

A STANDARDIZED PATIENT HANDOVER PROCESS: PERCEPTIONS AND FUNCTIONING

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ABSTRACT

In this paper, we describe the perceptions and functioning of a standardized patient handover protocol to improve communication between ambulance personnel and emergency department (ED) nurses in the transition between pre-hospital and in-hospital care. Patient handovers are identified as a vulnerable step in safe patient care due to the fact that vital patient information may get lost or misinterpreted. An exploratory research design with multistage focus group interviews was chosen to study a standardized handover protocol across two different disciplines two years after the implementation of the protocol. Study results reveal that even though both ambulance personnel and ED nurses are more content with the information flow and the dialogue than prior to the protocol, there are still challenges related to communication and information exchange, to the system surrounding the handover process, to attitudes towards the usefulness of formalized protocols, and to the knowledge of the handover protocol in itself.

1. INTRODUCTION

The primary objective of a 'handover' is to provide accurate information about a patient's care, treatment and services, current condition and any recent or anticipated changes (www.handover.eu, Watcher 2008). Interest in handovers has grown steadily over the past decade as researchers, hospital administrators, educators, and policy makers have learned that current handover processes are highly variable and potentially unreliable (Manser & Foster 2011). Thus, in 2007 effective communication during handover was listed one of the National Patient Safety Goals by the Joint Commission on Accreditation of Healthcare Organisations (JCAHO 2007) and is today one of the five solution areas of the "High 5s initiative" established by WHO and the Commonwealth Fund (www.high5s.org). Transitions in patient care due to a handover by the care provider/team to another provider/team can have detrimental effects on the quality and safety of patient care. During the past several years, we have seen transitions in care become more frequent, resulting in increased opportunities for errors that may result in patient harm (Cheah 2005, Arora & Johnsen 2006, Sharit et al 2005, LaMantia et al 2010).

Patient handover in the emergency department (ED) is mainly a two-way communication process between ambulance personnel and ED staff where information exchange is crucial for the transfer from pre-hospital to in-hospital care. The handover process with belonging reporting routines thus plays a key role in securing continuity, quality, and safety in patient health care (Jenkin et al 2007). Yet, there is little guidance from the literature on how to best exchange information. Information transfers (handovers) are a recognized vulnerability for medical errors (Arora & Johnson 2006). Studies suggest that handovers are often characterized by communication failures and

environmental barriers (Sharit et al 2005). Based on experiences from other high-risk industries, strategies such as standardization and face-to-face verbal update with interactive questioning are so far supported as best practices associated with improved handoff communication (Arora & Johnson 2006, Arora et al 2008).

In this paper, we will report the results from an exploratory qualitative study of the implementation of an interdisciplinary¹ standardized patient handover protocol in an emergency department (ED) of a regional Norwegian hospital. The aim of the study was to identify ambulance personnel's and ED nurses' perceptions of the handover process, and the functioning of the handover process two years after the implementation of the standardized protocol.

2. PREVIOUS RESEARCH

Until recently, patient handovers have seldom been studied systematically (Manser & Foster 2011, Raduma-Tomas et al 2011). Furthermore, studies describing handover practice show significant variation within and across health-care settings (Manser & Foster 2011). Although it is widely recognized that handovers influence the morbidity and mortality of patients, the extent of this problem is still unclear and best-practices have not been accepted nor exchanged on a larger scale yet (Raduma-Tomas et al 2011). Several studies and reviews have been conducted related to nurse-to-nurse handovers (e.g. Currie 2002, Kerr 2002, Aase et al 2007, Riesenberget et al 2010), and later on handovers between physicians in hospital settings (e.g. Bomba & Prakash 2005, Riesenberget et al 2009, Raduma-Thomas et al 2011). On the contrary, few studies have shown interest in the interdisciplinary reporting and handovers between different professions (Smith et al 2008). There is also a need for more research on handovers between pre-hospital and in-hospital services (Jenkin et al 2007), on transfers/ handovers between hospital wards (McFetridge et al 2007), and more generally on handovers in the primary/hospital interface (www.handover.eu). Below, we refer to some of the existing studies and their results.

Talbot & Bleetman (2007) tested a formal protocol for verbal patient handover for ambulance personnel to find out whether it affected the accuracy of the received information among ED nurses. The study showed that information was less accurate after implementation of the protocol (56.6% before versus 49.2% after). The scope of the protocol was restricted to ambulance personnel, and ED nurses had no ownership or knowledge of the contents of the protocol.

Smith et al (2008) studied the patient handover from anaesthesia personnel to nurses at the recovery room post-surgery. They found that guidelines to address content or form of the verbal handover were non-existing, together with formal training related to the handover process. On the contrary, informal practices are dominant in relation to interdisciplinary patient handovers.

Yong et al (2007) studied how physicians and nurses in the ED perceived handovers from the ambulance personnel, and found that 67% felt that key information sometimes, often or always was missing at verbal handover.

Bomba & Prakash (2005) studied patient handovers among hospital physicians and found that conducting handovers is a routine, but still very dynamic and dependent on interpersonal communication skills making it prone to errors.

Jenkin et al (2007) tried to identify important issues in the process of information exchange between ambulance personnel, nurses and physicians in an ED. They found that most of the study participants learned how report patient information by looking at their colleagues. Ambulance personnel had to a larger extent carried out formal training courses compared to nurses and physicians. Ambulance personnel also expressed their concern over a lack of respect from ED nurses in the handover process, and the lack of active listening was seen as another challenge.

Owen et al (2009) studied the perception of effective patient handover amongst ambulance personnel, nurses and physicians in the ED. One of their main findings was related to the notion of "Chinese whispers" where information is reported repeatedly and has a tendency to become fragmented and less accurate the more levels it goes through. Other issues were lack of active listening and problems with distractions and competing demands.

¹ Interdisciplinary in this sense meaning that the same standardized protocol should be used by different disciplines (i.e. ambulance personnel and ED nurses).

Based on the existing literature, the following success factors and conditions for development and practicing of a sound interdisciplinary handover process can be defined:

1. Use a structured handover system based on principles of sound interaction and communication training (Talbot & Bleetman 2007, Yong et al 2007)
2. Use a structured format in the handover and a formal protocol for specific patient cases (Yong et al 2007, Bomba & Prakash 2005)
3. Design and implement standardized handover protocols adapted to local conditions (Owen et al 2009, Arora & Johnson 2006)
4. Develop communication training and management in clinical teams (Talbot & Bleetman 2007, Arora et al 2008)
5. Focus on active listening (Jenkin et al 2007)
6. Create a common language for all disciplines involved in patient handover (Owen et al 2009)
7. Create a mutual understanding of each others' roles and tasks in the patient handover process (Ye et al 2007, Owen et al 2009)
8. Hospital and department managers should map, improve and ensure quality in patient handover processes (Bomba & Prakash 2005), and develop a plan for monitoring and evaluation (Arora & Johnson 2006)

As mentioned, several of these factors were in 2007 included in the Joint Commission on Accreditation of Healthcare Organizations' (USA) National Patient Safety Goals to improve communication among healthcare workers requiring hospitals to implement a standardized approach to information exchange (JCAHO 2007).

3. METHODOLOGY

To improve the handover process in the ED of a regional Norwegian hospital, an interdisciplinary standardized protocol for the handover of patients was developed together with a one-day simulation based course curriculum to implement the protocol (June 2007). The second author (ES) was involved in the development of the protocol and the implementation process while she was working as a nurse in the ED and later as an instructor at the simulation centre responsible for the training course. The target group for the simulation training course was a total of 180 ambulance personnel and ED nurses in a regional Norwegian hospital.

Two years after the implementation of the standardized handover protocol, an exploratory research design with multistage focus group interviews was chosen to study the perceptions and functioning of the protocol (October 2009). One group of ambulance personnel (N6+N4) and one group of ED nurses (N6+N6) were selected for the study. The inclusion criteria were differences in age, experience, sex, and the representation of different regional ambulance stations. Each group was interviewed twice within two weeks. In the ambulance personnel group a total of ten informants participated in the two focus group interviews. Due to practical difficulties in gathering the same informants, all four informants had to be recruited for the second interview. In the ED nurse group, a total of nine informants participated in the two focus group interviews. In the second interview, three new informants had to be recruited in addition to the three from the first interview.

The focus group interviews were organized according to six main phases: (1) Presentation and opening question (age, background, sex, experience), (2) Introductory question (the concept of patient handover in the ED), (3) Transitional question (experiences related to patient handover), (4) Key questions (key issues in patient handover, experiences with new organization and handover protocol, communication, patient safety, interdisciplinary protocol), (5) Closing question (relative importance of issues discussed), and (6) Summary question (validating summary of discussion). An external moderator (third author, BSH) chaired the interviews to reduce possible bias related to the second author's involvement in the implementation of the protocol (Hansen & Severinsson 2007). In the second round of interviews, the main objective was to validate the contents of the discussion in the first interview. Answers to questions in each interview phase were read for the informants who were then asked to confirm, disconfirm or launch new issues. Focus group interviews lasted between 50 and 90 minutes. An experienced moderator (third author, BSH) and an assistant moderator (second author, ES) organized and carried out the interviews. All four interviews were tape-recorded and transcribed in detail.

The focus group interviews were analyzed using qualitative content analysis (Graneheim & Lundemann 2004) focusing on a systematic creation of units of meaning, condensed units of meaning, sub-themes and themes based on the first set of focus group interviews. The themes were then used as the basis for the second set of focus group interviews. An example of a theme with belonging sub-theme, condensed unit of meaning, and unit of meaning is as follows: organization (theme), management (sub-theme), trust in what management has decided

(condensed unit of meaning), “there is no need for nurses is what the management has decided, so I will have to trust that they have taken the responsibility” (unit of meaning). The use of multistage focus groups (two rounds of interviews) implies that the knowledge dialogue in the group continues throughout the two meetings, thus increasing the possibility for understanding the current themes more deeply (Hansen and Severinsson 2009). Having focus group participants validate the themes occurring in the first analysis phase of analysis provided the researchers with the chance to investigate their understanding and reflections in more depth.

4. RESEARCH FINDINGS

The research findings will be presented according to how the interdisciplinary handover protocol was developed and designed in 2007, then how the different disciplines (ED nurses and ambulance personnel) perceive the patient handover process today, and how the handover protocol seems to function two years after the implementation.

4.1 The handover protocol per se

In 2007, a joint patient handover protocol for ambulance personnel and ED nurses was developed and approved in the ED of a regional Norwegian hospital. The objective was to introduce a protocol for standardized patient handover in which both disciplines emphasized communication and interaction to ensure that essential patient information was taken proper care of.

| Purpose | Scope | Patient information | Responsibilities | |
|---|---|--|---|--|
| To ensure that essential patient information from ambulance personnel is transferred to triage ² nurse/responsible nurse for the patient by handover in the emergency ward | All patients arriving with an ambulance for handover in the triage area or directly in the emergency room | 1) Where does the patient come from? 2) What has happened, why is the patient coming to the ED? 3) Observations and measures according to A. Airways B. Breathing C. Circulation D. Defibrillation 4) Other physical and psychological observations? 5) How is the patient’s current condition? Changes? Information on patient’s home, relatives informed? Ambulance personnel hand over responsibility when report is given and signed by ED nurse | Nurse: Meet ambulance personnel in the triage area Wear a red TRIAGE sign Receive report at bedside (if possible) Act interested and forthcoming Active listening Ensure patient’s confidentiality Sign for received oral report and handover of patient responsibility | Ambulance personnel: Ensure that nurse is ready to receive report Give the report according to given protocol Act interested and forthcoming Ensure patient’s confidentiality Receive triage nurse’s signature on given report |

Table 1. The contents of the standardized handover protocol

² Triage is the process of prioritizing patients based on the severity of their condition. This [rationing](#) patient treatment efficiently when resources are insufficient for all to be treated immediately. The term comes from the [French](#) verb *trier*, meaning to separate, sort, sift or select

A thorough process for the development of the protocol was designed with establishment of a project group with participation from managers and employees in both departments (ED and ambulance unit), and from nursing students in specialization. A protocol draft was developed (aim, scope, routine, responsibilities, and standardized patient information) that was subject to thorough discussions leading to adjustments in the protocol design. The final protocol had the following elements as presented in table 1.

Before implementation of the protocol, joint thematic courses (a total of 10 days) for all personnel (180) in both departments were held. Two specific simulation scenarios were developed related to the handover protocol, and interdisciplinary teams created to conduct the scenarios related to the process from pre-hospital primary patient examination to the in-hospital patient handover in the Triage. Each scenario was followed by a debriefing led by a facilitator from each of the two departments. Thus, the majority of ED nurses and ambulance personnel had in-depth knowledge of the handover protocol before implementation in 2007.

4.2 Perceptions of the handover process

The results of the focus group interviews show different attitudes among ambulance personnel and ED nurses according to the importance of a handover two years after implementation of the protocol. Even though both disciplines are more content with for example the information flow during a handover after the implementation of the protocol, the results still reveal differences in the way they describe a patient handover:

“A handover is from the moment we see them [ambulance personnel] in the door until they go out the same door – from they enter Triage till they leave Triage – everything that happens in between is a patient handover” (nurse)

“We come from pre-hospital to the ED to do the handover in the Triage. We should make sure all relevant information follows the patient in relation to what we have observed out there, the treatment measures we have taken, and the results of the measures taken” (ambulance worker)

“... and also what has happened previously, known diseases and how they [patients] have functioned before the incident, family is also important. Not just the acute actions, but the history as well” (ambulance personnel)

In the way the two ambulance workers describe the handover process, they express a detailed and structured perception of the handover process. The nurses had a different view arguing that handovers are individual as patients differ and no situation is standard. They also highlighted the importance of using their nursing skills instead of a standardized protocol. The focus group interviews also reveal that the level of respect towards each other's work tasks is perceived as important in the handover process:

“I feel that the ambulance personnel show little respect for us and the job we have to do in relation to the patients that are already in the Triage...” (nurse)

“I feel it's very rude if I am occupied with a patient and then the ambulance personnel drag you away. Right? It is impolite towards the patient you are treating!” (nurse)

“I think that the patient handover is often the most frustrating part of the transport” (ambulance worker)

“You feel that you have to force your way to deliver the information you think is necessary” (ambulance worker)

The level of experience and competence among ambulance personnel and ED nurses affects the way communication in the patient handover takes place. Ambulance personnel feel that nurses have different approaches in the handover communication according to a familiar/experienced ambulance worker versus an unfamiliar/inexperienced ambulance worker:

“They [the nurses] automatically turn to the ones that are older than me, even if I am ready to give the report. Then they look around or at my colleague” (inexperienced ambulance worker)

“Even if they look young, they are in incredibly competent and therefore the nurses should listen to them in the same way [as older ambulance workers]. In the past, we were just a mere transport service, but that's twenty years ago! Clearly, the knowledge ambulance personnel holds today is something else than it used to be. My colleagues are very skilful, I know! Then we have to utilize the resources we have and the resources available in the Triage and help each other. That's the way we can definitely achieve the most on behalf of the patient, and that's why we are there!” (experienced ambulance worker)

“I have my education and in the ambulance they have another. We don’t have the same need for information because we have different starting points and different levels of competence, and that’s why it is important to have an identical system to relate to. What information do the nurses need and do they have the understanding that they will handover to somebody with a higher competence level?” (nurse)

4.3 The functioning of the handover protocol

As the previous section has shown, two different disciplines with belonging cultures meet over the patient’s bedside to conduct the handover according to the standardized protocol. The two disciplines have different perceptions of the usefulness of procedures which affect the functioning of the handover protocol:

“It is safe to have procedures to act according to, no matter who you drive with there are expectations on what both of us should do and know” (ambulance worker)

“Should you search everyday in those folders and booklets?” (nurse)

For the ambulance personnel procedures are guiding their clinical everyday practice, while nurses relate procedures to extensive folders more than to a useful practical tool. For the specific handover protocol, the same difference stands out:

“Yes, everyone should know the handover protocol. And we have had training course days for using it and we have trained together with the ones working in the Triage. And not long ago, we went through the protocol again” (ambulance worker)

“I think the ambulance has something like four to seven procedures and that’s why they learn them by heart. Unlike us that has numerous procedures and don’t even know where to find them – we drown in procedures!” (nurse)

“There is the fact that we have to improvise to be able to keep up with... It’s not always easy to follow the protocol if patients keep coming and there are patients falling in between, the sub-acute ones. We have much more to organize here than in the ambulance! They have one situation at a time...” (nurse)

The situation described above might indicate that the handover protocol per se is not tailored from the nurses’ point of view. Newcomers in the ED and Triage do not even know the protocol, and display uncertainty as to how and where they can find the department’s collection of procedures. Despite the thorough preparations before implementation of the handover protocol, the results show a limited use of the protocol by the ED nurses displaying limited ownership towards the protocol.

Another issue frequently addressed in the focus group discussions is the system surrounding the handover process impacting the resources available for a sound functioning of the handover. The most important issues referred to are busyness and organization of triage. At times, the stream of patients is larger than the nurses in the triage feel they can handle:

“The problem is the triage. We don’t have enough people! We use too much time per patient to set the priorities. And that’s where we meet the ambulance personnel and that’s where you get the information, but we are stuck with patients that we already have the responsibility for”

“This Monday I had an experience which could nearly have gone wrong. In the shift handover coming on duty in the Triage, it was a complete chaos. I think it was 19 patients bedside in the Triage. The duty starts with a report from nurse to nurse. In addition several ambulances came in simultaneously. It was an unsystematic situation regarding who was where, and who were able to receive coming patients. Who had responsibility for whom, and who took responsibility? ... and then suddenly a patient got stuck in between the folding screens, highly septic with a blood pressure at 70/50. It’s not my intention to laugh, but who had the responsibility for what happened?”

“I notice with myself that if it is quiet in the triage, I receive the report in a completely different manner. I ask more questions. When I am busy, I just listen to what they have to say and that’s it!”

In addition to the issue of busyness and simultaneity, the nurses experience a priority conflict between “walking” and “bedside” Triage³, and feel a huge responsibility for taking care of all patients as one of the nurses expresses: “*They might be green (priority 4 or 5) the ones that come with an ambulance, they might be much worse the ones that is sitting outside. But you just have to take the report. They get prioritized because they arrive in an ambulance*”. There is also a management requirement that all bedside patients should be triaged within 10 minutes after arrival.

5. DISCUSSION

The findings presented above have shown that the perceptions and functioning of the handover protocol two years after the implementation show variation across disciplines and across levels of experience. Even though both disciplines are more content with the information flow and the dialogue than prior to the protocol, there are still challenges related to communication and information exchange, to the system surrounding the handover process, to attitudes towards the usefulness of formalized protocols, and to the knowledge of the handover protocol.

Relating this study to previous research studies on handovers, the results confirm many of the findings related to how handovers are perceived among different disciplines, and replicate many of the challenges for optimizing the handover process. Let us return to the eight factors identified in previous literature (as identified in section 2) to evaluate how the handover process described in our study can be assessed (see table 2 below).

| Success factors | “Our” handover process |
|---|--|
| Use a structured handover system based on principles of sound interaction and communication training | Yes |
| Use a structured format in the handover and a formal protocol for specific patient cases | Yes, but the same formal protocol used for all patient cases in Triage |
| Design and implement standardized handover protocols adapted to local conditions | Yes |
| Develop communication training and management in clinical teams | Yes, but only prior to the implementation of the protocol |
| Focus on active listening | Initially yes, but difficult in practice |
| Create a common language for all disciplines involved in patient handover | Initially yes, but difficult in practice |
| Create a mutual understanding of each others’ roles and tasks in the patient handover process | Initially yes, but difficult in practice |
| Hospital and department managers should map, improve and ensure quality in patient handover processes, and develop a plan for monitoring and evaluation | No |

Table 2. Assessing “our” handover process against success factors and conditions for development and practicing of a sound interdisciplinary handover process based on existing literature

As Table 2 indicates, many of the success factors were initially met in the design and implementation phase of the standardized handover protocol. Still, over time the organization did not pay enough attention towards maintaining the initial ideals and objectives of the process, and the handover practices in some way returned to “old habits”. In addition, differences in attitudes and perceptions among the two disciplines (ambulance personnel and ED nurses) involved require long-lasting and additional measures to change the practices of patient

³ Walking Triage is for patients that are ambulatory, but in need of acute hospitalization. Bedside Triage is for patients that are unable to transport themselves often arriving in an ambulance.

handovers. The system surrounding the handover practices with a lack of management focus, a lack of continuous interdisciplinary training, and a lack of integrating newcomers into the principles of the handover protocol also result in a handover process with room for improvement.

Based on the findings presented in this study the following changes to the protocol and its practical use should be considered by the ED at the current hospital: (1) Re-evaluate the form and use of the protocol; (2) Make the protocol more user-friendly (e.g. checklist in pocket format); (3) Map and communicate the challenges in protocol compliance for nurses and ambulance personnel respectively; (4) Re-vitalize ownership to the protocol (disciplines, management).

Finally, one might question the role of standardization in a setting that might occur as highly non-standardized, i.e. the ED of a large hospital. Research documents differences regarding the importance of standardization. Arora & Johnson (2006) argue for a standardized approach with direct face-to-face verbal communication with feedback as optimal handover practice, while Cohen & Hilligoss (2010) argue that studies so have not fully established that handover standardization have produced gains in measured patient outcome. They furthermore point to the fact that “to standardize” has not yet been developed with adequate clarity. Manser & Foster’s (2011) conclusion on the standardization issue is that while the effectiveness of standardization on handover communication still has to be established in systematic outcome studies, the discussion of a standardized set of key information shows positive effects in some areas (Haynes et al 2009). Further research will have to take a more systematic approach in establishing the causal effects of handover characteristics on safe care and identify best practices in safe handover and effective interventions within and across healthcare settings (Manser & Foster 2011).

6. CONCLUSION

As the research findings indicate, there exist differences in the way ambulance personnel and ED nurses perceive the importance and functioning of the handover protocol two years after implementation. Differences can mainly be explained by cultural issues such as attitudes towards formalized protocols and the handover process in itself, by organizational issues such as communication, management, and manning, and by individual issues such as experience and competence. Without a renewed focus on the handover protocol in forms of e.g. training, management attention, revision and/or evaluation, the risk of these different perceptions becoming a hindrance towards the functioning of the protocol is present.

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