

# Digital Documentation Platforms in Prehospital Care

## - Do They Support the Nursing Care

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### Abstract

This study examines and describe the ambulance nurse's experience of nursing documentation in single responder and the transfer of the documentation to other care levels. A qualitative design was used with focus group interviews as data collection method to enhance knowledge of the everyday experience of nursing documentation. The ambulance service in Sweden is a profession in transition that evolved from being a transport organization to provide advanced medical care and nursing. However, all patients do not need advanced medical treatment and the Single responder is an alternative resource to the ambulance that is used when no life-threatening conditions exists. However, the nurse faces a number of challenges when documenting nursing care interventions related to technological development and the mismatch between the care offered and people's demands and needs. Even though nursing care documentation is key to enhance and develop patient safety within a young field as ambulance service. There is a lack of a coherent documentation system and two themes emerged through content analyzes which conveyed how nursing care becomes invisible and how nursing care interventions are communicated through a hidden language. There are serious shortcomings in the transfer of nursing documentation to other care levels as well as deficiencies in the nursing documentation. Which jeopardizes the quality of care and patient safety as well as a systematic development of nursing care in this field.

**Keywords:** single responder, documentation, levels of care, transfer

### 1. Introduction

The pre-hospital ambulance service in Sweden is a profession in transition. It has developed from being primarily a transport organization to provide advanced medical and nursing care (Poljak, Tveith & Ragneskog, 2006). In parallel with this, information technology development has led to the implementation of advanced documentation programs to ensure the unbreakable chain of care with documentation (Cheevakasemsook et al., 2006). However, healthcare systems face many challenges related to technological development. The Global Commission on Education of Health Professionals for the 21<sup>st</sup> Century describes a mismatch between the care offered and people's demands and needs; lack of cooperation; discontinuous care chains; tenacious hierarchies, and not least, a focus on technology founded on flawed understanding of the context in which the technology is used (Frenck et al., 2010). In healthcare, it is often the nursing documentation that contains the patient's personality, background, tactile sensation and the entire experience of the situation (Cheevakasemsook et al., 2006). However, it is the medical documentation that is given priority even though we by law should strive to give equal care, which means that those who have the most urgent need should be prioritized (HSL 1982: 763). Today 90% of the ambulance medical mission is not urgent (Palsson & Power, 2014). Also, since ambulances are used as transport for patients with less severe medical needs (Carlström & Peace, 2016) one might argue that the nursing care needs are prevailing for those patients and as such needs to become correctly documented. To transport low priority patients, from the medical perspective to the right level of care, there is the single responder. The single responder is a resource for non-acute life-threatening conditions so that the most urgent needs can be prioritized, and both paramedics and the emergency department can be used

sufficiently (Key, et al., 2003; Magnusson et al., 2015). The single responder has been introduced in some counties in Sweden and the documentation done by the nurse in the single responder provides the ground for further decisions regarding the patients' treatment and as such it is essential that the documentation program supports nursing care decisions that best meet the patient's needs.

## 2. Background

When a single responder is sent as the first car to a patient with lesser expected medical needs, the nurse in the single responder encounters one of the most vulnerable patient safety situations within health care involving documentation and communication, the transfer situation (Ödegård, 2006). The nurse has a vulnerable position and great responsibility as she often is the first to arrive at the scene and as thus, the first to assess the patient's condition, alone. She has to function instantaneously and make multi-dimensional expert judgments of the patient's condition and needs (Mantzoukas & Watkinson, 2007). Expert judgment can be understood as a complex multidimensional task, relying on interaction with a specific context and whole patterns, requiring particular skills and involvement in the situation (Benner, Tanner, & Chesla, 2009). The nurse has to recognize changes, turning points or transitions in the clinical situation which are subtle aspects of clinical judgment that clinicians interpret differently (Benner et al., 1999). All this information needs to be documented in order to support nursing care decisions that enhance patient safety.

Consequently, documenting is a vital source to evaluate and learn from nursing care performance conducted by the nurse in the field. On top of this responsibility, the nurse may need to handle the frustrated next of kin that alerted an ambulance and "only" got a single responder. Although the single responder is with an experienced nurse, situations may arise where, despite telephone support from ambulance physicians, she might feel inadequate as a single resource (RAS, 2012). To increase the quality of care in such a situation it is essential that the nurse is trained to make a proper assessment which in turn will lead to the right evidence-based medical and nursing care decision and right transportation level from the scene to the right level of care that best meets the patient's needs (Nilsson & Lindstrom, 2015). That the patient receives the right care is of importance, both for the patient, relatives, but also to free ambulances for higher priority missions (Collaboration 112, 2014). However, the documentation at the scene needs to support nursing documentation and reflect the patient's status to ensure the patient continuing good and safe nursing care when arriving at the next level of care. However, creating digital health care records and digital information to citizens are among the most challenging tasks to accomplish despite the broad access to the internet and digital infrastructures.

### 2.1 Documentation in the Prehospital Care

For the staff at a receiving level of care, clear and relevant documentation is key to ensure high quality and safe care (Patient Data Act 2008: 355). In Sweden, the Patient Records Act (1985:562) states that the necessary identity information and data essential for healthcare, to ensure safe and proper care, must be documented in the medical record. The patient's vitals taken and the reasons why, as well as plans for the patient, needs to be documented. According to Patient Safety Act (2010:659), the delivering physician has a comprehensive medical responsibility to see to that transfer between levels of care are correctly documented, that the transferred patient is registered as well as evaluated by the receiving health care level. The information should be of good quality and meet patient safety standards as well as promote cost efficiency. It is further disclosed that the medical records are a source of information to take action upon, for the patient as well as for further healthcare encounters. It aims to be a help in legal requirements and supervision, disclosure obligations under the law and for research. In Sweden, the ambulance service documentation system Rapid Emergency Triage and Treatment System (Rett) is widely used. It is a well-known, but not evidence-based, documentation program of pre-hospital care and emergency department care; the program also supports the ambulance nurse to determine if immediate medical intervention is necessary (Farrohknia, et al., 2011; Magnusson et al. 2015). In the program one can also find the current medical history (Hagiwara & Wireklint Sundstrom, 2009) through signs and symptoms, palliation provocation, quality, radiation, severity, (SOPQRST), and through time and previous medical history, allergies, medications, past medical history, cargo oral intake and events prior to the illness (AMPLE). Additionally, standardized procedures and checklists can be used for medical triage (Chulin et al., 2016). The diversity in documentation possibilities might jeopardize the quality of the documentation as well as the alignment of care and coherence in the actual documentation transferred between levels of care. This diversity might become a patient safety risk considering that correct and coherent documentation is a profound requirement to ensure patient safety (Meera et al., 2016). A well-documented nursing process is a basis for the patient to achieve good health (Cheevakasemsook et al., 2006). Flagstaff and Søyvik (2011) highlight the need for a well-documented nursing process that is accessible and easy to work with in collaboration

with other stakeholders surrounding the patient. The Swedish Society for Nursing identifies a lack of knowledge about the impact of technology on nursing interventions and they emphasize individual health as an important aspect to investigate and call for joint participation in design, implementation and assessment of new technology (Bakken, 2006). It is a huge disadvantage with multiple documentation programs that not correspond with each other, or are evidence-based since the nursing documentation can be understood as a structure for critical thinking and problem-solving. Moreover, we need to bear in mind that the nursing documentation is not merely a record of a person's condition, it also needs to support the patients nursing care needs as well as stimulate health care workers reflection and learning. Lack of knowledge about the content in the nursing documentation might lead to decreased understanding and evaluation of the nursing care given (Cheevakasemsook et al., 2006). Also, it may become a hindrance of learning how nursing care is best applied in the clinical field of pre-hospital care. As well as evaluate how nursing theories are applied in the clinical setting to strengthen the patient outcome. In the single responder nurses mostly refers patients to lower care levels than the emergency department. Which requires adequate documentation to the receiving care levels such as cohesive home care in municipal management, psychiatric care, as well as closed-hospital care. In each transfer of the patient a transfer of the documented nursing care given occurs. How this transfer of documentation should proceed in a safe manner ensuring adequate, coherent and correct documentation which will follow the patient through the different levels of care is not clearly described (Cheevakasemsook et al., 2006). Nor is it described how a possible exchange of documentation should be made between the different levels of care without bending the laws. To explore and develop nursing documentation and documentation transfer between the collaborative care units is of great importance to enhancing the process for the future digitalization. As healthcare becomes more complex it becomes more difficult to grasp, and health care providers who depend on each other need to communicate and document complex nursing care matters clearly and understandably. This study takes its departure from a patient safety perspective as it investigates everyday nursing care documentation in pre-hospital care.

### **3. Aim**

The purpose of the study is to examine and describe the nurse's experience of documenting nursing care in a single responder and transferring the documentation to other care levels.

The research questions used were the following: How do nurses document nursing care?

How does the patients' need become visible in the documentation?

Does the digital documentation system support nursing care documentation?

### **4. Method**

#### *4.1 Design*

A qualitative exploratory approach has been used in this study to explore how a phenomenon occurs in its everyday context. As there have previously been no studies on how nursing care documentation is experienced in the single responder. Interviews were considered the most appropriate way to collect data and obtain a rich material. Since interview data are considered as non-measurable data (Rosengren & Arvidsson, 2002). The aim is to obtain descriptors preferably describe a context or phenomenon. Another important aspect is that the informants in their own words express their experiences, opinions and thoughts on the issues raised during the interview (Kvale, 1997). The qualitative interviews were conducted as semi-structured interviews with some distinct questions followed by open questions with the intention to gradually search more detailed descriptions of the phenomenon sought after.

#### *4.2 Selection*

In this study inclusion criteria for the informants were that they were nurses, working in single responder and had at least four years' prior experience in working at the ambulance service. An expedient selection was made for data collecting to ensure varying width (Gillham & Gromark, 2008). When using qualitative methods, the aim is to obtain descriptions that describe appropriate context or phenomena (Kvale, 1997). The sample consisted of men and women aged 35-61 years.

#### *4.3 Data Collection*

For data collection, focus group interviews were used. Focus groups are used primarily to get information about the informant's views, experiences of different situations and feelings and reactions (Olsson & Sorensen, 2011). The advantage of focus groups is that the participants are given the opportunity to discuss the topic and issues, through their experience freely. Semi-structured interview with written questions was used to keep track of questions to ask

during the two focus group interviews. The data collection was done through two focus group interviews that were 60-120 minutes long. The focus groups interviews contained four informants in each, all nurses working in the ambulance on a daily base. Permission was given to conduct the study by the head of the two ambulance stations, and information to both heads of the two ambulance stations and informants were sent by mail, and personal contact with informants at each ambulance station was taken. The informants were asked to participate in the study, and the purpose of the study was described again. The informants were informed that participation was voluntary and could be canceled at any time without questions. A letter about the study was given to each informant that accepted to participate and before the focus group interviews begun the informants were asked if they had any questions about the study or if anything were unclear and needed to be addressed. No informant raised concerns about the information given. Information given during the interviews was treated confidentially and was only used in this study (Olsson & Sorensen, 2011).

#### 4.4 Data Analysis

A qualitative method for content analysis according to Granheim and Lundman (2004) was used. The interviews were transcribed verbatim by the first author. The collected data was read several times, resulting in a better overall understanding. In conjunction with the reading and rereading the analyze begun. This meant to find meaning-bearing units of manifest text, condense them to meaning units, give them codes, to summarize the condensed meaning units and compare with other codes to create subcategories and eventually categories and finally themes. In this phase, analysis of the directly expressed in the transcribed material was made. The result was discussed with the research team, and a joint agreement was reached. Then the search for a latent level begun and a deeper meaning in the text were sought after. This meant to go back to the interviews as a whole again and reread them searching for an understanding of what was said and what it meant, bearing the categories in mind and relating them to the aim of the study. This was a time-consuming phase. To strengthen the credibility quotes from interviews are presented (Granheim and Lundman 2004).

#### 4.5 Ethical Considerations

Ethical guidelines according to Swedish law (SFS:2003:460) were followed, and accordingly, approval to conduct interviews was gained by the head of the two ambulance stations. This study follows the recommendations from the Swedish Research Council (2006) information requirement, the requirement of use, the confidentiality and the consent requirement. The information requirement means that the researcher is obliged to inform participants what applies in the study and inform them that they can choose to cancel at any time. During the interview, all respondents were informed that participation was voluntary, that they could choose to cease participation at any time during the interview and that data collected would be used solely for research purposes.

### 5. Results

The purpose of this study was to examine and describe the nurse's experience of documenting nursing care in a single responder and transferring the documentation to other care levels. Themes representing the outcome, based on the study's aim emerging during the analysis procedure, were: *The invisible nursing care* and *A hidden nursing care language*. Both themes in the results convey how nursing care is invisible in the documentation system and how a nursing care language is missing. These themes are described separately with associated sub-categories and substantiated by quotations.

#### 5.1 The Invisible Nursing Care

The documentation system is conveyed as a challenge concerning creating a well-performed nursing journal which supports further evaluation of the efforts made and the possible future nursing interventions. The documentation system focuses on vital parameters, and as such, it silences the nursing care actions taken. The excerpt below highlights this:

*"If you think of the new Rett we work with there is no way to document care. The deficiencies in total and there is no nursing documentation in Rett " (I, 1).*

The documentation system is experienced as being designed for quickly triage acutely ill patients but not being the basis for safer care for the patient. As it does not include patient-documented planning as well as implementation and evaluation of the nursing care and assessment by the responsible nurse. Failing to be a tool for the team around the patient. The excerpt below highlights this:

*"I personally tend to bypass documentation when I'm working on assessing the care. I put more focus in that it is usually multiple illnesses we meet than to describe the home situation, past illnesses, operations of the municipality" (I, 5).*

The excerpt above shows how the nursing care becomes invisible due to lack of a holistic design in the documentation system, although nursing care is an essential part of giving a high quality and safe care that meets the patients' needs.

### 5.2 A Hidden Nursing Care Language

This theme conveys how the nursing care language is represented by keywords in the documentation system, giving information to other nurses that will care for the patient later on. This is a creative way to highlight and communicate important nursing care interventions that otherwise would be unknown. The excerpt below highlights this:

*"We can begin by training staff in how they must use keywords to communicate. It is my improvement " (I, 4).*

*"Well it's a lack of transparency, it's a bit complicated because there are so many documentation systems. It's this, and then there are the ones the hospital uses, then there is the one used by the health centers and home care "(I, 3).*

The excerpt above shows how nurses communicate and give each other relevant information about the patient, on which they form further nursing care actions. Information that otherwise would be silenced and decreases the quality of the nursing care given. The hidden language communicated between nurses at different care levels highlights the risk of flaws in the documentation system. When transferring the patient, all critical information will not be available to the next person that are supposed to make decisions about the care of the patient. It leaves the nurses to work in limbo, jeopardizing the patient safety. There is a frustration about this lack of a nursing journal as a tool for all in the team with responsibility regarding the care of the patient and the transparency at the request of the patient and relative.

## 6. Discussion

In every study there are limitations. During the research process, we had to make choices in regards to informants, time limits and design. Those choices might interact negatively to the robustness and rigor. However, we have been systematic and transparent in our process and analyzes to limit every bias we could imagine. We have strived to gather rich data to increase credibility (Polit and Beck, 2014). The study is small which might affect the transferability to other pre-hospital contexts. However, the phenomena sought after, nurses experience of documenting nursing care, are an everyday choir in nursing care everywhere, which increases the ability to highlight the phenomena sought after as well as strengthens the transferability and as such the trustworthiness (Polit and Beck, 2014; Benner et al., 2009). Since the informants were interviewed at the workplace, the informants might have been those most interested in participating in the study for one or another reason which might have affected the outcome of the analyzes. Despite these factors, the authors believe that the informant's background age, gender and education still was satisfactorily varied. Data has been collected through focus group interviews with a qualitative approach which was suitable since it was a phenomenon that would be studied so unconditionally as possible. To strengthen the validity of this study and maximize the variation of the phenomena sought after the study team had not previously met the informants (Polit and Beck, 2014).

This study aimed to investigate the nurses' experience of nursing documentation in single responder and transfer the documentation to other levels of care. The informants in this study clearly outline how they work with a documentation system that says one thing, while the learned profession and acquired experience tells another. Throughout the analysis a pattern where the nurse is not able to communicate nursing care to other care levels emerges, silencing the nursing care and forcing nurses to invent a way of communicating their professional actions between the lines in keywords. Just to put forward valuable information to other nurses at the next level of care. Also, the documentation system used is in no way an actual and comprehensive patient record. The documentation system should operate according to Swedish law, the Patient Records Act (1985: 562) document medical records, identity, examinations and possible treatments, the background of the patient, that is, good medical history as well as the planned interventions. All so that proper and safe care can be provided to the patient. The study shows unanimously that it is difficult to follow this law for the nurse in a single responder. Documentation systems in single responder is not an established patient record outside of the ambulance service, and it is designed to quickly determine if a patient is in urgent, life-threatening, need of help or not. It does not support nursing care documentation even though most of the ambulance missions are not of an urgent nature (Palsson & Power, 2014) rather a mean of transportation for patients with less severe medical needs (Carlström & Peace, 2016). Which gives a risk that since there is a lack of high-quality nursing care documentation the patient-centered care will suffer, as a

glaring deficiency in the transfer of documentation emerges. Also, it will be impossible to retrieve information from the documentation to evaluate and enhance the nursing care applied in the situation with the aim of increasing the quality of nursing care in the field. Which in turn might mean that it will take an unnecessarily long time to enhance patient safety, as we know that nursing care has a direct impact on patient outcome (Cheevakasemsook et al., 2006). SOSFS (2009:10) describes the responsibility for documentation between the ambulance and transfer to other levels of care. The delivering physician has complete medical responsibility for the transferred patient being registered and evaluated.

Further, should the information be of good quality and meet patient safety standards as well as and promote cost efficiency. The medical records are a source of information for the patient, as well as to develop and monitor the interventions made. It can be a help in legal requirements and supervision, disclosure obligations under the law and for research. Which highlights the educational perspective of a documentation system that not supports documentation of nursing care, it might become an obstacle to develop competence in the field of pre-hospital care. If we turn to Benner et al., (1999) she argues how nurses over time develop from novice to expert in five levels, which requires sound nursing documentation from which knowledge and understanding can be developed. In this result, we could uncover how nursing care interventions became invisible which endanger the growth of competence and development of expert nursing care in this field. We have also shown how nurses develop a way to communicate with a hidden language, which is a way to guard the quality of nursing care throughout the patient's way through the health care system. This way, nurses also contribute to a person-centered patient safety culture. However, it is not systematic, and it could be more effective with a joint documentation system embracing all members of the team around the patient. The nursing care process as such is a useful framework for organizing and systematizing nursing care by assessing, diagnosing, planning, implementing and evaluating nursing care (Cheevakasemsook et al., 2006). However, it needs to be digitalized in an easy to handle version to be the clinical tool nurses needs to communicate their interventions. Flanagan and Weir- Hughes (2016) describes one system for nursing documentation, Nanda Nik Nok, (NNN). This system is used worldwide, including in hospital emergency care, ambulance services, rehabilitation and home care. The system has a comprehensive nursing language with standardized terms for diagnoses and interventions, and the content of the system is suitable for many disciplines within the nurse's domain. A common documentation system could be a way of enhancing patient safety as well as enhancing the development of expertise in a young field of health care.

### 6.1 Implication for Nursing Care

The result of this study show how nursing care documentation is overseen in the design of digital documentation systems. Which results in severe shortcomings in the learning and development of expert nursing care in the field as well as the transfer of nursing documentation to other care levels. Also, deficiencies in the nursing documentation put the patient at risk. This neglect of a sound possibility to systematically document nursing care jeopardizes the quality of care and patient safety.

## 7. Conclusion

To support nurses working in a single responder a shared documentation system highlighting nursing care documentation needs to be established, as one equal part in the team around the patient. Otherwise, the nursing care quality and patient safety might be jeopardized. With the present system, there are severe shortcomings in the transfer of nursing documentation to other care levels as well as deficiencies in the nursing documentation. A registered nurse is obliged to comply with applicable laws and regulations for nursing documentation. The study shows that the system used for documentation and transfer of documentation single responder forcing the registered nurse in a documentation system whose costume is too narrow and partly outside the existing framework. There is a risk of person-centered care cannot be pursued and that it poses a risk to health and safety problems.

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