

# Handover of Patients From Prehospital Emergency Services to Emergency Departments

## *A Qualitative Analysis Based on Experiences of Nurses*

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### ABSTRACT

**Background:** During the transfer of patients, both ambulance and hospital emergency service professionals need to exchange necessary, precise, and complete information for an effective handover. Some factors threaten a quality handover such as excessive caseload, patients with multiple comorbidities, limited past medical history, and frequent interruptions.

**Purpose:** To explore the viewpoint of nurses on their experience of patient handovers, describing the essential aspects of the process and areas for improvement, and establishing standardized elements for an effective handover.

**Methods:** A qualitative research method was used.

**Results:** Nurses identified the need to standardize the patient transfer process by a written record to support the verbal handover and to transmit patient information adequately, in a timely manner, and in a space free of interruptions, in order to increase patient safety.

**Conclusions:** An organized method does not exist. The quality of handovers could be enhanced by improvements in communication and standardizing the process.

**Keywords:** communication, emergency department, handover, nursing, prehospital emergency services

The process of handing over a patient is defined as the transfer of responsibility, clinical information, and care of a patient from one health care professional to another.<sup>1,2</sup> This process involves a series of actions, which guarantee the coordination and continuity of care.<sup>3</sup> How-

ever, handovers are not devoid of risks due to factors inherent to the organization of prehospital emergency medical services (PEMS) and hospital emergency departments (EDs), which can result in errors in communication during the transfer of patients between health care professionals.<sup>3</sup> These factors include the diversity of patient conditions attended to by such services, more than one health care professional caring for any given patient, limited information about the patient's medical history, excessive caseload, limited time frames, and continuous interruptions.<sup>4,5</sup>

Likewise, PEMS have only one opportunity to transfer information to the ED, and as such, whatever data are not transmitted, acquired, or recorded in the patient's clinical notes during handover are lost.<sup>4</sup> These circumstances can lead to discontinuity in care, increased variability in clinical practice, decreased procedural integrity, and the occurrence of adverse events in up to 60% to 80% of cases.<sup>6,7</sup> To counteract such unfavorable situations in the organization, standardization and consistency of the handover process, to enhance the effectiveness of communication during handover, is needed.<sup>8-11</sup>

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## **BACKGROUND**

A number of authors have performed research on strategies for improving handover in a range of contexts, from operating room to pediatric intensive care units.<sup>12,13</sup> All of them found that using checklists reduces data loss and medical errors related to failures in communication, improves information content at handover and the quality and reliability of the information transmitted, and enhances clinical safety.<sup>13,14</sup> Klim et al,<sup>15</sup> in a survey and group discussion forum with ED nurses, identified that the information received, the past medical history, and vital signs of the patient were not checked for accuracy by most health care professionals, resulting in an inadequate and poor-quality handover.<sup>16</sup> It is worthy of note that studies related to the transfer of patients between ambulance services and EDs are limited.<sup>10</sup> Due to the fact that the lack of standardization of handovers increases the likelihood of adverse events, the purpose of this study was to explore the viewpoint of nurses on their experience of patient handovers, describing the essential aspects of the process, identifying the weak points, and establishing standardized elements for an effective handover.

## **METHODS**

A qualitative study design was used within the theoretical framework of a content analysis. To systematically organize the resultant data,<sup>17</sup> semistructured, face-to-face interviews were recorded in an audio format, transcribed verbatim, and analyzed by 3 independent researchers who did not participate in the interviews.

All participants were informed of the aim of the study, the methods used, and how they would participate. Prior to being interviewed, informed consent was obtained, and we received authorization from the PEMS management and hospital management team to which the personnel interviewed belonged.

### **Sample**

The initial study sample consisted of 30 nursing professionals from the province of Alicante (Spain). Recruitment was performed via nonprobabilistic intentional sampling, which included nurses working in PEMS and EDs who met the following inclusion criteria: currently employed and having at least 2 years of experience in these specialist areas. Finally, 12 nurses

satisfied the inclusion criteria and participated in the study. Seven of them were female, and the mean age was 36.2 years. Their average years of experience were 11.6, and half of the participants were from PEMS.

### **Procedure**

Once participants had been selected, one research team member contacted them via e-mail. Then, the study was explained, and they were invited to participate. The interviews were held from March to April 2017. The particular areas of interest of the study were included in the formulation of 10 open-ended questions, based on the literature review and the specific aims of the project. Nurses were asked about: (1) standardization of the process, (2) effectiveness of the transfer process, (3) essential elements to handover, (4) organization of information, (5) prompting the information to be provided or received, (6) communication techniques, (7) a proper handover, (8) key information, (9) information to continuity of care, and (10) improving the status quo of the transfer of care.

### **Data analysis**

Researchers ensured the data gathered from the interviews were coherent and accurate. The interviews were recorded in a digital audio format, transcribed verbatim, and subsequently provided to the participants for the accuracy of the transcription to be corroborated. The data were processed using a qualitative content analysis methodology.<sup>18</sup> The interviews were analyzed via data triangulation, applying an open codification system, which consisted of assigning emergent codes to each paragraph or sentence according to their meaning. These codes were classified into groups according to similarity. Subsequent to identifying patterns in the transcriptions, the classifications were divided into topics and subtopics.

Data saturation was reached once 10 interviews had been transcribed and triangulated by the research team. Informatics software was not used in performing the content analysis. Once potential differences with regard to the available literature and/or conceptual frameworks were identified, the content was examined, and consensus reached on the more relevant data related to each topic and subtopic. The reliability of qualitative data was achieved via a systematic process of data gathering and analysis.<sup>19</sup>

## RESULTS

Four topics and 11 subtopics were generated, as shown in the Supplemental Digital Content, Table, available at: <http://links.lww.com/JNCQ/A463>.

### Standardization

Within this topic the subtopics were: protocols, clinical safety, and patient-family participation. Standardization is the process by which an activity is performed in a previously established methodical manner, subject to consensus as the acceptable procedure for performing certain types of activities or functions.<sup>20</sup>

When the nurses were asked whether they considered it necessary to standardize the transfer process, all agreed that the standardization of the process was essential. Furthermore, 6 of them stated that standardization could avoid data loss, errors, and mistakes. Consequently, the standardization of the handover process would improve clinical safety. A nurse stated, "Standardizing the process would be of interest to avoid omissions and errors and for everyone to work in a more homogenous way." Also, another said, "If a protocol existed, we could avoid gaps in information."

### The transfer process

The following subtopics were included with this area: patient details, data organization, and hospital organization. Regarding the question of which information should be included in the transfer process, all of the nursing professionals surveyed highlighted the following areas as important: the presenting complaint or reason for referral, personal history, allergies, treatment or care received, and medications administered. Six of nurses considered it essential to know about the previous condition of the patient and the effectiveness of any treatment administered. Only one of the participants felt it unnecessary to be informed about IV line, catheters, or oxygen therapy, stating that visual cues are retained and thus they did not require such information to be reported.

The ED nurses highlighted the need to obtain information about the patient and any nursing tasks performed prior to their arrival. A nurse stated:

The handover brought in by PEMS should include any nursing tasks that have been performed (IV line), the presenting complaint, and

main actions performed, and above all, whether they have had the time or the opportunity to speak with the patient and family members...[to identify] drug allergies and main medical conditions contributing to the patient reaching a critical state ... to know if they found the patient lying on the floor, if they have seen home oxygen equipment in the house, any information one can get is always good to know, especially in emergency cases.

It is noteworthy that each nursing professional organized information in different ways. They expanded or dismissed information according to their clinical judgment and mental schematics as a way to assimilate, organize, and transform information into knowledge.<sup>21,22</sup> A nurse stated, "Before reaching the hospital, I review everything in my mind, all the medication that has been administered, all the interventions, the situation the patient has been through." Another nurse said, "I use the following mental schematic: the reason the patient is being transferred, medication administered, IV line, vital signs." Another nurse said, "I don't use any method for organizing the information in my head. Visual signs, oxygen therapy, IV line, urinary catheter, the way the patient arrives... your eyes pick all that up and you instantly memorize it ... What I do try to memorize is the medication that's been given."

The health care professionals surveyed also believed that an essential part of patient transfers lies in hospital management defining who should be responsible for taking handover. A nurse stated, "When you work in different places, then you see different receiving hospitals' systems. There are hospitals where you are directed to triage and you speak with a nurse, hospitals where a physician comes out, hospitals where nobody comes out and you have to go and find someone, because they might be busy with other things, so I think it also depends on the receiving hospital's organization." Other nurse said, "Some aren't wearing proper identification, and I know some are nurses and others aren't."

### Communication

There were 2 subtopics included here, communication with the appropriate person and the need to apply communication techniques to ensure the correct transmission of information provided/received. Communication is defined as the exchange of information between a speaker

and a listener.<sup>20</sup> The participants highlighted the importance of information being provided to the health care professional who will be responsible for the patient. They also underlined the value of information being handed over between professionals of the same role. A nurse stated that is important to “know who I have to handover to, which nurse, because sometimes you don’t know the staff... they should identify themselves clearly, to know who is giving and who should be receiving the handover of the patient.” Another nurse said, “Actually, PEMS colleagues don’t seek out the nurse who will be assigned to that patient, we have to ask. Because there is no protocol, one has to insist to get information ... in PEMS, there is only one opportunity for communication, and you need all the complete details: diagnosis, procedures performed and medication given, all those basic things, but in a more accessible place, perfectly visible.” A nurse added, “I think the nurse who will be looking after the patient should be the one receiving handover.” Handover is “a little chaotic, because the PEMS nurse hands over to a ED nurse who happens to pass by. I think there should be an officially designated receiving nurse.”

Only 2 participants, 1 PEMS and 1 ED nurse, believed it necessary to check the information received with a physician, “I ask the physician about any details I’ve missed, in order to make the information to be handed over complete.” The other nurse said, “I often listen to what the PEMS physician tells the ED physician, since the information is more complete than that provided by the nurse. Other times, once the handover has been given. I compare my information with that of the physician.”

Regarding communication techniques, participants were asked about their use of active listening techniques such as clarification, paraphrasing, and feedback.<sup>23,24</sup> A nurse stated, “People respond affirmatively, as if they are listening to you, but you don’t know if it’s an automatic response, you don’t know if they are really capturing the information or not. I think there is a lack of feedback.” Another nurse said, “Often the nurse tells me the medication that’s been given, and I repeat this back. I focus on what seems important to me, but I don’t retain all the information the nurse has told me, and a lot gets lost.” A nurse added, “I use feedback: I repeat what I can remember in case I’ve missed some-

thing.” In addition to verbal feedback, nurses use nonverbal communication techniques as a tool for confirming receipt of the message.

### Clinical records

Three subtopics were identified: on the verbal handover and written and digital medical records. Clinical records are confidential documents that contain patients’ clinical information. This information includes educational and other patient characteristics and constitutes an important administrative element.<sup>25</sup> Currently, this information is recorded either on paper or in a digital format; however, handover between PEMS and the ED is transmitted verbally.

The interviewees underscored the need to support this verbal handover with a recorded format without the need for duplicating information. A nurse stated, “If it were backed up with a written document it would be fantastic ... an easy-to-read document, not overly lengthy, in which any interventions performed on patients, the relevant past medical history, the medication given, and the reason for the referral are recorded.” Another nurse said, “The referral form the physician receives actually includes a nursing section, but it’s unreadable, with abbreviations.” A nurse specified, “A handover form exclusively for nurses isn’t necessary ... the current form could be modified ... even if there were 2 copies: one for the nurse and another for the physician, because both should have access to the same information.”

### DISCUSSION

The present study described the key experiences of Spanish PEMS and ED nurses regarding the transfer of patients. In line with our results, a range of authors describe the ideal transfer process as a structured system, either on paper or in a digital format, which allows the recording and permanent storing of information to support the verbal handover and organize essential patient data.<sup>5,11,26-28</sup> To implement standardization would reduce data loss, and improve patient safety and professional satisfaction.<sup>1,8,29-31</sup> According to Dubosh et al,<sup>32</sup> the use of checklists would reduce errors in care and memory.

The interviews highlighted the need to assign an ED nurse to take handover, who should be easily identifiable by PEMS staff and involved in the subsequent care of the patient. This concurs with literature on handovers between health care

professionals and other individuals and family members to improve relevant information transferred.<sup>4,5,30,31,33</sup> Information that should be included in the handover process, which most participants stressed, was patient identification, reason for referral, medical history, procedures performed, and medication administered. There are several classification systems such as the I-PASS (Illness severity, Patient summary, Action list, Synthesis by receiver, Summary by receiver) system for organizing data, which could be used.<sup>33-35</sup>

To ensure an effective exchange of information, participants consider the need for a good communication skill. The individual behavior during the communication processes is key to the correct reception of messages in noisy, stressful environments with constant interruptions.<sup>5</sup> It is therefore important to have active listening techniques, which facilitate communication and reduce barriers.<sup>4</sup> Consistent with Greenstein et al,<sup>36</sup> the communication techniques described and used by the participants were feedback, clarification, taking notes, and access to a handover form. They recognized that ways to complete the communication process were underutilized.

### Limitations

The data collected reflect the experience of PEMS and ED nurses from the province of Alicante (Spain). The entire PEMS have the same organization: ambulances' teams are formed by the physician, nurse, and technician, or by the nurse and technician. Every team has to transfer the patient to the ED after their advanced live support, and the nurse always has to be responsible for the process. However, findings may be generalizable to other areas that do not possess similar organization systems or characteristics.

### CONCLUSIONS

The present study demonstrates the need to standardize the patient transfer process between PEMS and ED professionals, to improve communication, avoid data loss and adverse events, and thus increase clinical safety. The essential information to include in patient transfers is the reason for referral, past history including any information relevant to the case, drug allergies, and procedures performed with an emphasis on drug administration and response to treatment.

The following steps are proposed for performing adequate patient transfer: first, identify the

receiving nurse for the patient; second, subsequent to presenting themselves, the PEMS nurses should handover the relevant patient information in the following order: patient identification, reason for the referral, past medical history, and baseline, whether they know each other, procedures performed prior to arrival, and the patient response to treatment; and third, the ED nurse should confirm the correct receipt of all information, repeating it back or asking questions and requesting clarification as needed. Verbal communication should be backed up at all times with written material provided by the PEMS nurse.

The standardized patient transfer process between PEMS and ED nurses should be structured to organize and store patient information. That will help reduce errors in care and data loss, as well as avoiding adverse events, and improving patient safety and professional satisfaction.

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