

The Learning Effects of Within-unit Handover Report

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Abstract

Aims

While there is increased practice of different types of patient handover, there is a paucity of systematic research examining physicians learning during such events. We aimed to examine 'what is being learned' and the factors determining the learning during a group *within-unit* handover context, in a tertiary children's hospital.

Methods

Video-recorded observation of group handover events including all case-presentations informed a thematic framework analysis of learning themes and determinants of learning. Video-stimulated recall and semi-structured interviews were performed. Data analysis used NVivo software.

Results

Seven handover events (mean duration n=33 minutes; mean audience participants n=24), captured n=67 case-presentations, analysed to inform the learning topics and group dynamics. Nine semi-structured interviews (NCHDs)[mean duration n=33 minutes] allowed data triangulation to develop further understanding of the determinants of learning. Multiple areas encompassing physicians' professional roles were learned, often gained explicitly through case-presentations when succinct and relevant ('expert' presentations). Observing clinical reasoning processes (including clinicians' narrative thinking aloud), and learner-safety, were critical determinants of the learning environment.

Discussion

Face-to-face *within-unit* handover report is a powerful workplace learning event found to enhance many domains of physicians' professional practice. Comparison, and application of the mechanisms facilitating this learning should be applied to related virtual-learning activities.

Introduction

As physicians are increasingly required to demonstrate continuous learning in order to achieve high-quality health care, it is essential to examine the experiential opportunities and clinical

education affordances that medical practice provides. One such ritual is ‘Patient handover’, defined as “*the transfer of professional responsibility and accountability for some or all aspects of care for a patient, or group of patients, to another person or professional group*”.¹ Handovers, however occur in a variety of complex organisational contexts depending on their purpose.² For example, *within-unit* handover occurs when physicians discuss patients within the same hospital unit, which may also occur across temporal boundaries or in a group setting.² While various clinical, social, hierarchical and environmental factors are potentially at play during various handover rituals, there is a lack of analysis of these phenomena in relation to the educational gains for physicians in the work place.^{3,4}

This study examines the potential value to participants during a face-to-face within-unit handover report. We sought to determine 1) what is being learned by NCHD trainees (as audience participants) across their professional roles as physicians, and 2) the key determinants of participant learning in the context of this handover report.

Methods

In this study, the context of within-unit handover describes paediatricians (tertiary hospital) meeting in a conference room following a weekend of patient admissions (weekend handover report, Table 1). This handover is customised to gain awareness of, and learn from clinical cases admitted. Short *case presentations* are delivered by Registrars involved in patient care. SBAR is the chosen handover mnemonic, but not enforced, given the quasi-back stage environment.

Research and Ethics approval as well as informed consent from participants was obtained. Data gathering occurred over 3 months and included (i) video ethnography (naturalistic video-observation) capturing a convenience sample (n=7) of handover events, and (ii) semi-structured (audio-recorded) interviews conducted from a *purposive sample* (9 full interviews with NCHDs).^{5,6} Initial videos were viewed by the researchers to formulate the interview topic-guide of professional roles and work-based learning categories⁷⁻⁹. Interviewees were invited to watch a video of handover they attended prior to interview to encourage analytic reflection (*video-stimulated recall*).

All video observations and interview transcripts were transcribed verbatim and analysed thematically. A subset of transcripts were initially independently coded, and matched to agree a common coding frame (using NVivo^T to manage data).¹⁰ The iterative process of data collection for all transcripts continued until theoretical saturation was achieved.⁶ Data triangulation of video observations and interviews was performed.⁵

Results

The characteristics of audience participants, video handover observations (n=9), and case presentations analysed (n=67) are outlined in Table 1. The specific professional roles, work-based learning that occurred, and the determinants of that learning are summarised in Figure 1, and discussed below.

Table 1: Characteristics of video handover observations & case presentations	
Number of handover video observations	7
Handover duration (minutes, mean)	33 (range 22-42)
Number of case presentations analysed	67
<i>Registrar (short & ultra-short*)</i>	54
<i>Consultant short</i>	13
Average number in audience	24 (range 18-32)
<i>Registrars</i>	10 (range 6-13)
<i>Senior House Officers (SHOs)</i>	7 (range 6-11)
<i>Interns</i>	1 (range 0-2)
<i>Consultants</i>	6 (range 3-10)
Physician mix (general, emergency, specialty)	19
<i>Registrars</i>	18
<i>SHOs</i>	2
<i>Interns</i>	23
<i>Consultants</i>	
Number of semi-structured NCHD interviews	9
Duration of semi-structured interviews (mean)	33 minutes (25-40)
*Ultra-short presentations <1 minute were often “simpler” cases, presented less often, did not frequently trigger discussions but framed case-mix and further “interesting cases”. NCHDs, non-consultant hospital doctors; SHOs, senior house officers.	

What is Being Learned?

We identified handover to provide ample affordances for specific medical knowledge as well as wider professional roles of physicians through the learning environment itself, including professional behaviour, collaboration, teamwork and communication, patient care and personal development (*Figure 1*).

Academic & Applied Clinical Knowledge:

The main learning valued by participants related to clinical presentation and treatments. The acquisition of knowledge regarding atypical, challenging or rare disorders was of particular interest, the so called “interesting cases”. Different levels of learning trajectories emerged but most participants regarded “expert” knowledge most relevant. Learning around problem-solving, decision making and the art of clinical reasoning was strongly perceived to enhance the knowledge link between content and practice.

Participant 4 (P4): “there may be someone in the audience with a specific background that you didn’t know...or some new evidence or new research that you weren’t aware of...or if it’s a rare case, that you have never met before.”

Patient Care:

Information sharing about active patients had direct work-based learning implications. Discussions and observations about wider aspects of child health (e.g. social and safety) were reflected in participants’ comments, learning about standards of care expected, levels of expertise and wider systems.

P2: “certain issues can be discussed and delegated to the appropriate teams”... “it’s a very good overview for everybody in the group of who’s in the house or sick around the place”.

Professional Behaviour:

Participants reported learning how mutual respect, diplomacy, and accountability reflected the local medical culture and a safe learning environment. Seniors demeanour during handover and willingness through openness and involvement of participants in discussions was positive and encouraging.

P3: “...they make it an enjoyable learning experience. So you see how as a future consultant you should be able to stimulate people”.

Collaboration, Teamwork & Communication:

The collaborative approach to patient care was a strong feature of handover culture. Participants gained an understanding about teamwork and communication. The importance of knowing each other reflected an understating of the importance of social learning. Experts and juniors consulting and collaborating ideas with each other occurred commonly.

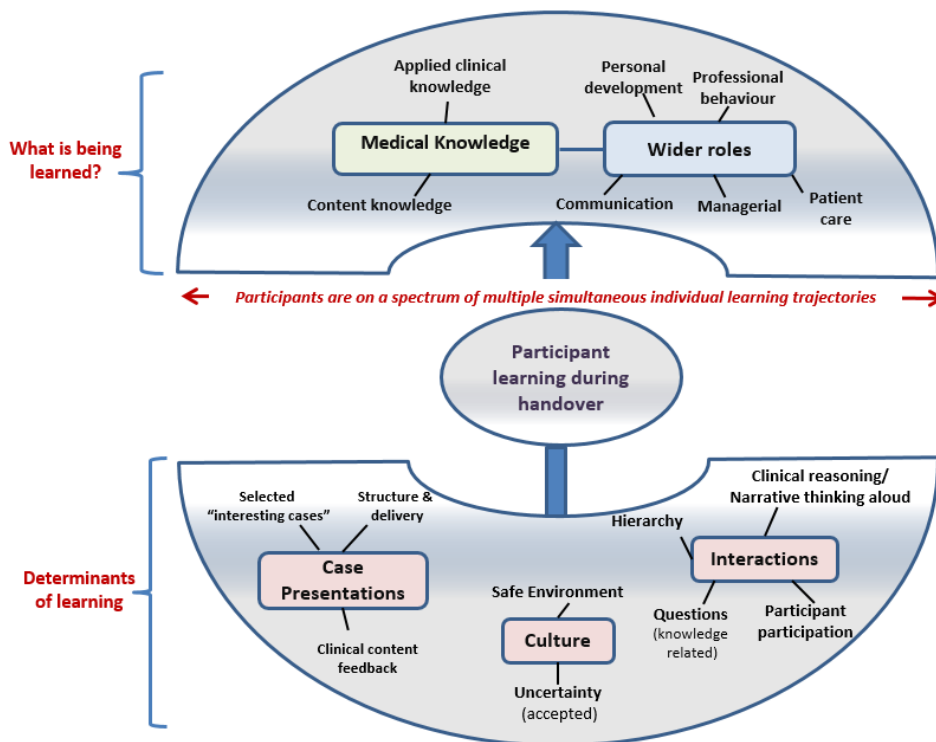
P4: “that’s the atmosphere and that’s why the handover works well, because everyone’s input is valued...that represents the work environment.”

Personal Development:

Through observing and partaking in the interaction, role modelling and comparing their knowledge, participants learned about coping with complexity and uncertainty, and important medical social practices (e.g. seeking specialist opinions).

P9: “interacting with your colleagues and your consultant and getting information from different specialties, it does teach you about that...just from getting to know everybody better and knowing their style”.

Figure 1: Overview of the participant (audience) learning during handover report and the determinants of what is Being learned.



Determinants of Learning

The dominant factors contributing to the learning among NCHD audience participants were ‘expert’ case-presentations leading to explicit knowledge gains, and the observation of key

interactions surrounding clinical reasoning (narrative thinking) processes. Learner safety was also a critical determinant of the perceived quality of the learning environment.

Case Presentations:

Participants strongly identified with case selection as a powerful determinant of learning. The “interesting cases” were either prompted by consultants or encapsulated by the presenters themselves, who were registrars (identifying with consultants). Case presentations were typically short (2-3 minutes) with overviews rich in their relevance, akin to “expert presentations”¹¹ providing focused substrate for discourse. The content encapsulated the “bigger pictures’ of patients” courses and incorporated the presenter’s own problem representations, experience and case intimacy.¹² Feedback was relatively informal, highly contextual and reflected a rich and secure cultural scaffolding for clinical learning, reflected upon positively by audience learners.

P7: “I think the biggest thing that affects the learning is if a case is interesting”.

Culture (Socialisation & Safe Learning):

The socially constructed discourse was collaborative, non-threatening and at times humorous. Participants’ opinions were valued and protected and the culture¹² reflected many attributes of a safe learning environment. Discourse was dominated by discussions about unresolved patients where participants were comfortable, a professional value which enhances exploration of uncertainties and tangential teaching moments.

P1: “there is a nice culture of safety that you can ask what you want.”

Interactions:

The key interactions contributing to participant learning incorporated a variety of questioning types and clinical reasoning processes often determined by hierarchical influences (consultants).¹³ Following the initial presentation, interruptions mostly consisted of knowledge-related probing questions¹⁴ with an emphasis on clinical reasoning around the case. Participants felt they were learning “P1: stuff you can’t get in books” by observing seniors likely *thinking-out-loud* their illness -scripts in finding solutions or summarising their thoughts. Presenters’ conciseness and relevance in presentation facilitated the narrative focus.

P1: “with experts in the room it was amazing how much that added to the conversation, without that presence the opportunity to talk about the management of complex epilepsies was lost...it’s about who is there and sharing their knowledge.”

Participation:

Participants were actively clinically involved with patients and regularly explicitly contributed to handover discourse with case-based or analytical information, increasing mutual understandings and socially constructed meanings. Through video-stimulated recall at interviews, participants' further analytical reflection revealed cognitive processes which demonstrated further levels of participation and deeper learning in the immediate and longer term.

Discussion

There is a paucity of research examining how different patient handover practices influence physicians learning, complicated by great variation in different types of handover rituals based on context, structure and goals.^{2,15} This study, performed in-depth thematic analysis to examine learning through the lens of the audience, and revealed *within-unit handover report* to be a powerful multi-faceted social and educational event. While much of the perceived learning during handover was centred on clinical knowledge, the ritual itself providing a medium to deal with uncertainty, and learn through the power of professional socialisation,¹⁸ across other professional domains.

A number of important determinants of the learning during this type of handover report, emerged which inform our understanding in relation to audience learning. The “expert” case presentations^{11,12} (focused, succinct, relevant, and delivered by registrars) were found to highly impact and create the most explicit and collaborative just-in-time learning whereby all NCHDs as audience participants, were led to observe and participate in case-based discussions centred on “interesting patients”. Other tacit mechanisms contributed to the learning through socially constructed discourse and further clinical involvement with patients. Encouraged by local hierarchy, and an open professional culture, was learner safety, an important emotional factor determined by participants; an observation not always reflected in medical professional rituals or hospital-based practices.¹⁶

While current trends in medical postgraduate education reveal increasingly formal and standardised platforms driven by competency-based outcomes it was interesting to note that many “Domains of Good Clinical Practice” could be easily categorised by participants. Measuring physicians learning in events such as this handover has the potential to be complex as physicians learn along multiple simultaneous trajectories, as seen here. The most prominent motivating factor for participants appeared to be the goal of improving clinical reasoning skills, achieved through the interesting cases, affording more in-depth knowledge, a prerequisite to high quality patient care.¹⁷

Handover could be considered a somewhat deliberative practice “looking for situations and tasks that contribute to professional development”.^{17,19} We considered that the management of learning opportunities more explicitly may have potentially increased the learning focus to reflect

a more deliberative approach. In this handover a checklist “SBAR” was familiar to the group, but not enforced necessarily for presentation delivery as this was a within-unit handover event akin to Morning Report. As the case presentation was a particularly strong determinant of learning, further analysis focusing on the presentation content and delivery as a mechanism for audience learning would be interesting. However, it is worth considering that major themes that determined learning in this study were centred around narrative modes of thinking²⁰ (the art of problem-solving and clinical reasoning processes), often led by relevance of the case presentation, hierarchical influences (Consultants and senior registrars), and a desire to discover a more holistic understanding of the profession. While specific handover checklists/mnemonics would reduce delivery variation (and indeed benefit patient safety, not the goal of this study), their usefulness as a vehicle to deliver the “case presentation”^{11,12} during complex learning events needs further study in the context of experienced clinicians, seeking to construct richer understandings, deal with ambiguities and unpredictable variations in live clinical environments.

In summary, as individuals displayed information and experiences across many domains during this handover event, participants were afforded opportunities to facilitate their physician learning and training along different trajectories, as well as becoming induced into the local and wider culture of the organisation itself. The learning during handover in this study therefore represents many individual and collective clinical, social and cultural experiences, providing a rich opportunity to construct knowledge, and is a powerful learning event for NCHDs. We should retain the situatedness of *within-unit* weekend handover reports, as work-based learning events, and nurture the richness of open and safe learning environments for audience participants.

Declarations of Conflicts of Interest:

None declared.

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