Clinical supervision of interns: Understanding the view of interns and the potential of ICT to deliver supervision for safer patient care.

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Abstract. Clinical communication and clinical supervision of junior healthcare professionals are identified as the two most common preventable factors to reduce medical errors. While multiple strategies have been implemented to improve clinical communication, clinical supervision has not attracted as much attention. This is in part due to the lack of understanding of clinical supervision. Furthermore, there is a lack of exploration of information communication technology (ICT) in assisting the delivery of clinical supervision from the perspective of users (i.e. junior clinicians). This paper presents a study to understand clinical supervision from the perspective of medical and pharmacy interns. The important elements of good clinical supervisors and good clinical supervision have been presented in this paper based on our study. More importantly, our results suggest a distinction between good supervisors and good supervisions. Both these factors impact on patient safety. Through discussion of user requirements of good supervision by users (interns), this paper then explores and presents a conceptual framework to assist in the discussion and design of ICT by healthcare organisations to improve clinical supervision of interns and therefore improve patient safety.

Keywords. Clinical supervision, Patient Safety, eHealth solutions, medical errors.

Introduction

Medical errors are common with acute healthcare delivery. Since the publication of the Australian Quality in Health Care Study a decade ago [1], significant efforts and resources have been committed to various interventions and strategies to improve patient care and patient safety in Australia. When factors that impact on adverse events are analysed in detail, it appears that supervision of junior clinicians can play a significant role in patient safety, second only to clinical communication [2]. While clinical communication has attracted a lot of attention, from research as well as within healthcare organisations, the progress in improving clinical supervision for safer patient care has been slow [3]. There are various reasons behind this. In part, this is due to the

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lack of understanding on how safe clinical supervision could be achieved [4]. Secondly, Information and Communication Technology (ICT) has not been fully explored as a strategy to improve clinical supervision for patient care other than in simulation and online education and training settings [5].

Where supervision of junior doctors is considered, the supervision and support of interns is arguably the most important for patient safety as that is the first year of transition between university study and workplace. In addition to the immediate safety concerns of our interns delivering care in the healthcare sector, habits developed throughout this period will likely inform future practices and have significant impacts on patient safety and patient care.

This paper provides an overview of the current literature on the understanding of clinical supervision of interns. A study conducted in Australia is then described. The purpose of the study is to understand clinical supervision of interns across medical and pharmacy disciplines. Part of results of this study is described in this paper, focusing on results that have significant implication for ICT design, development and deployment to assist in the process of clinical supervision to improve patient safety and patient care.

1. Clinical supervision of interns, what defines safety

The delivery of acute medical care is associated with significant rate of medical errors and adverse events [1]. One of the important preventable factors in reducing medical errors and adverse events is education, training and supervision of junior healthcare professionals [6,7]. Interns, being in their first year of clinical practice, are arguably the team members most in need of excellent clinical supervision in order to improve patient safety. More importantly, safe clinical supervision has been advocated as one of the most important factors for ensuring learning in the first year of medical practice [8].

A review of the literature by the authors, however, found very few studies that define safe clinical supervision from the perspective of interns. A published literature review of clinical supervision found little evidence of any theoretical basis for clinical supervision [9]. It suggests that the relationship between supervisor and trainee is the most important element/strategy [10]. A recent guide to clinical supervision published by the Association for Medical Education Europe provides a 7-point guide to clinical supervision, from the healthcare organisational perspective. The guide emphasises direct supervision [11]. Other studies suggest that training of the supervisor might help to achieve excellence in supervision and better patient care [12]. It is important to note that the role of pharmacy intern is relatively new. The exact clinical role is still being discussed in literature and there are few studies in pharmacy intern supervision [13]. Due to the increasing number of students and interns, a more innovative and sustainable strategy is needed to improve clinical supervision beyond reliant on consultant supervisors.

ICT has been presented as a significant strategy to improve clinical care and patient safety [14]. ICT in the form of simulation and online learning has been used in education and training within the healthcare setting [15]. It is, however, surprising to find that there has been little attention paid to the use of ICT to improve safety in clinical supervision. This is probably due to the lack of clarity surrounding clinical supervision and the lack of understanding of safe clinical supervision, especially from the perspective of supervisees. As such, there is an urgent need to understand clinical supervision from the perspective of interns, and the potential that ICT could play in

clinical supervision for safer patient care. This project aims to fill a significant theoretical and practice gap in the international literature.

2. Research method

Our study, the clinical supervision of interns study, aims to understand excellence and safety in clinical supervision of interns and therefore the potential that ICT could play in clinical supervision for safer patient care. The aims of the study include: (1) to understand/compare the interns perceptions of excellence and safety in clinical supervision from two different disciplines; pharmacy and medicine, (2) to understand their perception of clinical supervision and how it relates to patient safety and (3) to explore the design and user requirements to improve clinical supervision, ICT or otherwise.

The study has ethics approval from the Tasmanian Health and Medical Human Research Ethics Committee, ethics approval number H0012928. The data collection process occurred between 2013 and 2015 towards to end of their internship in order to allow time for reflection of through their internship journey. Data analysis was carried out in 2016. All pharmacy interns working in the Tasmania public hospitals were invited to participate (a total of 14) and all medical interns working in the tertiary referral hospitals in Tasmania were invited to participate (a total of 25). A total of 10 pharmacy interns and 8 medical interns agreed to participate in the study. Information sheets were provided to all interns. Those interns who agreed to participate in the study were then provided with verbal and written information about the study. The interview technique used was semi-structured interviews with prompting.

All interviews were audiotaped with consents and the audio-recordings were transcribed. These transcripts were then analysed using a grounded theory analysis approach [16].

3. Results

Results relevant to the role of ICT from the perspective of interns are presented with relevant quotes to support these statements. These findings are then discussed in the discussion section, supported by the literature. The key message of how ICT could play a substantial role in achieving safe clinical supervision for interns is discussed. We found three important themes that are relevant to ICT in supervision of interns and these are discussed below: Good supervision, good supervisors and interaction between supervision and patient safety.

The first theme from our data analysis is the requirement for good clinical supervision. Our results suggest that excellent and safe clinical supervision from the perspective of interns is the availability and accessibility of supervision when required. Interns want a certain level of independence. Our participants suggest that good supervision is seen as supervision that allows independence but provides a safety net at the same time.

"*somebody who gives you a bit of autonomy, a bit of independence to do, you know, to practise medicine" but "to be able to say well, this is what you should be doing or this is the best way to manage it*" Medical intern 3

"*After hours work is probably daunting because there is a lack of supervision, but I don't really know how you can overcome that without people having to work 24/7*" Medical Intern 1

'*Approachable, accessible and probably catching up at regular intervals just to make sure that you are on the same page with everything*.' Pharm intern 10

The second theme from our data analysis is the requirement to be considered as a good clinical supervisor (as distinct from good supervision). In contrast to good clinical supervision, our study participants believe that a good supervisor is a senior person with mutually enjoyable professional relationship. This relationship is influenced by personality compatibility, mutual respects and mutual understanding of roles and expectations. This is reflected by the following participant comments;

" *It's the personality!*" Medical Intern 1

" *(good supervisor is someone who is) willing to have a bit of a discussion about it rather than saying "no you're wrong", so good communication skills and an open approachable manner*" Medical intern 2

"*Probably to simplify it, the most important thing for me as a junior doctor with regard to supervisors is for it to someone who I feel comfortable in approaching*" medical Intern 4

"*So you think about clinical supervisor as finding a friend really in that context*" pharm intern 7

The third theme from our data analysis is the relationship between patient safety and supervision/supervisor. Our study also shows that clinical supervision affects perceived patient care and patient safety. While interns acknowledge the need for supervision, the conflict of power relationship affects the utilisation of supervision for patient care.

"*Potentially she was going to die. She was that unwell." "weren't available when you needed their help, their help wasn't any help in the end*" Medical intern 7.

"*there has been sometimes where I have just thought I don't feel comfortable with this and people haven't really responded*" "*Supervisors – they can either make or break your career in certain ways*." "*They can show interest in their specialty to offer you advice as to, you know, what sort of courses or teaching, or what you should become involved with that might help your career aspirations. or to offer to be a referee for example*" Medical intern 4

On the other hand, good supervision provides the necessary safety net to improve patient safety and to encourage interns to develop their own practice that is safe.

"*They just said "There's an error there", but they didn't tell me what it was. I had to go and find it which meant that by finding it myself I was like "oh" and I won't do that next time. it's more of a helping you to find your own way and they always constantly encourage you, whenever you make a mistake, they encourage you "Oh you should try and add this to your process, you should try and add this checking to your process because pharmacy is all about ticking boxes*". Pharm intern 4

These results from our study appear to suggest that there is a distinction between good supervision and good supervisors. Furthermore, good supervision and good supervisors are both important in ensuring safe patient care. The logical conclusion, as discussed by our participants seems to be training of supervisors. From a system view point though, this conclusion and recommendation will not be sustainable and will not

achieve substantive and sustainable outcomes. Our results suggest supervision is the process of providing timely and effective support to interns at the time of need. From a system point of view, what is required is a technology solution which will fundamental change and differentiate the relationship between supervision, supervisors and patient safety identified in this study. Therefore, the analysis of our results suggests that disruptive innovation using ICT to support supervision will improve supervision, relationship with supervisors and therefore patient safety. The authors acknowledge that our interviews did not ask about ICT in supervision. The results of the study through inductive analysis, incorporating authors experience, concludes that ICT can play a role in this process, which is further discussed below.

4. Discussion

Our study presents findings worth discussing further especially the potential role of ICT in improving safe clinical supervision for interns.

Our study found that a good supervisor is someone that interns could have a good personal relationship with mutual respect and understanding as well as personality compatibility. This point has been supported by studies published in the literature [7,8,9]. Indeed the literature suggests that the relationship with supervisor is the most important factor that affects supervision [9].

Our study, however shows that there is a difference between good supervisors and good supervision for patient care and patient safety. A good supervisor is someone that interns could relate to, but this does not translate directly into good supervision. Good supervision, especially from the perspective of safe patient care centres around the availability, accessibility and the ability to provide advice and/or take over the care of the patient when needed. Interns do need good supervisors but for safe patient care, good supervision is needed. This difference has not been described in the literature before.

More importantly, our participant highlight that interns believe that clinical supervision can affect patient safety and therefore may result in conflict between good supervisors and safe supervision. The power relationship between supervisors and interns can affect how interns seek and ask for assistance and supervision. While supervision impacts safety has been described in the literature [3,6,7], the impact of power relationship has not been clearly identified in the literature.

From organisational and patient safety perspectives, training of supervisors might help with the relationship with interns but might not impact on safe supervision. More importantly, ICT has significant potential to improve safe clinical supervision of interns. The current supervision arrangement is demonstrated in the diagram below. Currently, safe supervision is dependent on the relationship between supervisor and intern (see Figure 1)

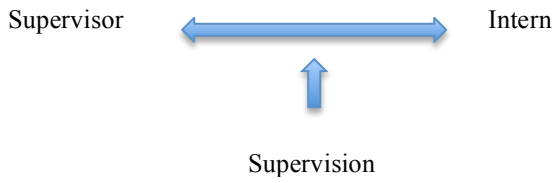

Figure 1: current supervisor-intern relationship.

ICT, however, has the potential to change the relationship significantly in order to provide safe supervision to interns. Firstly, ICT can provide accessibility and availability of supervision to interns through a network of supervisors. Trained senior clinicians, either statewide or hospital wide, can provide support through an anonymous process supported by ICT. This will allow interns to access the support system in times of need. These trained senior clinicians should be different from direct supervisors for interns and independent of the intern-supervisor relationship.

More importantly, ICT has the potential of delivering artificial intelligent (AI) guided supervision, especially through machine learning algorithm, to interns for many clinical circumstances. This will potentially remove the reservation of interns about the perceived conflict of power-relationship. In order to design AI guided supervision, further studies need to be conducted to document and understand common supervision scenario in order to derive algorithm support. We acknowledge that healthcare delivery is complex and not all decision or supervision could be simplified into an algorithm. As such, we advocate dual-input ICT-enabled clinical supervision to ensure complexity within healthcare system is accounted for, as demonstrated in Figure 2.

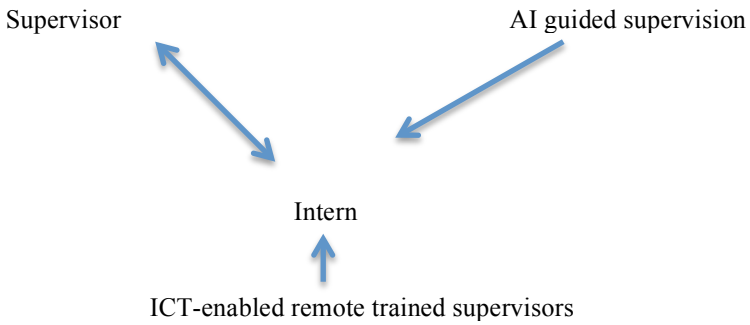

Figure 2: The potential role of ICT to improve supervision and safety.

By dissociating acute need for help from the relationship developed between supervisor and interns, ICT can provide a much better safety net for patient care while allowing good supervisor-intern relationship to develop. More importantly, this will also allow interns to seek help when needed without the worry that this will impact on their relationship with their supervisor and their references for future career.

5. Conclusion

The essential nexus between good supervisor and safe clinical supervision has not been clearly defined in the literature. Our study contributes one piece of the puzzle and defines the elements of good supervision, good supervisors and their respective relationship to patient safety. Our study suggests that there is a difference between good supervisors and good supervision. More importantly, derived from our results, our study proposes an organization wide, ICT enabled acute support solution for interns in order to support the development of good supervisor relationship and to ensure safer patient care.

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