administration errors include the following, unauthorized drug; the administration of a dose of medication that had never been ordered for that patient, extra dose; any dose given more than the total number of times ordered by the physician, wrong dose error; any dose of preformed dosage units (such as capsules) that contained the wrong strength or number, omission; a failure to give an ordered dose, wrong route; medication administered to a patient using a different route than ordered, wrong form; the administration of a dose in a different form than ordered by the physician, wrong technique; exclusion of a procedure ordered by the prescriber immediately before administration of each dose of medication, wrong time; administration of a dose more than 60 minutes before or after the scheduled administration time.

The problem here is that the window to administer meds depends on the drug. Some drugs must be given at an exact time, others make little difference if they are 2 hrs late.

The rest of the paper presents the schema for the analysis, and involves three or four-fold redundancies that make the paper overly long and of diminishing utility for the reader.

Response 3:

I have omitted the presented quote from the paper to meet with SQUIRE guidelines which advice to focus on the main idea rather than details or debate about agreed or known ideas. As the reviewer can notice in the revised manuscript, the background is now not more than 40% of the previous one, and it has different content than just literature or studies collected.

Comment 4: My feel for the paper is that these are bright scholars who want to apply these business processes to medication errors, but underestimated the complexity of the problems. My suggestion is that the authors enlist someone who is familiar with the topic, cut out the three-fold or four-fold redundancies, compress the lit review into a short comprehensive statement, and focus on what they can actually contribute to the field.

Response 4: Thank you for your compliment. I have done as the reviewer suggested.
Thanks,

Farah Yousef