Author's response to reviews

Title: An interdisciplinary team communication framework and its application to healthcare 'e-teams' systems design

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Author's response to reviews: see over
Revisions to Kuziemsky et al. An Interdisciplinary Team Communication Framework and its Application to Healthcare ‘e-teams’ Systems Design

This document outlines the revisions made to the manuscript ‘An Interdisciplinary Team Communication Framework and its Application to Healthcare ‘e-teams’ Systems Design’ by Craig E. Kuziemsky et al. We outline point by point how we addressed the concerns raised by each of the four reviewers.

Reviewer #1: Martin Dawes
Comment #1 – We acknowledge the reviewer’s main comment about the paper being more of a hypothesis generation article. Indeed the study was a preliminary qualitative study on the structures, processes and outcomes of interdisciplinary teams. We agree with the reviewer that our study is exploratory and the framework we developed is preliminary and requires further validation. We have revised the paper accordingly and added those points of emphasis to the abstract, introduction (page 4), the section on the communication framework (page 15), the section on e-teams (page 15-16) and in the discussion (page 19). We believe that makes the intentions and limitations of the study very clear.

Although the reviewer suggests reframing the paper as a hypothesis generation we would prefer to use the term exploratory study. The literature describes both terms as being appropriate - Qualitative studies in healthcare are suitable for exploratory research or hypothesis generation early in the development of a problem. As described above we have added multiple points of emphasis that the study results (i.e communication framework and e-teams model) are preliminary and require further validation. We thank the reviewer for raising that issue as it was not our intention to imply the study is more than an exploratory study.

Comment #2 – Are the data sound? We have expanded the section on data analysis on page 5. Further details are provided on how the concepts were acquired and validated and how each member of our research team received the transcripts for review, coded them and then the team would meet to watch the videos and discuss coding. We also describe the processes of how consensus was reached for the coding.

Comment #3 – Are the discussion and conclusions well balanced and adequately supported by the data? The reviewer suggests our study does not support the proposal of a framework and it is not appropriate to use the framework to guide HIS design. There are many other health informatics studies that have used a similar qualitative approach as we used and developed frameworks with suggestions for HIS design. Examples of such studies include:


1 Polit DF, Beck CT. Chapter 12, Integrating Qualitative and Quantitative Design, page 274, in Nursing research: principles and methods, Lippincott Williams & Wilkins, 2003
Lingard L, Espin S, Evans C and Hawryluck L. The rules of the game: interprofessional collaboration on the intensive care unit team. Critical Care 2004, 8:R403-R408


In particular, studies that use qualitative data analysis such as grounded theory or content analysis are commonly used to develop frameworks. Examples of such studies include:

Reddy MC, Paul SA, Abraham J et al. Challenges to effective crisis management: Using information and communication technologies to coordinate emergency medical services and emergency department teams International Journal of Medical Informatics, Volume 78, Issue 4, April 2009, Pages 259-269

Courtney, K.L. Privacy and senior willingness to adopt smart home information technology in residential care facilities. Methods of Information in Medicine, 2008, 47 (1), pp. 76-81


In depth studies of how people communicate and exchange information and how we can design computers to support cooperative work practices is the very core of the field of Computer Supported Cooperative Work (CSCW). CSCW studies frequently use case studies, often single in depth cases, to develop frameworks and discuss their implications for HIS design. Examples of such studies include:


We agree with the reviewer that our framework is not appropriate for direct applications to systems design and we have revised the text to say our framework could ‘inform’ the design of
HIS to support teams. We also do not want to imply that the problems of interdisciplinary teams can simply be solved through technological fixes. It was not our intent to suggest that and we have added a statement about that in both the e-teams section (page 16) and the discussion (page 19). Enhancing interdisciplinary team communication is as much about coordinating team processes as it is about enhancing those processes through technology. In the discussion of each of the three types of e-teams support we have added text around the challenges of using technology in the context of our findings.

Comment # 4 - We agree with the comment that our statement ‘decisions within palliative care are largely data driven…’ are not supported by our findings. The reviewer is quite correct in that decisions include other factors such as ethics, experience and availability of resources. We have rephrased that sentence on page 16 in the electronic data support section.

Comment #5 – For limitations, the reviewer comments that we make the statement that we believe our communication model and e-teams framework will apply to other areas without having justification or rationale for that statement. The reviewer is correct that we have no proof to support that statement. We have revised the statement (page 20) to read ‘we believe the team communication framework and e-teams systems model provide a starting point for further research of teams in palliative care as well as in other domains of healthcare (e.g. ICU, pediatrics) and other industries such as production management or engineering.’

Comment #6 – We do not agree with the statement our paper is not primarily an informatics paper. The American Medical Informatics Association defines Biomedical and Health Informatics as ‘applying the principles of computer and information science to the advancement of life sciences research, health professions education, public health, and patient care’ (www.amia.org). Health informatics studies are often as much about how healthcare professionals, patients and policy makers retrieve, process, communicate and evaluate information as they are about the information technology we design to support different users. Issues related to HIS user resistance are rarely caused by technological issues but rather due to social, behavioural or contextual issues. Informatics studies do not have to be primarily about technology. We believe this study fits very much within the mission of health informatics.

Comment #7 – The reviewer makes a comment that we have not mentioned how an e-teams based system might improve health outcomes in a measurable way. That is a very valid comment and we thank the reviewer for raising it. On page 19 we added the statement ‘The e-teams model could also enhance health outcomes in a measurable way. Although interdisciplinary teams are advocated as improving patient and family outcomes there are few studies that provide empirical evidence to support that claim. By collecting data on team based processes and outcomes we would be able to analyze metrics such as resource utilization by teams and patient and family satisfaction with team based care delivery.’

Reviewer #2: George Demiris

Comment #1 – We thank the reviewer for drawing our attention to some additional studies. We have added two of the suggested studies into the manuscript. The studies on Information Flow
Comment #2 – The method section (page 4-5) was increased in detail to explain that video and audio recording of participants was what was taken from the cited literature. Although the cited papers refer to video recording data entry by PDA the video recording approach can easily be used in other settings. We used the video recording approach to record team meetings.

Comment #3 – We provided more detail on the data analysis on page 5. The consensus coding was done through group meetings. The research team received the transcripts for review, coded them and then the team would meet to watch the videos and discuss coding. Consensus was reached on the coding during the team meetings. Donabedian’s Structure-Process-Outcome (SPO) framework was used to categorize the codes after they were derived. The analysis was hybrid (i.e. both data and theory) driven as the data was first coded independent of analysis and then applied to the SPO model.

Comment #4 – The reviewer makes a good point in that there is a hierarchy in some of the process concepts. We have adjusted the text, figure 3, and the communication framework in figure 5 and explained (page 7) that leadership and negotiation are supporting processes that are part of the primary processes (care planning, info exchange, teaching and decision making).

Comment #5 – As per the reviewer’s suggestion we have adjusted the outcomes concepts into two broad categories (discharge and patient) and explained the two levels of outcomes. We have also emphasized the importance of the outcomes we described. The discharge outcomes such as reintegration into community are significant because palliative patients may not be able to just resume their lives after discharge. The reviewer is correct in that we did not need to do any analysis to determine that patients are discharged and return to community but we are emphasizing that returning to community is not always straightforward or easy. In the example we provide on page 12-13 the patient was struggling with financial, marriage, employment and other issues and the team had to do significant work to help the patient with their reintegration. There were phone calls to government agencies and letters that were written to support the patient’s case. The discharge was not just sending the patient home. Integration into community is not a concept found in most team based care models and is intended to illustrate that for palliative and cancer patients there are integration tasks that the team must do if a patient is to reintegrate successfully. Had the team not did the work they did to help the patient reintegrate it is possible the patient’s outcome could have been tragic. In the excerpt on page 12-13 the counsellor states she is worried about the possibility of suicide. Similarly the ‘Discharge Planning’ concept is meant to illustrate the range of tasks that need to be done for a patient to be discharged safely. In complex patients such as in palliative care there are often many tasks (e.g. physiotherapy, dietary, caring for catheters) that need to be formalized prior to discharging the patient.
Comment #6 – We have increased the description of the ethnographic method on page 4 including an explanation of how ethnography is used in health informatics studies. Our use of the ethnographic method is the same as the ethnographic studies we cited, which all involved observing participants and collecting data in natural care delivery settings. We did spend additional time interacting with the teams we studied outside of data collection in order to establish a level of comfort with the teams and we added that to the text.

Comment #7 – We removed the sentence in the conclusion as the reviewer is correct that our findings have not supported the claim in that sentence.

Comment #8 – As we described in comment #4 we have adjusted the figures and the framework in figure 5 to be more semantically consistent. The reviewer correctly pointed out that the process component of the framework had processes and stakeholders of the processes. We have attempted to make the sub-concepts more consistent by removing the stakeholders of the processes from the framework.

Reviewer #3: Carl May

Comment #1 - We thank the reviewer for recognizing the need for stronger linkages between the ethnographic component and the practice recommendations (pages 15-19). We also appreciate the comment that the two fundamental problems are: 1) coordinating the negation of healthcare delivery and 2) organizing and mediating the coordination itself. We have used that statement to introduce our practice recommendations. As per the reviewer suggestion we have strengthened the connection between the ethnographic component of the paper and the practice recommendations by adding specific references from our data to the practice recommendations. The reviewer also suggested we needed to ensure we do not imply that the problems of interdisciplinary teams can simply be solved through technological fixes. It was not our intent to suggest that and we have added a statement about that in both the e-teams section (page 16) and the discussion (page 19).

Comment #2 – The reviewer is correct that there is existing research on the three types of e-teams support we discuss. It was not our intention to suggest that the three types of supports are novel but rather that they need to be looked at in the context of interdisciplinary palliative care teams. We have added a statement explaining that at the top of page 16. We have also added some references for each of the three types of e-teams support to further articulate the challenges of designing technology to support interdisciplinary palliative care teams.

Comment #3 – The reviewer also points out that there is existing literature on teamwork, which could be used to augment our findings. We reframed the literature review on teams (page 3) to acknowledge some of the existing literature on teamwork both in and outside of healthcare and also to raise attention to the shortcomings in existing interdisciplinary teamwork literature and how our study attempts to address those shortcomings. We have also supplemented the e-teams section with existing literature on interdisciplinary teamwork to strengthen our recommendations.

Reviewer #4: Christian Nohr
The reviewer did not request any revisions