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2022-07

Ivic , R , Vicente , V , Kurland , L , Svensson , J , Klintemård , R S , Castren , M & Bohm , K 2022 , ' Pre-hospital emergency nurse specialist's experiences in caring for patients with non-specific chief complaints in the ambulance - A qualitative interview study ' , International Emergency Nursing , vol. 63 , 101178 . https://doi.org/10.1016/j.ienj.2022.101178

http://hdl.handle.net/10138/346470
https://doi.org/10.1016/j.ienj.2022.101178

International Emergency Nursing 63 (2022) 101178

Contents lists available at ScienceDirect

International Emergency Nursing

journal homepage: www.elsevier.com/locate/aaen

Pre-hospital emergency nurse specialist's experiences in caring for patients with non-specific chief complaints in the ambulance – A qualitative interview study

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ARTICLE INFO

Keywords:
Emergency medical services
Non-specific chief complaints
Emergency medicine
Nursing
Pre-hospital emergency nurse
Pre-hospital assessment

ABSTRACT

Background: Pre-hospital emergency nurse (PEN) specialists are faced with patients presenting with non-specific chief complaints (NSC) to the emergency medical service (EMS) on a daily basis. These patients are often elderly and one in three has a serious condition and their acuity is not recognized.
Objective: The aim of the current study was to explore PEN specialists' experiences in caring for patients presenting with non-specific chief complaints.
Design: A qualitative study design with eleven individual interviews of PENs, between 2018 and 2020. Qualitative content analysis was used.
Results: The analyses generated three categories including subcategories. The categories were "Unexplained suffering". "Systematic approach and experience enhances medical safety". "Organizational processes can be optimized". The relation between the categories compiled as´In-depth systematic assessment is perceived to reduce suffering and increases patient safetý.
Conclusion: The PENs experiences in caring for patients presenting with non-specific chief complaints show that an in-depth systematic assessment may lead to a meaningful caring encounter which enables the identification of the cause of the chief complaint. Experience and a systematic approach were considered as essential to enhance medical safety. This could be strengthened through feedback on the nurse's care provided by care managers and employers. To optimize organizational processes, the development of the opportunity to convey the patient to different levels of care can be an important component.

1. Background

Pre-hospital emergency nurse (PEN) specialists are faced daily with patients presenting with non-specific chief complaints (NSC). The NSCs are typically vague symptoms, such as "affected general health condition", "general malaise", "sense of illness" or "just being unable to cope with daily activities" and are often accompanied by a lack of deranged vital signs [1–3]. Patients presenting with NSCs to the EMS are often elderly and one in three has a serious condition [4]. Notwithstanding, they are often under-triaged [5–7] despite high mortality rates [4,8]. Assessing and caring for patients presenting with NSCs may be both challenging and complex for EMS personnel in general, due to assessment algorithms and triage-models being based on vital signs and specific symptom presentations. Assessment and treatment guidelines are lacking for NSCs, and therefore leads to subjective assessments [6,7].

A caring encounter arises when the nurse meets the patient. [9]. The PENs need to be prepared and to take responsibility for the caring encounter [10] and the encounter depends on the professional-patient

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https://doi.org/10.1016/j.ienj.2022.101178
Received 8 July 2021; Received in revised form 5 April 2022; Accepted 4 May 2022
Available online 20 June 2022

relationship and communication [11]. In one of the Nordic traditions of caring science and nursing, caritative caring theory encompasses the concept of suffering, where suffering related to illness is the focus of professional care, experienced in relation to illness and treatment [12,13]. In order to see and understand the patient's experience of suffering, the caregiver must strive to see every patient as a unique individual and to involve the patient in the given care [14]. Patients presenting with NSCs may not be able to account for the cause of their suffering which may be challenging for the caregiver when attempting to identify the cause of the complaint [4,15,16]. To our knowledge, the PENs experiences when caring for patients presenting with NSCs to the EMS has not previously been described. Therefore, the aim of the current study was to explore PEN specialists' experiences in caring for patients presenting with NSC.

2. Methods

2.1. Research design

The current study has been performed using a qualitative study design [17]. Interviews were conducted and analyzed to explore PEN specialists' experiences in caring for patients presenting with non-specific chief complaints to the EMS.

2.2. Setting

The current study was conducted in the Region of Stockholm, Sweden, which in 2018 had a population of approximately 2.3 million and the EMS in the Stockholm had approximately 230,000 assignments. The Region was responsible for operating the EMS, and the service was provided by one region-owned company and two private companies. There were 76 ambulances in Stockholm daytime and 40 night-time. All ambulances in Stockholm, Sweden are manned by one registered nurse (RN) with an additional one-year specialist training at university level, including a master thesis, and an emergency medical technician (EMT) or a second RN. Many of the registered nurses with a specialist degree in the ambulance service have a professional degree in Specialist Nursing in Prehospital Emergency Care, with a restricted professional title of "pre-hospital emergency nurse (PEN)".

2.3. Participants and data collection

Data collection included a purposeful sample of PENs, i.e selecting participants that will most benefit the studýs aim [18]. Inclusion required that the participants were clinically active in the EMS in the Stockholm Region with a minimum of one year's experience as a PEN, lived experience of caring for patients presenting with non-specific chief complaints and consented to participate. Invitation to participate was sent to all active PENs in Stockholm Region meeting the inclusion criteria, via their respective employer. The first eight PENs who wanted to participate were included in 2018 as part of two of the authors' master's thesis. An additional three interviews were added in 2020 to explore if new information was described from the participants according to the study aim, and to strengthen the trustworthiness. Interviews were performed at times and places chosen by the participants, [18,19]. The interviews lasted from 25 to 62 min (mean 35 min) and were recorded digitally, anonymized and transcribed verbatim.

The interview began with an open question, "Can you tell me about your experiences in caring for patients with non-specific chief complaints?". The question prompted the informant to share experiences about the care of patients with non-specific chief complaints. The question was supplemented by follow-up and support questions such as "Can you develop / tell more?", "how did you feel about it then?" and "can you tell me about a patient encounter?". The follow-up and support questions could vary between the interviews depending on how the informant responded and the purpose was to develop the informants' stories. They led to in-depth stories about informants' experiences, feelings, and thoughts about the care of patients with non-specific chief complaints [18,19].

Data collection continued until no new information was obtained from the interviews [18].

2.4. Analysis

A qualitative inductive content analysis [17] was used to analyze the collected data. The analysis was based on three phases, preparation-, organizing- and, reporting phase. In the first phase, the preparation phase, the interviews were transcribed verbatim. The transcribed material was read repeatedly, in order to create a deeper understanding of the whole of what emerged in the interviews [19]. In the second phase, the organizing phase, the collected material in the form of transcripts was divided into meaning-bearing units and organized by clustering the units into codes to identify similarities and discrepancies in the collected data. The codes were then sorted into broader sub-categories. This was done to get an overview of the different experiences that emerged in the texts that corresponded to the study aim. Subcategories were abstracted and merged into categories that corresponded to aim of the study. In the third phase, the reporting phase, the results have been presented by subcategory, category and main category. The various categories describe and develop the main category [17] (Fig. 1). The different phases were discussed to achieve consistency among JS, RSK, RI, VV and KB. During the entire analysis there was a continuous movement between the interviews, codes, sub-categories, categories, and the main category, to preserve the essence of the reported experiences.

The continuous movement during analysis and discussions was a systematic approach to account for the researchers pre-understanding [20]. The researchers pre-understanding included knowledge of the EMS setting, emergency medicine and emergency nursing as well as personal attitudes and experiences in caring for these patients in the EMS context.

3. Results

The exploration of pre-hospital emergency nurse specialists' experiences in caring for patients presenting with non-specific chief complaints resulted in three categories and one main category, displayed in Fig. 1, and illustrated by quotations.

3.1. Unexplained suffering

In the category unexplained suffering the participants experience that the caring encounters with patients presenting with NSCs are complex, and they struggle to find a reason for the suffering the patient tries to express. The information obtained from next of kin or related parties is considered of great importance for the continued assessment of the patient. The category is supported by two subcategories: absent reason for suffering and next of kin, an important source of information, which are described below.

3.1.1. Non-specific reason for suffering

The participants described patients with non-specific chief complaints and that the causative could be difficult to identify. They acknowledged that the patient experiences their complaints as a vague kind of suffering. It was difficult to identify the cause of suffering and the patients themselves had difficulties to pinpoint the origin or the focus of the symptoms. Therefore, the participants considered it important to try in an educational way to help the patient describe their perceived suffering. The PENs wanted to find symptoms in order to initiate treatment or exclude certain specific conditions, but it was not always possible. This could be frustrating as there was a desire to help and alleviate the patient's suffering.

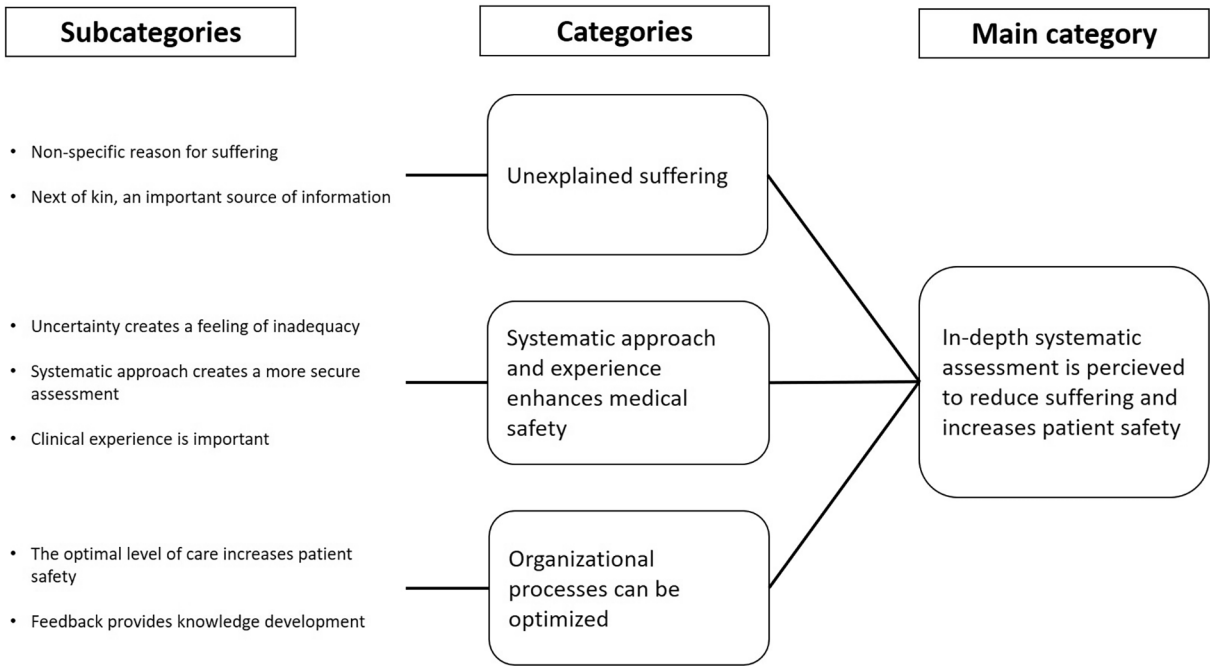

Fig. 1. Flowchart of subcategories and categories forming the main category.

"…becomes difficult when they… when they do not show any signs of deviating vital signs or in the anamnesis, it does not appear…" (Interview #3)

3.1.2. Next of kin, an important source of information

The participants felt that next of kin or other care givers such as home care personnel are of great importance when assessing patients with non-specific chief complaints. They can provide valuable information about the patients' habitual state. Furthermore, it may be difficult to find specific symptoms in cases when the next of kin or other caregivers are not present and can confirm the patient's habitual state.

"We never met him or her before, and we don't know how it is in normally, what is different or not" (Interview #4)

3.2. Systematic approach and experience enhances medical safety

The category systematic approach and experience enhances medical safety, is based on feelings of uncertainty and inadequacy that may arise when encountering the patients presenting with NSCs due to absence of specific symptoms. Those feelings can be managed by the utilization of a systematic approach while assessing the patient. The knowledge based on experience was a contributing factor towards a perception of increased patient safety and more accurate assessments. This category is supported by the subcategories: uncertainty creates a feeling of inadequacy, a systematic approach creates the perception of a more secure assessment, and clinical experience is important in the absence of objective findings, as described below.

3.2.1. Uncertainty creates a feeling of inadequacy

It is important to listen to the patient and ask key questions to capture which symptoms, and how they express these, in an attempt to create a picture of what care the patient needs. Taking the necessary time to assess the patient and their needs was also one of the key factors to compensate for the perceived feeling of inadequacy. Another dimension of the uncertainty the PENs experienced was the fear of missing something important, something that could result in adverse events for the patient if overlooked. The nurses perceived the assessment of patients presenting with NSCs as difficult and challenging. Experiences of frustration also emerged during the interviews concerning the feeling of insufficient knowledge of patients with non-specific chief complaints that could lead to something serious being overlooked.

"And when I fail, when I feel that I do not really know… what kind of problems this patient really has and needs help with, then I get frustrated… and… I'm really mostly frustrated with myself because I'm not good enough or knowledgeable or skilled or whatever it is that is missing" (Interview #2)

3.2.2. Systematic approach creates a more secure assessment

The participants experienced that using a systematic approach created the perception of a more accurate assessment of the patient. According to the PENs, the importance of a comprehensive history and assessment are key in the meeting with and during the care of patients with non-specific chief complaints. The patient's living environment is an important part of the assessment since it contributes by adding knowledge about the patient's ability to care for themselves and can be an indicator of what level of care is needed. An important meeting was created by respecting the uniqueness and treating each patient with respect.

"a detective work where you put together some kind of puzzle based on many different components ranging from a physical examination of the patient to… an assessment of… context… the environment they live in…" (Interview #2)

3.2.3. Clinical experience is important

The participants found that clinical experience helps to understand patients with non-specific chief complaints, as this patient group requires a higher level of competence in the care meeting than other acute patients. The participants said that knowledge was acquired through experience. More patient meetings led to a higher sense of confidence and medical safety. The participants mentioned the importance of using clinical gestalt and told of a feeling, a gut feeling, which many times could signal that something was wrong, even when there was nothing objective or obvious to confirm this feeling.

"experience still provides medical safety, I think to some extent, because you know what to look for in a different way." (Interview #6)
"my gut feeling says something is wrong, but you won't find anything there and then" (Interview #4)

3.3. Organizational processes can be optimized

The category: organizational processes can be optimized, showed that the perceived complexity of patients presenting with NSCs places higher demands on PENs knowledge, experience and the care they give to meet the patient's needs. The lack of differentiated levels of care is challenging for the participants and is perceived to impair patient safety. It was also found that a lack of feedback increases the risk of hampering the continuing knowledge development of PENs. This category is supported by the subcategories: the optimal level of care increases patient safety, and feedback provides knowledge development, as described below.

3.3.1. The optimal level of care increases patient safety

When the optimal level of care was hard to identify the PENs felt that patient safety could be affected. Most participants pointed out difficulties in choosing the optimal level of care for patients with NSCs and that there was often not a good solution. The patient management was perceived as complicated due to unclear disposition of suitable care facilities for the patient.

The emergency department (ED) was not always considered the optimal destination, but as primary care was often inaccessible and geriatric management impossible, due to lack of beds, conveyance to an ED or remaining at home were often the only feasible options. The PENs highlighted this being a poor solution. Collectively, the PENs expressed that many patients "fall between the chairs", hence a wider range of health-care level choices was desirable to provide the patient with good and safe care.

"Because they are not sick enough to go to the emergency department and they do not have an appointment at the health center within reasonable time …" (Interview #1)

The participants expressed concern about patient safety when the choice of remaining at home was considered. The appropriateness of the patient remaining at home, with the risk of deterioration was a collective concern. Physician visits to the home were mentioned as a conceivable alternative, but often not realizable.

"… the patient quickly deteriorates and in the worst case even gets an injury that causes suffering for the rest of their life …" (Interview #3)

Patients with NSCs were mostly described as older and could risk suffering from being in an ED where waiting could be long. The PENs also argued in favor of hypothetic geriatric EDs which could be favorable in this group of patients.

3.3.2. Feedback provides knowledge development

The participants felt that feedback on the given care is necessary to ensure a development of knowledge. Feedback from receiving hospitals appeared to be an important part of the PENs own knowledge development. The feedback would help the PENs to gain an understanding of whether they had made a correct assessment of the patients with nonspecific chief complaints.

"Feedback could help us understand if we made the correct assessment or not…" (Interview #8)

Both positive and negative feedback were perceived as desirable. The PENs revealed that in the current situation they usually do not receive any feedback if no serious error is committed. In these cases, the feedback comes in the form of an incident report.

The only existing feedback was random feedback. E.g., PENs accidentally meeting the same patient on another occasion and learning of the prior outcome. The PENs felt that feedback about patients presenting with NSCs would be valuable, as this could provide in-depth knowledge of the patient's care process and outcome. The PENs meant that they gained a greater understanding of these patients though feedback.

"I have no idea if I make the right choice, because I do not know what happened to these patients." (Interview #2)

In-depth systematic assessment is perceived to reduce suffering and increases patient safety.

Supported by the subcategories and categories the essence of the results form the main category, 'In-depth systematic assessment is perceived to reduce suffering and increases patient safety. Illustrating the importance of a systematic assessment done by the PEN in order to alleviate the suffering in patients and to promote more patient safety when encountering the patient with non-specific chief complaints. The caring encounter is a complex, comprehensive area that encompasses different perspectives. It is important to keep the patient in focus in order to create an important meeting. The PENs described how they assessed the lack of specific symptoms, the patient history, and the living environment in order to create a comprehensive picture of what the patient were experiencing and to exclude different conditions. Knowledge and experience are highlighted as vital for achieving good and safe care. PENs emphasized the importance of feedback to develop their competence, as patients presenting with NSCs were perceived as requiring a higher level of competence.

4. Discussion

In the exploration of PENs' experiences in caring for patients presenting with NSCs, this group of patients is perceived as challenging at the same time as patient safety is considered important. The participants experience in caring for patients presenting with NSC were described as "Unexplained suffering", "Systematic approach and experience enhances medical safety" and, "Organizational processes can be optimized". The unexplained suffering was perceived as a barrier, as the nurses' objective was to identify the cause of the suffering and to find ways to alleviate the suffering. One way of trying to identify the cause was to seek information from next of kin or other caregivers such as home care personnel when possible since patients themselves many times could not describe their complaints. This in order to create an image of the patient's situation. Patience, and taking the time needed to assess the patients' needs emerged as important, where the nurse takes the time to get to know their patient and his or her suffering, involving them in the care [10]. Nurses can understand the patient's situation by asking questions [21]. Seeing each patient as a unique individual with different expectations, specific needs and own experiences is fundamental in nursing [22].

The informants experience fear of missing something that could cause more suffering for the patient. The observed fear of missing something in the PENś assessments which is important for the patient, is in line with previous results [23]. The main challenge for healthcare professionals is to try to identify patients with diffuse or deceptive symptoms which are of significance for patient outcome [24]. The fear of missing something important or to cause harm has been shown to be linked to the level of responsibility in the ambulance, where PENs are responsible for assessments and given care during an assignment [25,26]. A systematic assessment was considered important and a key to finding the cause of the unexplained suffering and the needed level of care. The use of triage systems is widely spread in emergency medicine and EMS systems as objective and quantifiable assessment tools. The common feature among different international systems is that they are built on vital signs and in some cases in combination with chief complaints [27]. Vital signs can when deranged, alert the clinician to a disease process and severity. However, without a previously known

individual baseline, vital signs within normal reference intervals provide no value. With a baseline and successive measurements, adverse events may be avoided [28]. Such information is often unavailable for the EMS personnel. To further complicate the assessment, patients with NSCs tend to be old and the atypical symptoms may be explained as a result of age-associated pathophysiology and age-related loss of protective homeostatic mechanisms, suggesting that the vital sign response may remain within normal reference intervals, and is unable to respond appropriately to stressors, such as disease and inflammation [28–33]. Performing the assessment in a systematic manner, with attention to detail and deeper observation of not only the patient's physical signs, but also the living environment was collectively told about. As cited, forming the picture by adding pieces of the puzzle to the overall assessment are dependent of clinical experience and clinical gestalt. The clinical gestalt constitutes the first assessment of the patient and that it is an ability to read between the lines, which develops over time through experience [23]. However, guidelines and concepts can be a support and create a security to fall back on, with the added knowledge of potential pitfalls in rigid reference intervals.

The participants felt that many patients' care was limited by conveyance to an ED when primary care centers and geriatric wards which were seen as more suitable to the patients' needs were not available due to lack of beds or when closed. Non-conveyance, i.e., the patient remaining at home, in combination with referral to primary care practitioners could be a potential level of care, if able to have the appointment within a short period of time. One worrying aspect is that previous studies report a majority of patients who were initially non-conveyed with NSCs are hospitalized within 72 h [34,35] which is indicative of serious conditions or the need for a higher level of care, not identifiable on index EMS assessment. A key task for the PENs is to protect the patient's best interests [36]. A dilemma may arise when the PEN cannot ensure the appropriate level of care [14]. This results in many patients being conveyed to the ED when the situation cannot be resolved in any other way, even if it is not the best solution for the patient. Receiving feedback on the patient's continued assessment and condition after being conveyed to the hospital was perceived by the participants as a significant part of the knowledge development and was something that they sought after. According to Wihlborg et al. [37], feedback, on a daily basis, was sought after and considered to be crucial for skills development. There is a need for confirmation of whether the assessment was correct. Personnel who receive information about the patient's condition could improve the treatment of future patients with similar conditions, and, if feedback is excluded, there is a risk that patients could be incorrectly assessed on a continuous basis [38]. The findings are supported by theoretical models of clinical reasoning, where the dual-processing theory features two systems of thinking, the intuitive and the analytical [39–42]. The intuitive system associates the new information and similar examples from one's memory. The retrieval of similar examples is related to the strength of the association, i.e., the number of previous observations and common features. The analytical system is consistent with logical rules, and the processing of knowledge [43]. The aforementioned fear of missing important information, leading to adverse events and eventual harm for the patient may also be described as the risk of diagnostic errors in clinical reasoning, from cognitive biases to knowledge deficits. Taking the time needed may reduce the intuitive system errors, by invoking the analytical system [44]. If the errors are a consequence of knowledge deficits, then more experience will lead to greater knowledge, both analytical and experiential, and may in that case result in fewer errors. Specific knowledge can correct the risk of errors when applied [43].

Based on the main category, PENs could apply in-depth systematic assessments to reduce the risk of missing something important as well as maintaining the patient centered approach. The systematic approach may also be helpful for less experienced PENs while assessing patients presenting with NSCs. The desired feedback is on an organizational level and could be attended to by the region responsible for the EMS. With the knowledge presented in the current study, training programs based on atypical presentations i.e., NSCs, could be created to further strengthen the clinical assessments made by PENs and other EMS personnel. To further develop knowledge, the organization could encompass the theoretical framework of clinical reasoning and the dual-processing theory in future training courses. The findings in the current study may be transferrable to other EMS systems which are not nurse-based, due to the context.

5. Methodological considerations

In this current study eleven PENs told in detail about their experiences, which was perceived as sufficient. Data analysis was initially performed by two of the authors (JS, RSK) and reanalyzed by three of the authors (RI, VV, KB). The other authors confirmed the analysis. During the analysis, discussions took place until consensus was achieved. Quotations were used to further strengthen the trustworthiness [18,19]. Pre-understanding can be considered as a potential limitation but also a strength when analyzing the data. In order to handle pre-understanding and reduce the risk of bias in the research process, continuous critical reflections and discussion prior and during the interviews and analysis were active. To facilitate and ensure dependability the interviews were conducted by three of the authors using the same opening question and follow-up questions. A purposeful sample was considered appropriate for this study. According to Elo et al. [45], the selection of participants based on purposeful sampling, produces adequate data if there is something specific that is being investigated. Through purposeful sampling, a number of individuals are selected who are assumed to possess relevant knowledge and experiences about the subject, as well as being able to provide ample descriptions that answer the purpose [46].

6. Conclusion

The pre-hospital emergency nurse specialists' experiences in caring for patients presenting with non-specific chief complaints show that there are key elements to a meaningful and safe caring encounter which enables the identification of the cause of the chief complaint. They described that the patient experiences their complaints as a vague kind of suffering. To address the suffering an important meeting can be created by keeping the patient in focus. Experience and a systematic approach are considered essential for the clinical assessment and to enhance medical safety. Organizational processes could be optimized to allow feedback on given care to increase knowledge and professional development as well as a wider range of options on the level of care the patient could be conveyed to.

CRediT authorship contribution statement

R. Ivic: Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing – original draft, Writing – review & editing, Project administration. **V. Vicente:** Conceptualization, Methodology, Formal analysis. **L. Kurland:** Supervision, Writing – original draft. **J. Svensson:** Formal analysis, Investigation. **R. Sahdev Klintemård:** Formal analysis, Investigation. **M. Castrén:** Supervision. **K. Bohm:** Conceptualization, Methodology, Formal analysis, Writing – original draft, Writing – review & editing, Supervision, Project administration.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

The authors thank the academic emergency medical service in Stockholm Region for economic contributions making this study possible.

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