Research

The identification of factors contributing to negative handover experiences of pre-hospital emergency care personnel in Johannesburg, South Africa

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Abstract

Introduction

The handover of a patient in the pre-hospital setting is different to other handover settings and therefore requires a different definition and description to that of other patient handover environments. Identifying those factors that affect the efficacy of handover could provide useful for formulating improvement strategies.

Aim

This research set out to describe the negative experiences of pre-hospital emergency care personnel handing over in the emergency centre in Johannesburg, South Africa, with a view to identifying potential areas for improvement. This paper reports on responses to an open-ended question that formed part of a purpose-designed, paper-based questionnaire that formed part of a mixed-methods study.

Methods

Data were collected from pre-hospital emergency care personnel within Johannesburg, South Africa. Responses from 140 participants were captured verbatim into Atlas.ti® for coding, analysis and interpretation using a qualitative descriptive methodology. Two themes were generated from a qualitative descriptive analysis of the data: communication barriers, and process barriers to emergency centre handover. These were confirmed by the categories and codes that made up these themes.

Conclusion

This study identifies some of the factors perceived by pre-hospital emergency care personnel to negatively affect emergency centre handover. It provides insights into how communication and process within the emergency centre have the potential to negatively impact emergency centre handover efficacy.

Keywords:

handover; paramedic; pre-hospital; emergency centre

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Introduction

Patient handover in the emergency centre environment is somewhat different to many other patient handover environments. Traditional definitions for patient handover have not encapsulated its characteristics as both a compound noun and a phrasal verb nor contextualised handover within the emergency centre. The authors have suggested a definition for emergency centre handover that caters for both its unique characteristics and the environment in which it takes place (1). Handover in the context of this study refers to 'the presentation and transfer of the patient and relevant information from the pre-hospital emergency care provider to the emergency centre'. Ineffective handover has been linked to a number of adverse events related to patient safety and it is important to explore strategies aimed at improving the emergency centre handover (2). The process of handing over a patient usually involves two people: the person delivering the handover and a person receiving the handover. Within the context of the emergency centre, the person delivering the handover is usually a pre-hospital emergency care provider and the person receiving the handover is usually a doctor or nurse. There are a number of factors that have the potential to affect the efficacy of handover in the emergency centre. Identification of these factors could provide useful information for formulating improvement strategies.

Some of the factors described in the emergency centre as impacting on handover include social interactions, communication skills, environmental factors such as interruptions, busyness of the emergency centre and a lack of handover standardisation (3). Emergency centres have been described as busy, overcrowded, noisy and distracting (4). The South African emergency centre is an environment that has been described as 'very busy' and this has the potential to negatively affect the process of handing over (5). Process barriers within the context of this study are any barriers to effective handover that can be attributed to the process involved in emergency centre handover. This busy environment is compounded by what has been described as 'the tyranny of busyness', a trait described as common among healthcare professionals that involves a compulsion to perform physical tasks around the area of the patient (6). The busyness of the emergency centre combined with the tyranny of busyness is likely to negatively affect the handover process.

Communication is one of the embedded components and functions of handover and the two are intricately linked (7). Communication problems have been identified by the Joint Commission as the root cause of many sentinel events (8). In fact, the Joint Commission estimate that 80% of serious medical errors involve miscommunication of healthcare practitioners during the transfer of patients (9). Communication in the emergency centre has been described as "ad hoc" and "opportunistic" (10) and interprofessional handover is a

potential area where there is a high risk of communication failure (11). Poor communication is a risk to effective handover and therefore also to patient safety. In the context of this study, communication barriers are defined as communication factors that have the potential to negatively affect effective emergency centre handover. It is important to identify and mitigate any communication barriers that may negatively affect handover within the emergency centre.

There is a need for more focussed research related to the factors perceived as negatively affecting handover within the emergency centre from the perspective of the pre-hospital deliverer of handover in the resource-constrained setting. The aim of the study was to describe negative experiences of South African pre-hospital emergency care personnel handing over in the emergency centre with a view to identifying potential areas for improvement.

Methods

Study design

A cross-sectional, convenience design was followed that used a purpose-designed questionnaire to gather data related to pre-hospital emergency care personnel's experiences of emergency centre handover.

Setting

Data were collected from both private and state-funded emergency medical services within the Johannesburg area in the South African province of Gauteng. Gauteng is the most populous province in South Africa (14.3 million people), despite being the smallest by area (17,010 km²) (12). South Africa experiences critical healthcare shortages that include facilities, equipment and healthcare personnel. Healthcare personnel shortages are evidenced by insufficient numbers of doctors (13), nurses (14) and pre-hospital emergency care personnel (15).

Participants

Participants were pre-hospital emergency care personnel from private and state-funded emergency medical services in Johannesburg, South Africa. The categories of pre-hospital emergency care personnel surveyed, and their relevant registration categories, were basic ambulance assistant (BAA register), ambulance emergency assistant (ANA register), critical care assistant and national diplomate (ANT register), emergency care technician (ECT register) and emergency care practitioner (ECP register). The Health Professions Council of South Africa is the regulatory body governing registration and scope of practice of healthcare providers in South Africa and the Professional Board for Emergency Care (PBEC) specifically governs pre-hospital emergency care personnel. Training is directly related to registration category (in brackets) and associated scope of practice. Basic ambulance assistants (BAA) were trained for 4 to 6 weeks, ambulance emergency assistants (ANA) for 16 weeks and critical care assistants for 9 months (ANT). Emergency care

technicians (ECT) completed a 2-year diploma and national diplomates a 3-year qualification (ANT). Emergency care practitioners completed either a 3-year national diploma followed by an additional year or alternatively a full-time 4-year degree at an accredited higher education institution (ECP) (15). The ECP, ANT and ECT categories are commonly categorised as advanced life support (ALS), the ANA category as intermediate life support (ILS) and the BAA as basic life support (BLS) with corresponding skills and procedures determined by the PBEC for each registration category.

At the time of data collection, the only source of verified information relating to the number of qualified personnel was the 2017 National Emergency Care Education and Training (NECET) policy document (15), but this policy only provided province-specific numbers for state-funded services. According to this document there were 679 state-funded ambulances with 1041 BAAs, 213 AEAs, 120 ECTs, 41 paramedics and 12 ECPs (15). The disparity between the total numbers in each HPCSA registration category meant that stratified sampling was not a practical strategy (15).

Sample size

Sample size determination was carried out using data from the NECET policy document that had been published while data collection was still underway (15). Within the province where the study took place the total number of pre-hospital emergency care personnel was 1427 and using an online sample size calculation tool (<https://surveysystem.com/sscalc.htm#two>) with a confidence limit of 99% and a confidence interval (margin of error) of 10%, the calculated sample size was 150. A convenience sampling strategy was employed to collect data and 290 questionnaires were distributed. A total of 175 completed questionnaires were collected, a response rate of 62%.

Instrumentation

The questionnaire was purpose-designed and comprised a mix of forced binary, Likert-type and open-ended questions. A pilot study was used to address reliability and validity relating to the questionnaire (16). The questionnaire was subsequently edited as directed by the pilot. Three open-ended questions explored participant opinions related to emergency centre handover. These open-ended questions asked participants to comment on what they felt made their own handovers 'good', what made the act of handing over a 'bad' experience in the emergency centre, and what could be done to improve the standard of handover within the emergency centre. This study was part of a larger mixed methods study and focusses specifically on responses to the open-ended question related to what pre-hospital emergency care personnel felt contributed to emergency centre handover being a bad experience.

Procedures

Potential participants were approached using a convenience sampling strategy at their places of work and the study was

introduced verbally. Paper-based information documentation, consent documents and the questionnaire were distributed to willing participants. Participants were required to sign a consent document before completing the questionnaire. Where requested, questionnaires and information documentation were left at the data collection site in a marked box for completion and collection at a later stage.

Responses to the open-ended questions were captured verbatim into a Word® (Microsoft Office, Microsoft Corporation, Redmond, WA) document. This document was imported into a computer-assisted qualitative data analysis software (CAQDAS) tool, Atlas.ti® (ATLAS.ti version 8, Scientific Software Development GmbH, Berlin, Germany) for coding, categorisation and analysis. Transcripts were read and re-read and careful reflection ensured limited over-reliance on the CAQDAS software as the driver of code generation (17). Manual inductive coding used open coding and followed a qualitative description strategy where the aim was to provide a rich, straight description of the handover from the perspective of the pre-hospital emergency care provider. This resulted in a description of informants' experiences in a language that was similar to the informants' own language (18). To evaluate the coding frame for consistency and validity, a second pass through the data was undertaken and codes reconsidered (19). Codes from the first round were compared to those from the second round and there was a high consistency between the two rounds.

Ethical approval

The study was approved by the University of Cape Town Faculty of Health Sciences Human Research Ethics Committee (HREC/ REF: 624/2012).

Results

Respondent demographics

There were 175 completed questionnaires collected in the Johannesburg area from 75 (43%) BAA, 49 (28%) ANA, 15 (9%) ECT, 16 (9%) ANT and 20 (11%) ECP participants. The nature of questionnaire distribution and collection meant that it was not possible to determine a response rate. Not all participants provided responses to the open-ended questions. There were responses recorded to the open-ended question from a total of 140 participants: 50 (67%) BAAs, 42 (86%) ANAs, 13 (87%) ECTs, 15 (94%) ANTs and 20 (100%) ECPs to the open-ended question reported on in this study. Not all respondents provided demographic information. The demographics of respondents who provided responses to the open-ended question are depicted in Table 1.

Theme identification

Two dominant themes emerged related to participants' negative handover experiences. These themes were classified as barriers to effective handover, namely, communication barriers and

process barriers. In the context of this study, communication barriers are defined as communication factors that have the potential to negatively affect effective handover and process barriers are any barriers to effective handover that can be attributed to the process of handing over. Several categories were identified under each of the two dominant themes. Dominant themes and categories are depicted in Table 2.

Theme 1. Communication barriers

In this theme, five categories supported the perception that negative handover experiences were dependant on certain aspects of communication between the deliverer and receiver of handover.

Category 1: Lack of interest from emergency centre personnel
Participants highlighted an apparent lack of interest displayed by the receiving healthcare professional in the handover being delivered:

- “...the receiving EC staff member appears disinterested, don’t listen, ignore important details...”
- “Doctor in a bad mood, this is negative because the doctor (or anyone else for that matter) is not interested in listening, only in being argumentative”.
- “...becomes irritating when the person receiving the handover doesn’t pay attention to the handover an aspect of the handover must be repeated”.
- “Staff often don’t listen to what you are saying, do not

seem to care”.

Category 2: Lack of knowledge related to pre-hospital qualifications and scopes of practice

Participants highlighted a perception that they were all painted with the same brush and that the emergency centre personnel did not have adequate knowledge related to pre-hospital emergency care qualifications and scopes of practice:

- “When I am looked at as if I just drive an ambulance and disregarded before I even start handing over”.
- “They think we are ambulance drivers with no intellect”.
- “Uneducated staff that don’t know the capabilities of EMS provider”.
- “A doctor that requires and asks things that are beyond my protocol”.

Category 3: Lack of respect

Participants highlighted a perception that there was not an attitude of respect towards pre-hospital emergency care personnel from the emergency centre personnel:

- “...when you arrive at EC and are treated like rubbish before you have even spoken a word to anyone”.
- “Lack of professionalism of the receiving practitioner, disrespect”.
- “It is when the other health practitioner or the EC disrespect you and undermine your profession”.

Category 4: Lack of general understanding between pre-hospital

Table 1. Open-ended question respondent registration category and levels of experience

HPCSA register	<5 years % (N=)	5-10 years % (N=)	10-15 years % (N=)	>15 years % (N=)	Median (IQR)
BAA	37% (11)	50% (15)	10% (3)	3% (1)	6 (5)
ANA	11% (4)	24% (9)	38% (14)	27% (10)	13 (8)
ECT	25% (3)	25% (3)	33% (4)	17% (2)	10.5 (8.75)
ANT	7% (1)	33% (5)	27% (4)	33% (5)	14 (12.5)
ECP	22% (4)	33% (6)	28% (5)	17% (3)	6.5 (7)
Total	21% (23)	34% (38)	27% (30)	19% (21)	

IQR = interquartile range

Table 2. Dominant themes and categories related to pre-hospital emergency care personnel's negative emergency centre handover experiences

Dominant theme	Category
Communication barriers	Lack of interest from emergency centre personnel Lack of knowledge related to pre-hospital qualifications and scopes of practice Lack of respect Lack of general understanding between pre-hospital and emergency centre personnel due to qualification differences Poor or negative body language
Process barriers	Appropriate personnel unavailable to hand over to Receiving personnel distractions Interruptions during handover Having to hand over multiple times Not allowing for completion of handover

and emergency centre personnel due to qualification differences. Participants identified an apparent lack of understanding related to the patient handover between the pre-hospital emergency care and the emergency centre personnel and attributed to difference in qualification and scope:

- “When the staff at the ED are not trained and don’t comprehend what I have just said”.
- “Handing over to staff that are unqualified to interpret in a meaningful way the information you are providing”.
- “If I had to handover the pt to someone that is low[er] qualified than me, it always makes things difficult for me and the patient because I will waste more time explaining each and everything that will delay treatment to the patient”.

Category 5: Poor body language

Participants identified poor body language as a contributor to a negative handover experience:

- “When the person receiving the handover does not actively listen or make eye contact”.
- “... lack of eye contact, dismissing body language...”.
- “Body language and tone, negative”.
- “Poor body language”.

Theme 2. Process barriers

The theme related to process barriers highlighted that the emergency centre was an inherently busy place. This busyness was the source of many of the process barriers associated with a negative handover experience and was supported by the five categories identified.

Category 1: Appropriate personnel unavailable to hand over to
Participants linked the general busyness of the emergency centre with appropriate emergency centre personnel not being available to receive handover:

- “Not find[ing] any sister or nurse at triage”.
- “No person for handover to”.
- “Bay units with no staff available or triage offices to take handover”.
- “There is not always a designated person to handover to”.

Category 2: Receiving personnel distractions

Participants linked the inherent busyness of an emergency centre with staff being distracted and with unnecessary delays in handing over:

- “Busy personnel that cannot give you undivided attention when handing over”.
- “Busy trauma centres which distract staff from listening to paramedics busy handing over”.
- “We sometimes spend 3 hours in hospitals only for handover of the patients because of the doctor who is still busy attending to other critical patients”.
- “When casualty / ED are too busy and staff can’t listen”.

Category 3: Interruptions during handover

Participants identified interruptions as a source of frustration

and contributed to a negative experience when handing over. This was also linked to being interrupted for information that had already been given:

- “Being interrupted for information that you have already given”.
- “When I am interrupted by the individuals asking questions, especially if I am getting to it that I have already mentioned it”.
- “They take over the handover, ask some very basic questions and do not allow the opportunity to allocate other significant finding”.

Interestingly, one respondent mentioned that interruptions from fellow pre-hospital emergency care personnel were also a negative factor in emergency centre handover:

- “Interruption from fellow crews or additional comments from them also constitute to bad handover experience for me”.

Category 4: Having to hand over multiple times

Participants identified having to hand over multiple times as a contributor to negative handover experience:

- “When ED staff change between or during a handover and you need to repeat”.
- “Multiple handovers (handovers to nursing staff, then to another doctor)”.
- “...having to repeat yourself multiple times as well as when the nurse takes handover but doesn’t communicate with her friend and have to repeat again”.
- “Repeating yourself more than three times”.

Category 5: Not allowing for completion of pre-hospital handover
Participants linked emergency staff who did not allow them to complete their handover before starting patient interactions and treatment as a contributor to negative handover experience:

- “Starting to [treat] the patient whilst handover is in progress”.
- “Practitioners that start assessing patients whilst you are still talking”.
- “Staff not allowing you to complete your handover before taking over the patient”.
- “An irritable doctor. A doctor who makes a diagnosis before he hears the handover”.

The perception of how negative emergency centre can be for the pre-hospital emergency care provider is summed up in the following quote: “I hate the attitude towards me when handing over [a] patient”.

Discussion

This study explored pre-hospital emergency care personnel perceptions of factors that contributed to emergency centre handover being a negative experience for them. The recent focus on handover from a patient safety perspective highlights its importance within the patient care continuum. Factors that

negatively affect the efficacy of handover require identification so that mitigation strategies can be formulated.

Participants identified a lack of interest and poor body language in receivers as a communication barrier to effective handover. Lack of active listening during emergency centre handover has been identified in several studies (20,21). Body language is often an indicator of active listening and is an important component of handover communication (22). Lack of active listening has been linked to frustration (23), perceptions of disinterest (21), missed information (24) and the need for repetition (20). Many of the negative experiences identified in this study can be linked to a lack of active listening. Improving active listening techniques in both deliverers and receivers of emergency centre handover has the potential to improve handover efficacy.

The need to repeat handovers was identified by participants as a barrier to an effective handover process. Repetition is associated with the need to perform multiple handovers. Multiple handovers occur up to 91% of the time (25) and are often as a result of escalation of care (26). Multiple handovers have been associated with lost or changed information, sometimes referred to as being 'hard to keep a consistent story' (20,27). Multiple handovers elicit feelings of frustration on the part of the person delivering the handover (20,24,28,29). The theme of frustration was one highlighted by participants in this study.

Interruptions during handover were identified by participants as a barrier to effective handover. The busyness of the emergency centre often results in interruptions to handover. Interruptions have been identified as one of the most frequent barriers to effective handover (30-32). Up to one-third of communication events within the emergency centre have been classified as interruptions (33). Interruptions have been categorised as 'the most significant barrier to effective handover' (30). It is notable that interruptions to handover have been linked to clinical error (34-36). Limiting interruptions to handover may improve handover and by extrapolation, patient safety. Strategies should be explored that limit handover interruptions, an example of which is the implementation of the 'sterile cockpit' strategy (37).

The frustration associated with the perception of being poorly understood as a professional by other medical professionals was identified by participants and is not one that is unique to this study. Studies suggest that there exists a lack of awareness between emergency centre and pre-hospital personnel of each other's duties, responsibilities and problems (20). There is a need for a shared understanding related to scopes of practice between pre-hospital emergency care personnel and emergency centre staff (38). A shared understanding correlates with handover quality and shared understanding has been identified as a key component of safe and effective clinical handover (39). Evidence indicates that the more professionals know about each other's working environments and roles, the greater their awareness of each other's relevant tasks and the more efficient handover becomes (38,40-42). Participants in this

study highlighted the apparent lack of shared understanding due to differences in scopes of practice. These differences in scope may result in what may be perceived as disinterest but may in fact be an inability to share a complex clinical picture of the patient (43). The range of qualifications and training may be contributing factors to a potential inability to create a shared picture of the patient. For example, a doctor receiving a handover may request information that may not be within the training nor scope of a BAA. This would confirm the link between the perceived lack of knowledge that emergency centre personnel had related to pre-hospital qualifications and their scopes and the concept of shared understanding.

The perception of participants in this study that there was a lack of respect for them by the emergency centre staff is one that has been described elsewhere (24). There is evidence to suggest that this perception is reciprocal where emergency centre staff feel disrespected by ambulance personnel (44). These perceptions have the potential to negatively affect handover from the outset and need to be addressed. Munro recommends the promotion of a culture of mutual respect between professionals (45). Potential solutions could include interprofessional education and cultural sensitisation for both deliverers and receivers of emergency centre handover.

This study does not suggest that negative handover perceptions are unique to the pre-hospital deliverer of handover. Indeed, a similar study is needed where perceptions from the emergency centre personnel are explored to provide a balanced and holistic view of emergency centre handover.

Conclusion

The busyness of the emergency centre is unlikely to change in the foreseeable future, meaning that effective resource utilisation is the cornerstone of emergency centre operations. Negative experiences of deliverers of handover have the potential to adversely affect handover efficacy and thereby threaten patient safety. Effective handover is a strategy that has the potential to improve efficacy of emergency centre operations and the findings of this study suggest some areas where emergency centre handovers can and should be improved.

Limitations

This study has several limitations. Participants were drawn from one specific geographical area and the convenience sampling strategy may have resulted in under- or over-generalisation of the results. The sample size was limited in number and was not stratified in line with the population. Further research is required to better understand challenges to emergency centre handover as perceived by pre-hospital emergency care personnel. It is imperative that emergency centre personnel's perceptions are also investigated to ensure that the two-way nature of handover is sufficiently explored from both the deliverer and receiver

perspectives. While this study adds to the body of knowledge related to emergency centre handover, more wide-reaching research is needed to evaluate and mitigate risks to effective handover.

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Competing interests

The authors declare no competing interests. Each author of this paper has completed the ICMJE conflict of interest statement.

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