Challenges in prehospital emergency care
To my family
Kerstin Forslund

Challenges in prehospital emergency care
Patient, spouse and personnel perspectives
Abstract


Prehospital emergency care (PEC) with the emergency call to the Emergency Medical Dispatch (EMD) centre is an essential part of the health-care system. It is important to obtain knowledge about the links in the PEC chain from the perspectives of those providing the service and those receiving it. The overall aim of this thesis was to describe the challenges surrounding PEC based on the experiences of patients, spouses and personnel. A qualitative descriptive design was used in the five papers included. The data analysis methods were phenomenological-hermeneutics (I–III), qualitative content analysis (IV–V) and descriptive statistics (V).

Interviews with thirteen patients who had called the EMD-centre due to acute chest pain (I) revealed a general satisfaction with PEC. They were aware of the number to call in an emergency but were uncertain when to call. The potentially life threatening emergency situation was marked by vulnerability and dependency and was fraught with pain, fear and a sense of aloneness.

An overall theme of aloneness emerged from the interviews with nineteen spouses who had placed an emergency call for their husband or wife that was experiencing acute chest pain (II). The challenges in being a spouse to a person in need of PEC were associated with: “Being responsible and trying to preserve life” and “Being able to manage the uneasiness and feel trust in an uncertain situation”. The spouses were in an escalating spiral of aloneness, worry, uncertainty, stress, fear of loss and desperation.

Interviews with sixteen emergency operators dealt with situations they considered difficult to deal with and their reflections on how they managed such situations (III). Uncertainty, communication difficulties and insufficient resources characterized those situations. Skills, knowledge, experience, as well as personal qualities such as sensitivity, self-insight, empathy and intuition were regarded as important when handling them.

Interviews with four nurses and fifteen emergency operators related to their experiences of working together for two years at an EMD-centre were conducted after the nurses were added to the EMD-centre to increase medical and nursing competence (IV). Initial frustration and scepticism changed to positive experiences with improved cooperation and service. The nurses voiced difficulties dealing with the more medically urgent calls and the emergency operators with the more complicated and diffuse medical cases.

A total of 336 questionnaires related to alarms involving acute chest pain and given the highest priority by the emergency operator were collected in a study aimed at describing the ambulance personnel’s perceptions of the quality of the information received from the EMD-centre (V). The ambulance personnel perceived most of the information such as patient assessment, condition, history, preparedness and in particular pain status to be of high quality.

In summary: In PEC there is many interdependent complexities that present demands and challenges to the actors involved (I–V). In general those who received emergency assistance from PEC were satisfied, but the margins between success and failure are small. Risks for errors exist throughout the PEC chain and time poses a challenge. Understanding is crucial for all involved, and the same situation can be experienced differently. Challenges inherent in PEC are the communication problems, unpredictability and uniqueness along with daring to be in the acute situation and dealing with a sense of aloneness, uncertainty and dependency. The
personnel that do not have the ability to see the person they are helping are even more challenged. Important attributes for PEC personnel are caring attitudes, personal skills, experiences and professional knowledge. PEC personnel have the authority and power to act and make decisions, in which responsibility, sensitivity, and human dignity must be addressed. Lives are saved with PEC despite all the challenges and possibilities for error, such as those that exist between the different actors. It is vital that the PEC chain is as strong as possible.

**Keywords:** challenge, prehospital, emergency, care, patient, spouse, personnel, chain, acute chest pain.
This doctoral thesis is based on the following five papers, which will be referred to in text by their Roman numerals.

I

II

III

IV

V

*The papers have been printed with the kind permission of the respective journals.*
Paper III, Emergency operators’ perspective of working in PEC

Having to rely on personal qualities, professional capabilities and information from callers

Trying to understand is crucial when lives are at stake

Using qualities and capabilities effectively in fast-paced complex situations

Paper IV, Emergency operators’ and nurses’ perspectives of working within PEC

Finding the possibilities in and overcoming the difficulties of teamwork

Emergency operators dealing with their feelings of being in question

RNs dealing with a new work situation and form of nursing

Finding ways to utilize each other’s knowledge and competence

Paper V, Ambulance personnel’s perspectives of emergency calls

Being dependent upon and having to rely on the information given

Dealing with information of not high quality in the best way possible

REFLECTIONS ON FINDINGS

Maintaining an intact chain

Challenges in the PEC chain

Being dependent upon each other

The perception of time

Individual experiences influencing the PEC situation

Uncertainty, communication problems and unpredictability

Managing aloneness

Meeting the demands and the interdependent complexities

A theoretical model to illuminate PEC

The Room

The Meeting

The Interventions

The Atmosphere

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Methodological considerations

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CONCLUSION

SUMMARY IN SWEDISH (SVENSK SAMMANFATTNING)

ACKNOWLEDGEMENTS

REFERENCES
INTRODUCTION

When people are stricken by an acute illness or accident and need an ambulance and professional medical help, they call the emergency number to reach the Emergency Medical Dispatch (EMD) centre. This situation can be experienced as being life-threatening for the affected person and a stressful and unpleasant situation for everyone present. A life could be at stake, so it is important that the Prehospital Emergency Care (PEC) functions and performs optimally. One caller to the EMD-centre recounted the situation in the following way:

“They assured me that the ambulance was on the way and I was instructed as what to do while waiting. It was horrible, and I was really scared I would die. I was worried the ambulance would not be able to find me if I fainted. Minutes felt like hours; I was lying there on the stairs, I remember it was in the middle of the night and it was pitch-black out, I wondered if they would ever come. I think I lost consciousness for a while, but then I heard their voices. They had found me after all. I was cared for and given help for my excruciating chest pain and I survived.”

People in our society expect their emergency call to be answered and help to be administered promptly. From earlier experiences in emergency care, I heard patients or their relatives comment on how important the contact was with the emergency operator and the ambulance personnel. They were impressed by the emergency operator’s ability to understand their problem and the ambulance personnel’s skills and efficiency during what they experienced as chaos. While working in community nursing I became aware that problems could arise during the contacts with the PEC when an ambulance was needed for patients in primary care. The need for increased insight and knowledge in the emergency care given in the prehospital phase became all more obvious. PEC must be the best possible, as patients’ lives hang in the balance.
BACKGROUND

*Prehospital emergency care (PEC) chain*

PEC involves the early-qualified first aid and treatment given on site or during transportation to the hospital due to accident or illness (Socialstyrelsen 1994, Mistowitch *et al.* 2004). The goal for PEC is to create the best possible circumstances that will prepare the patient and put them in as good condition as possible for the next part of the health-care chain (Jonasson & Wallman 1999, Bång 2002). It consists of medical treatment, emergency care and ambulance transportation of acutely ill or injured persons as well as rescue activities at the site of a disaster. The emergency calls to the EMD-centres are a part of PEC (Socialstyrelsen 2002). Emergency operators at the EMD-centre are to prioritise emergency medical calls after they have made assessments and come to a decision based on the health related and medical information they are given. Additionally, they should give advice to the caller and keep the ambulance personnel adequately informed (Socialstyrelsen 1997). For the persons calling, it is a situation with varying degrees of emotional stress and anxiety (Bång 2002). An overview of the events occurring in the different PEC locations is displayed in Table 1.

**Table 1 The prehospital emergency care (PEC) chain**

<table>
<thead>
<tr>
<th>Prehospital Emergency Care chain</th>
<th>At the location of the emergency</th>
<th>EMD-centre</th>
<th>Ambulance care</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course of events</strong></td>
<td>Emergency call made to the EMD-centre</td>
<td>Emergency call received</td>
<td>Information exchanged</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Emergency prioritized</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ambulance dispatched</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Alarm received from EMD-centre</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ambulance departs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Arrives to patient</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Medical treatment and emergency care initiated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Transportation to the hospital</td>
</tr>
<tr>
<td><strong>Actors</strong></td>
<td>Persons calling: Patients, spouses or others</td>
<td>Emergency operators Registered nurses</td>
<td>Emergency medical technicians Registered nurses</td>
</tr>
</tbody>
</table>
Prehospital emergency care historically

Development of the ambulance care and transportation system

One of the earliest descriptions of systematic prehospital management of illnesses or injuries originated during the French revolution. Baron Dominique Jean Larrey (1766-1842) developed a plan for the rapid evacuation of wounded soldiers from the battlefields using mobile medical units, which he called *ambulances volantes* (flying ambulances) (Wiklund 1987, Skandalakis et al. 2006). He instituted a system where the wounded soldiers were treated by trained medical personnel and transported to a field hospital all of which resulted in decreased morbidity and mortality rates. The wounded were treated according to the urgency and observed gravity of their injuries (Skandalakis et al. 2006).

The first Swedish motor-driven ambulance was introduced in Stockholm in 1910 (Wiklund 1987). Advances within military medical emergency services were made during the first and second world wars, but were not used in civilian settings until the 1950s (Pozner et al. 2004). The ambulances at that time were used for the transportation of the sick or injured to the hospital and were regulated by the fire brigades or the hospitals (Strömbäck & Kirk 1987, Wiklund 1987). Demands on the personnel at that time were physical strength, knowledge of how to take care of the vehicle and good driving skills (Jonasson & Wallman 1999). The developments within anaesthesiology during the 1950s gave rise to improved first aid. The introduction of cardio-pulmonary resuscitation (CPR) and intravenous treatments made it possible to give more effective first aid outside the hospital setting (Sefring & Weidringer 1991). “Care during the transportation not only transportation to care” was the new slogan (Wiklund 1987). The provision of medical treatment and emergency care in the ambulance was introduced in the 1960s (Suserud 1998).

Development of the alarm organisation

Alarm from the French word “á lárme” is a word used to warn for danger and the word could be associated with increased preparedness. Shouting, ringing bells or canon shots could historically mediate alarms in case of an emergency (Anderbring 1998). It was the rapid technological development during the 19\textsuperscript{th} and 20\textsuperscript{th} centuries with the important innovations of electricity, telegraph and telephone that changed society so greatly. These innovations also increased the possibilities to build more effective alarm
organisations. In the 1950s, Sweden was the first country to start a telephone system so that the same emergency call number could be used throughout the entire country (SOS Alarm 2007). In the 1970s it was decided to develop this further and the Emergency Medical Dispatch (EMD) organisation was founded that has centres located in each county that are co-ordinated with the ambulance organisation (Socialstyrelsen 1997).

**Prehospital emergency care – current system and organisation**

Most of the world’s societies have a rescue organisation in case of emergencies. The goal of the Swedish health-care system is good health and good health care under equal conditions for everyone (SFS 1982:763, SOSFS 1993:17, Socialstyrelsen 2006). Included in this right to health-care, is emergency care. The county councils are responsible for the establishment of an efficient ambulance organisation (SFS 1982:763 §6). Expectations and requirements placed on this organisation by the communities include high quality health assistance in case of an emergency. The way in which PEC systems are organised differs throughout the world (Pozner *et al.* 2004, Sikka & Markolis 2005, MacFarlane *et al.* 2005, Black & Davies 2005, Timerman *et al.* 2006, Tanigawa & Tanaka 2006) and even within the Nordic countries (Langhelle *et al.* 2004). The design of PEC systems takes into account the interrelated events that combine to offer the best care possible to patients outside the hospital (Spaite *et al.* 1995, Sikka & Markolis 2005). Accessibility is important and a general goal in Sweden is that 80 % of the population should be able to be reached within 8 minutes after the call has been received and 95 % within 15 minutes (Langhelle *et al.* 2004). PEC can be affected by the centralisation and specialisation of the health-care system and with the closing of smaller emergency care units; transportation times will be increased (Jonasson & Wallman 1999).

**Emergency Medical Dispatch centres**

SOS Alarm is a publicly owned company that has managed the Emergency Medical Dispatch centres in Sweden since 1973. During the last few decades technical advances and equipment development at the EMD-centres has been rapid. In the beginning, Swedish citizens could call for help by dialling 90 000. This number was changed to 112, a number that is to be used jointly by all of the countries in the European Union (EU). By dialling 112 is it possible to receive help from a number of available rescue
services, e.g. ambulance, police, fire, air and sea rescue and ski patrol (SOS Alarm 2007). There are 18 EMD-centres in the country, all of which are open 24 hours a day, 365 days a year. In total there are approximately 600 emergency operators employed at the centres. To qualify, the emergency operators must complete a one-year theoretical and practical education course provided by the company that focuses on communication techniques and usage of the technical equipment. They must also pass an annual test that evaluates their ability to work under stress. In the larger cities there are physicians and registered nurses (RNs) that work in association with the EMD-centres (SOS Alarm 2007).

The emergency calls
In case of emergencies, the call to the EMD-centre is the first link in the PEC chain. The emergency operators’ tasks are to determine the nature of the caller’s problem, respond to it and send the appropriate rescue team. They can provide instructions and counselling over the telephone (Clawson & Sinclair 2001, Wahlberg 2007) such as how to give CPR, control bleeding, open blocked airways and other life saving techniques (Mistowitch et al. 2004). To do their job the emergency operators must ask pertinent questions and interpret the answers in the best way possible. To do so they have at their disposal a medical index to use as a guide (Socialstyrelsen 2002, Zenit 2006). The contact with the caller is brief and a first action is often taken after a few seconds. During the exchange of information, communication with the caller can be complicated (Bång 2002, Karlsten & Elowsson 2004). The EMD personnel’s assessments and prioritisations are an integral part of the care given to patients prior to their arrival at the hospital (Socialstyrelsen 2002). Annually the EMD-centres receive about 20 million emergency calls, of these 3.8 million are for medical problems (SOS Alarm 2007).

Ambulance care
Ambulance care has evolved from what was mainly just the transportation of the sick or injured to the hospital, to the performance of advanced emergency care and medical treatment in addition to the transport (Suserud 1998). Daily work for the ambulance personnel can range from advanced lifesaving PEC to less complicated care and transportation of patients (Jonsson 2004). The ambulance personnel need to quickly
assess the patient’s condition in order to promptly decide on the necessary measures that need to be taken. Within PEC it is important to be flexible and adaptable in regards to the patients’ medical condition while also being flexible and adaptable with fellow colleagues and other professional groups (Wireklint-Sundström 2005). The emergency operator’s information is the starting point of each case and the information may not be complete (Mistowitch et al. 2004). Those working in ambulance services must be prepared to be unprepared to some extent (Wireklint-Sundström 2005). There is always something unknown which is hard to be prepared for. It is a mentally demanding task and posttraumatic stress can occur (Jonsson et al. 2003, van der Ploeg & Kleber 2003). Emergency care interventions have become increasingly important and specialized procedures can be done on site or during transportation to the hospital. Demands for medical and nursing qualifications for the ambulance personnel have been increased during the last few years and since 2005 at least one member in the ambulance team must be an RN (SOSFS 1999:17, SOSFS 2000:1, SOSFS 2001:17). About 4,000 persons are employed as ambulance personnel, and the numbers of RNs in this group are increasing due to the demands for increased emergency medical and nursing competence (Socialstyrelsen 2004). Between 900,000 and 1 million ambulances are dispatched annually in Sweden (SOS Alarm 2005, Wahlberg 2004).

**Prehospital communication and prioritisation**

**Communication**

Communication problems with the caller to the EMD-centre can lead to an incorrect assessment and prioritisation as well as to misunderstandings (Socialstyrelsen 2002). Human communication in general, is a complex phenomenon (Nilsson & Waldemarsson 1994, Eide & Eide 1997). The Latin word *Communicatio* is defined as doing something together, a reciprocal process of sharing thoughts, feelings and attitudes. Communication is behaviour that involves physical and mental activity and the sending and receiving of messages. Communication is also a process where information is exchanged by using language, signs or gestures, as it can be both verbal and non-verbal (Nationalencyklopedin 2000). According to Travelbee (1971) communication is an essential part of health-care; it is a key tool through which the caregiver-patient relationship is established. Care giving is a dynamic process between the caregiver and the patient that can involve the actors directly or indirectly. Care
giving situations are experienced in time and space, they are fluid and in continuous motion. Change occurs in every situation and this movement and activity is a result of interaction and communication. When individuals are experiencing ill health, a change is needed in order for them to achieve a better health status (Travelbee 1971). Travelbee (1971) writes, “Nursing is, in a sense, a service which is initiated for the express purpose of effecting a change in the recipient of the service”. For the PEC personnel this service can imply lifesaving activities. Communication takes place in every encounter between the patient and the health-care personnel. The caregiver must be able to understand the patient’s communication and use this information as a basis for care and medical interventions. Verbal and non-verbal communication can yield misunderstandings and emotional reactions (Eide & Eide 1997). Non-verbal signals such as breathing, sighing or coughing are important clues in the interpretation of the communication. Second hand information complicates interpretation and understanding (Wahlberg 2007).

The communication between all actors in the prehospital phase of the health-care system is very important for those involved, since lives are at stake and the situations are often stressful. The emergency operators are often confronted with and have the responsibility to handle the difficult situations, where time is crucial and decisions and prioritisations must be made rapidly. Giving advice and instructions by telephone can be a demanding task (Wahlberg 2004). The emergency operators carry out their tasks based on their interpretation and understanding of the situation (Bång 2002). Communication, caring and first aid skills based on professional knowledge are needed by the emergency operators in order to understand the seriousness of every caller’s situation, and react with speed when they make decisions, assign prioritisations and handle the cases. Communication problems among the professionals can also lead to misunderstandings in such areas as the transfer process, which can have negative consequences for the ill, or injured (Manias & Street 2000, Thakore & Morrison 2001).
Prioritisation

Governmental decisions delineate the framework for the PEC system and organisation in each country, and the economy can set the limits. Events such as terrorist threats or epidemics can increase international cooperation, like that which can be generated within the European Union (Gouvras 2004). Prioritisations and economical issues are important in all parts of the health-care system and PEC is no exception. Prioritisations involve making a choice and doing what is considered to be the most important first, even when the choice comes at someone else’s expense (SOU 1995). The concept can also imply the preference of one thing over another (Eide & Eide 1997). Prioritisation is not a new issue in our health-care system. Choices have been made between patient groups and available treatments as long as medicine and health-care has been practiced. Prioritisation methods vary according to time and place (Ryynänen et al. 1999). One concept that has been used in association with the prioritising and sorting of patients in PEC and emergency department settings, is triage (Göransson et al. 2005). Making professionally based prioritisations in PEC is an essential task, and in Sweden basically three priority levels are used:

- **Priority I** Presence of acute life threatening conditions or injuries.
- **Priority II** Acute or urgent symptoms that are not life threatening.
- **Priority III** Medical transportation or ambulance matters that can wait, such as the transportation of patients between hospitals (Socialstyrelsen 2002, SOS Alarm 2007).

A fourth prioritisation has also been mentioned, which assumes care or treatment is not needed under transportation and can be provided by e.g. a taxi (Socialstyrelsen 2002). About 25 % of the ambulance transportations are priority 1, 25 % priority II and 50 % are priority III. Of the acute priority I ambulance transportations, about 25 % are due to accidents and 75 % to illness. The most common types of illnesses are acute chest pain, dyspnoea, unconsciousness and epilepsy attacks (Socialstyrelsen 1998, Bång 2002). For the personnel, making prioritisations requires professional knowledge, judgement and discernment and can be a very difficult and unpleasant task (Eide & Eide 1997). The emergency operators’ assessments and prioritisations of the emergency
calls as well as their decision-making plays a crucial role in the preparedness of the ambulance personnel as they paint a verbal “picture” of the situation (Pettinari & Jessopp 2001).

First PEC contacts with acute chest pain emergencies
Acute chest pain is one of the most common causes for calls made to the EMD-centres in an medical emergency. The symptoms can escalate into life-threatening conditions and is a common cause of death outside the hospital (Herlitz & Holmberg 2004). Trauma, acute chest pain or other heart problems are the most common causes for assigning the highest priority to alarms and alerting the ambulance (Hjälte 2005). Of the alarms given the highest priority, about 20-25 % are due to cardiac problems (Shuster et al. 1995, Hjälte 2005). Acute chest pain symptoms occur for the most part among older adults that often have multiple illnesses, which can make the symptoms difficult to interpret and the cases more complicated (Melby & Ryan 2005). With an aging population the PEC personnel will treat a larger number of older adults that are presumably more ill (McConnel & Wilson 1998). More people with severe illnesses are cared for in their homes or at nursing homes and can require PEC when acute life threatening symptoms arise (Melby & Ryan 2005). People can wait hours after the onset of the symptoms before they seek help and these delays can increase the risks for sequelae (Quinn 2005, Okhravi 2002). Early identification of myocardial infarction followed by rapid diagnosis and medical treatment can improve the prognosis for patients (Johnston et al. 2006, Herlitz et al. 2002).

In case of chest pain emergencies, the patients themselves can be the ones that make the call to the EMD-centre, especially if they are alone. The caller can also be the spouse or someone else witnessing the emergency situation, if the patient is unable to make the call. The patient’s symptoms can be typical or atypical and it may be hard to interpret the warning signs (Barnhart et al. 2005). Situations that necessitate contact with the EMD-centre are often perceived as life threatening (Bång 2002). In some emergency situations there comes a point when there is no other choice than to call for help, and when they do call, the nature of the emergency is presented to an unknown person (Ladd 1985). The first direct physical contact the patients have with the PEC personnel is when the ambulance arrives.
Caring demands in PEC

The encounters between those in need of PEC and the PEC personnel are short. It is a fast paced activity in many aspects different from other health-care activities. Even though PEC involves emergency situations, the need for caring still exists. According to Martinsen (1993a) we are always in some sort of a situation, be it one common to our daily lives or one marked by its’ uniqueness. Situations are fluid and as such can remain somewhat still or become more flowing and changeable. Our personal experiences influence our actions and reactions in each situation. Another theoretical assertion held by Martinsen (1993a) is that people are innately dependent upon others and relationships with them. In emergency situations especially when an acute illness strikes, a person becomes more dependent upon others for their survival, which can influence how they act and react. The patient or the caller to the EMD-centre has to rely on the emergency operator as well as the ambulance personnel who are unknown to them (Ladd 1985). In general, the PEC personnel must also rely on an unknown person to supply them with information on the symptoms and medical status of the sick or injured in need of help. The Norwegian RN and philosopher Martinsen (1993a, 1993b) proposes in her philosophy of caring that; caring is fundamental, and caring involves relational, practical and moral aspects. Care is based on the relationship between the person who gives care and the person who receives it. Our experiences are developed in the cooperation we have with others and a person can learn how to care through practical experiences and concrete situations (Martinsen 1993a, 2000). Martinsen’s theory is not centred on how human beings relate to each other on an individual basis, but rather on how human beings relate to each other as a whole. An important principle is the way we are responsible for the weak and vulnerable. In the practical aspect, caring is learned through concrete practical actions and practice. The moral aspect of caring concerns decisions about a persons needs and abilities, and these matters should not be over or under-estimated. The moral aspect is present in concrete situations when we decide on how to help another person in the best way possible (Martinsen 1993a). As health-care professionals this involves putting yourself in the situation and making a choice and a decision based on your understanding of the situation, professional knowledge and caring skills (Martinsen 1993a). A person is always in a particular situation and a particular space (Martinsen 2006), this can be especially so when persons are involved in PEC situations. Martinsen (2006) writes
that in each particular space there is time, ambience and power, which together set the
tone and colour of the situation. Health-care activities take place in a room that is
shared by the patients, their relatives and the caregivers together. In PEC, this room is
the ambulance or the often short telephone conversation that takes place during the
emergency call.

RATIONALE FOR THE STUDY
The emergency call to an EMD-centre is often a person’s first contact with the health-
care system in case of acute illness or injury. Prehospital emergency care (PEC)
including the emergency call to the Emergency Medical Dispatch (EMD) centre is an
essential part of the health-care system in our society. The seriousness of the situation
can be hard to interpret for the prehospital personnel, patients or spouses. There is a
risk for mistakes, misunderstandings and communication problems among the actors
involved in the acute often time sensitive situations that can have life threatening
consequences and repercussions. Since lives may be at stake, it is crucial that this part
of the health-care chain functions optimally. Literature on this topic often pertains to
response times, morbidity and mortality rates. Studies concerning the perceptions of
the different actors involved in PEC are relatively few. It seems important to increase
knowledge and insight into the experiences of persons involved in PEC from the
perspectives of those providing the service and those receiving it. With an even better
understanding of the challenges involved, improvements can be achieved in the health-
care services provided and how they are utilised.
AIMS

The overall aim of this thesis was to describe the challenges surrounding prehospital emergency care based on the experiences of patients, spouses and personnel.

To answer this, the following specific aims were addressed in five different papers.

**Paper I**  To illuminate how patients with acute chest pain experience the emergency call and their prehospital care.

**Paper II**  To illuminate how spouses experience emergency calls and prehospital care with acute chest pain alarms.

**Paper III**  To analyse the situations that emergency operators experience as difficult to deal with and their reflections on how they managed them.

**Paper IV**  To describe, nurses’ and emergency operators’ experiences of adding nurses to increase medical and nursing competence at an EMD-centre.

**Paper V**  To describe emergency ambulance personnel’s perceptions regarding the quality of the information received from the EMD-centre with acute chest pain alarms.
MATERIAL AND METHODS

Design

This thesis concerns experiences from different actors in the PEC chain. An overview of the five papers is presented in Table 2.

Table 2 Overview of the five papers presented in this thesis

<table>
<thead>
<tr>
<th>Paper</th>
<th>Design</th>
<th>Participants</th>
<th>Data collection</th>
<th>Data analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Descriptive</td>
<td>13 patients that had called the emergency number due to acute chest pain</td>
<td>Interview study</td>
<td>Phenomenological-hermeneutic approach</td>
</tr>
<tr>
<td></td>
<td>Qualitative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Descriptive</td>
<td>19 spouses that had made the emergency call due to their partners acute chest pain</td>
<td>Interview study</td>
<td>Phenomenological-hermeneutic approach</td>
</tr>
<tr>
<td></td>
<td>Qualitative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>Descriptive</td>
<td>16 emergency operators that worked at an EMD-centre</td>
<td>Interview study</td>
<td>Phenomenological-hermeneutic approach</td>
</tr>
<tr>
<td></td>
<td>Qualitative</td>
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<td></td>
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</tr>
<tr>
<td>IV</td>
<td>Descriptive</td>
<td>4 RNs and 15 emergency operators that worked together at an EMD-centre</td>
<td>Interview study</td>
<td>Latent content analysis</td>
</tr>
<tr>
<td></td>
<td>Qualitative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V</td>
<td>Descriptive</td>
<td>336 questionnaires from 100 on duty ambulance personnel that had responded to chest pain alarms</td>
<td>Questionnaire</td>
<td>Manifest content analysis Descriptive statistics</td>
</tr>
<tr>
<td></td>
<td>Qualitative</td>
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</table>

Qualitative approaches were used to capture experiences from patients who had called the EMD-centre due to acute chest pain (I), spouses that had made the emergency call due to their partners chest pains (II), emergency operators that had worked at an EMD-centre (III, IV) and registered nurses (RNs) and emergency operators that had worked together at an EMD-centre (IV). A combination of a qualitative method and
descriptive statistics were used to obtain knowledge from ambulance personnel that had responded to acute chest pain alarms (V).

**Setting**
The study that papers I-V concerned took place in a Swedish county with about 275,000 inhabitants that are served by three hospitals, one of which is a university hospital. The EMD-centre in this area receives approximately 700,000 calls annually from persons requesting help or emergency assistance from PEC personnel, police, fire brigade and other rescue teams. Approximately 130,000 of these are medical emergencies for which 35,000 require the dispatch of an ambulance. The ambulance services are provided by the county council, which employs about 100 ambulance personnel to work at the 9 ambulance stations in the county that has their three main stations located at the hospitals (SOS Alarm 2005). At the EMD-centre there are 15-16 emergency operators employed and during a two-year period there were also four RNs. The four RNs worked part time mainly on the day shift and did not work night shifts or on the weekends.

**Participants**
The participants have had involvement with PEC as a patient, a spouse or member of the personnel (Table 3).

**Paper 1, Patients**
The participants in paper I consisted of patients who called the EMD-centre and had their chest pain emergency given the highest priority (Table 3). The 13 patients interviewed in this study resulted from the selection of every 5th questionnaire that had been collected in paper (V) involving ambulance personnel where the patients had made the call themselves. They were 3 females and 10 males, aged 52-90 years (mean 67) that lived in both rural and urban areas. When the emergency call was made, 9 were alone and 4 had a spouse present.
Table 3 Overview of the prehospital emergency care chain and papers I-V in this thesis

<table>
<thead>
<tr>
<th>Prehospital Emergency Care (PEC) chain</th>
<th>At the location of the emergency</th>
<th>EMD-centre</th>
<th>Ambulance care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course of events</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency call made to the EMD-centre</td>
<td>Emergency call received</td>
<td>Information exchanged</td>
<td>Alarm received from EMD-centre</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emergency prioritised</td>
<td>Ambulance dispatched</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ambulance dispatched</td>
<td>Ambulance departs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Arrives to patient</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Medical treatment initiated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Transportation to hospital</td>
</tr>
<tr>
<td>Actors</td>
<td>Person calling Patient or Spouse</td>
<td>Emergency operators Registered nurses</td>
<td>Emergency medical technicians Registered nurses</td>
</tr>
<tr>
<td>Papers in this thesis I-V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paper I Patients</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Paper II Spouses</td>
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<td></td>
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<tr>
<td>Paper III Emergency operators</td>
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<td></td>
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<tr>
<td>Paper IV Emergency operators</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paper V Ambulance personnel</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Paper II, Spouses**

The participants were 13 wives and six husbands whose emergency call to the EMD-centre due to their spouses’ chest pains was given the highest priority. These interviews also resulted from the selection of every 5th questionnaire collected in paper (V) but from those where the spouse made the call. They resided in both urban and rural areas and their ages were estimated to be ranging between 50 to 85 years.

**Paper III, Emergency operators**

All 16 emergency operators, 10 female and six male, at the EMD-centre agreed to participate. They were all certified emergency operators and none had any formal medical education. They ranged in age from 34 to 56 years (mean 43) and had an average of 15 years (range 6-22) experience as an emergency operator.
Paper IV, Emergency operators and registered nurses
The participants in this study were the same emergency operators as in paper III, except for one female who was on leave, plus four female RNs employed at the EMD-centre for two years with the purpose of increasing medical and nursing competence. The emergency operators had worked at the EMD-centre an average of 17 years and their ages ranged between 39 to 58 years (mean 45). The RNs had on average seven years experience that included emergency department or ambulance care and were between 26 and 41 years old (mean 34).

Paper V, Ambulance personnel
All of the approximately 100 ambulance personnel employed at the different stations in the county were asked to participate and complete a questionnaire after they had responded to acute chest pain alarms that were given the highest priority over selected periods of time. The ambulance personnel had an emergency medical technician (EMT), assistant nurse or RN (10-20 %) education.

Data collection
Interviews
Individual interviews were carried out in papers I-IV since the intention was to capture the participants’ experiences from events in their lives (Lorensen 1998). The questions were open-ended, which encouraged the participants to speak freely and they were not interrupted (Mishler 1986). Follow up questions were then used to deepen, clarify or develop the responses (Mishler 1986). The interviews were tape-recorded and transcribed verbatim.

The patients in paper I were interviewed ten days to three months after they had made the emergency call depending on their medical status. The interviewees decided where and when the interview should take place, some chose the hospital but most chose their homes. They were asked to tell their experiences of the emergency call and the prehospital care. The interviews were tape-recorded and lasted 5-35 minutes.

In paper II interviews were conducted with spouses who had made the call to the EMD-centre for their partner. This was done after the patients had given their permission to contact their spouse for an eventual interview and one to three weeks after the emergency call and the prehospital contact had been made. Most of the
interviews were held in the interviewees’ homes, as was their choice. They were asked to tell about their experiences of being a spouse to someone with acute chest pain, of making the emergency call, their participation in the alarm situation and the prehospital care. These interviews were also tape-recorded and lasted 10-30 minutes.

The interviews with emergency operators in paper III were carried out in a separate room at the EMD-centre, over a period of two weeks. The interviews lasted for 45-90 minutes (mean 60). All interviews were tape-recorded except one, when the participant preferred the use of written notes.

In paper IV individual interviews were conducted with the 15 emergency operators working at the EMD-centre and the four RNs who had worked there for two years. The interviews took place in a separate room and lasted 25-60 minutes (mean 40). One participant again preferred the use of written notes.

Questionnaire
A questionnaire was developed for paper V as no suitable questionnaire was found in the literature. It was based on literature, the authors’ and ambulance supervisors’ experiences and as requested by the supervisors was limited to one page. Background data requested in the questionnaire included: the date and time the alarm was dispatched, patient identification number that is based on their date of birth and the caller’s relationship to the patient (Table 10). The questionnaire addressed how the ambulance personnel experienced the quality of the information received from the EMD-centre through “yes” or “no” answers and an open comment section. Four hundred questionnaires were distributed over the entire county and were collected from boxes placed at the ambulance stations or the emergency departments. The ambulance personnel who cared for the patient in the ambulance were asked to complete one questionnaire per case after the patients were admitted to the emergency departments. Out of the 345 questionnaires collected, nine were excluded because they lacked an assessment of quality. This left a total of 336 questionnaires that were included for analysis.
Data analysis

Phenomenological-hermeneutic approach

A qualitative approach was used for the analysis, which can be useful when the lived experience of a phenomenon is of interest (Creswell 2007). The transcribed interviews in papers I-III were analysed using a phenomenological-hermeneutic approach inspired by Ricouer (1976). This method was developed at the University of Tromsø, Norway and Umeå University, Sweden (Udén et al. 1992, Lindseth et al. 1994) and is described in a separate paper (Lindseth & Norberg 2004). Several researchers have used this method previously (Söderberg et al. 1996, Sørlie et al. 2000, Frid et al. 2001, Torjuul 2006). The phenomenological-hermeneutic approach is based on the assumption that it is possible to grasp the meaning of lived experiences through an interpretation of the subjects’ narratives while the aim of the researcher is to understand meanings of phenomena in their life world. Additionally this approach assumes that more than one interpretation of the text can be made, as only one single truth is impossible to find. Possible and probable meaning is searched for and you can argue for or against the interpretation (Ricouer 1976). The interpretation involves a dialectic movement between the parts of the text and the whole text, a movement between explanation and understanding. The phenomenological-hermeneutic approach consists of three phases: the naive reading, the structural analysis, and the comprehensive understanding/interpreted whole (Lindseth & Norberg 2004).

The naive reading of the interviews in papers I-III was an initial interpretation of the text as a whole that directed the next phase of the analysis. In the structural analyses (I-III) a detailed analysis was performed with a purpose of explaining the parts of the text and whether the structure validates or invalidates the first ideas obtained in the previous phase. This was a detailed analysis, ‘meaning unit’ for ‘meaning unit’, with the purpose of explaining the meaning of the text. A ‘meaning unit’ is a part of a sentence, a whole sentence or a paragraph that is related by content. The meaning units were condensed, abstracted and organized into sub-themes and themes (I-III). In paper III two structural analyses were conducted due to the nature of the aim. The interpreted whole is a comprehensive understanding supported by the first two phases. The meaning of the text evolved from a dialectic movement between the authors’ pre-understanding, the whole and the parts of the text. This understanding
was re-contextualized by using relevant literature to widen and deepen the understanding of the text (Lindseth & Norberg 2004, Ricouer 1976).

**Qualitative content analysis**

A qualitative approach can be useful when the responses are rich with nuances (Malterud 1998). Qualitative content analysis facilitates a systematic categorization and description of different data from verbal, visual or written text (Graneheim & Lundman 2004). This form of analysis is often used in nursing research and focuses on concerns, meanings, context, consequences or intentions in order to describe or delimit categories (Graneheim & Lundman 2004). Other authors researching PEC or medical telephone consultation have previously used this approach (Wahlberg et al. 2005, Jones & Machen 2003, Melby 2000). The interpretation of the written text can range from a concrete to an abstract level, from a manifest to a latent level and the interpretation can vary in depth and level of abstraction (Graneheim & Lundman 2004). After reading the interviews (IV) and written comments (V) several times, the text was divided into meaning units according to the aims. These meaning units, which can be words, phrases or sentences were then condensed and labelled with a code and sorted into sub-categories, categories and/or themes based on content similarities or differences.

In paper IV the interview text from the two personnel groups was analysed separately and a latent qualitative content analysis was performed. Latent content analysis deals with the more underlying meaning of the text, what it talks about and the analysis focuses on how different aspects of the text are related to each other (Graneheim & Lundman 2004). Different main categories developed from the groups (IV). From those, the categories were formed, two from each group with the same headings and one theme that covered both groups.

In paper V the authors used a combination of qualitative content analysis and descriptive statistics, which was determined to be the most appropriate. According to Creswell (2003) the approach used should be that which is most relevant to the aim and does not have to be limited to only one analysis form. The written comments made in relation to the assessment of the quality of the information received were analysed using manifest content analysis. Manifest content analysis is an analysis that deals with the substance of the text and what the text says which can later be used to quantify the
data (Graneheim & Lundman 2004). Out of the 336 questionnaires, 313 had written comments related to why they rated the quality of the information in the way they did. The questionnaires sometimes contained multiple written comments that when analysed together revealed a total of 398 meaning units.

**Descriptive statistics**
In paper V, the findings from the questions and the manifest content analysis of the written comments in the questionnaire were used as input for the statistical computations. Frequency tables and percent distributions were used to statistically describe the frequencies of different perceptions that explained the assessment of quality.

**Ethical considerations**
At the EMD-centre and elsewhere in the health-care system, privacy has the utmost priority for all persons involved. The Regional Research Ethical Committee (191/99 §24) approved the studies used for papers I-V included in this thesis. Participation was voluntary and consent was given after both verbal and written information was provided. The participants were informed that they could terminate their participation at any time without having to give a reason.

The patients with acute chest pain in Paper I were interviewed ten days to three months after they had made the emergency call depending on their medical status. The patients were contacted tactfully and with great respect especially since they had experienced a potentially life threatening situation. The patients decided where and when the interview should take place and the researchers used consideration regarding the patients’ medical condition and willingness to participate. Since the patients were interviewed about their experiences that could have had strong emotional meaning and could be distressful to talk about, they were offered an opportunity to contact the interviewer after the interviews to discuss any subsequent reflections.

In paper II, spouses were interviewed one to three weeks after they had made the emergency call concerning their husband or wife only after the patient had given permission for the interviews. As in paper I, the interviewees were also given a possibility for post interview discussion if desired. Confidentiality was guaranteed in papers I-IV and the participants were assured that it would be impossible to determine
the identity of the persons linked to the data or findings. In Paper V confidentiality was also guaranteed but with the background data from the questionnaires that included the patient’s identification number, and the date and time it was possible for the researchers to identify the actual alarm. The ambulance supervisors had verbally informed all personnel about the study and written information was also provided. The ambulance personnel answered the questionnaires after the patient had been taken care of at the emergency departments. Since the ambulance personnel could feel especially uncomfortable when the patient had died before reaching the hospital and with respect to them, the patient and the spouses, the ambulance personnel were told to disregard the questionnaire in such cases. The data in this thesis have been treated with confidentiality and shielded from all unauthorised persons not involved in the research. No individual can be identified in the final reports.
FINDINGS
The papers describe challenges inherent in being a caller in an alarm situation who then receives help from the PEC system (I-II) and from PEC personnel who give help (III-V). The findings are described out of the different actors’ perspectives.

Paper I, Patients’ perspectives of the alarm situation
Dealing with vulnerability and dependency
From the interviews with patients who experienced acute chest pain and have called the EMD-centre themselves, the two themes identified were Vulnerability and Dependency (Table 4).

Table 4 Patients’ experiences of PEC following acute chest pain emergencies, the sub-themes and themes developed from the structural analysis

<table>
<thead>
<tr>
<th>Sub-themes</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience of:</td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>Vulnerability</td>
</tr>
<tr>
<td>Fear</td>
<td></td>
</tr>
<tr>
<td>Aloneness</td>
<td></td>
</tr>
<tr>
<td>Uncertainty</td>
<td></td>
</tr>
<tr>
<td>Need of:</td>
<td>Dependency</td>
</tr>
<tr>
<td>Availability</td>
<td></td>
</tr>
<tr>
<td>Help</td>
<td></td>
</tr>
<tr>
<td>Care</td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
</tr>
</tbody>
</table>

Dealing with vulnerability and uncertainty in a potentially life-threatening situation
For the patients experiencing acute chest pain, the emergency call they made was a lifeline in an exceptional situation, one in which they feared for their lives. Hesitation, uncertainty and doubts could precede the decision to call; one explanation given was that they did not want to burden the health-care system unnecessarily. The findings revealed that the patients were sure of what number to call in an emergency, but less sure of when to call it. The patients expressed a feeling of aloneness in the acute situation, even those who were not physically alone. The patients were in severe pain, but in spite of that, they hesitated to call until the pain became nearly unbearable even if they knew the delay could put their lives at risk. They even contacted relatives or friends to confirm their decision to call, since they did not want to be alone in their
decision. They became afraid when they thought that no one would find them if they lost consciousness, and realized that the possibility they might lose control over the situation was imminent. Experiences from similar situations could increase their sense of vulnerability, as they knew their life was at stake and this caused even more stress and anxiety. Their sense of time was obscured; time seemed to stand still while waiting for help, minutes felt like hours. If they sensed indecision or hesitation on the part of the PEC personnel during their communication with them, uncertainty developed that could increase their fear and feelings of vulnerability.

Depending on care and being understood and confirmed

The patients generally took for granted that someone would answer their call for help, and could complain that it took too long for the emergency operator to answer and to understand the urgency. They were dependent upon the emergency operator understanding their plight from their description of the symptoms. The patients were afraid they might not be believed or they would be rejected. They were also dependent upon the ambulance personnel for help, care and treatment. When the ambulance arrived they felt relieved, as it was difficult to manage the situation alone. The ambulance personnel took over the responsibility and started the medical and nursing treatment, and the feeling of aloneness and anxiety decreased. The patients were grateful that their lives had been saved and the quality of the brief contacts with the PEC personnel played an important role in their perceptions of what they determined to be proper care and treatment.

Paper II, Spouses’ perspectives on the alarm situation

Daring to deal with the situation and an ability to take action

From the interviews with spouses to persons with acute chest pain one main-theme Aloneness and two themes Responsibility and Uneasiness emerged (Table 5).
Table 5 Spouses’ experiences of PEC, the sub-themes, themes and main-theme developed from the structural analysis

<table>
<thead>
<tr>
<th>Sub-themes</th>
<th>Themes</th>
<th>Main-theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daring to see the seriousness of the situation and do something about it</td>
<td>Responsibility</td>
<td>Aloneness</td>
</tr>
<tr>
<td>Trying to understand and be understood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daring to be the helpful coordinator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daring to rely on yourself and on others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dealing with uncertainty and worry</td>
<td>Uneasiness</td>
<td>Aloneness</td>
</tr>
<tr>
<td>Dealing with the frightening situation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dealing with frustration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dealing with the after-effects</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Daring to be in the situation and act as coordinator

It was sometimes hard for the spouses to understand and dare to see the seriousness of the acute situation, which made them uncertain as to how to act. The spouses expressed their feelings of how it could be difficult to be understood, to describe the situation and to get instructions while talking to the emergency operator. The spouses had to be the coordinator of the whole situation; that in addition to being the caller, had to find out what to do, give their partners support, manage any surrounding practical problems and guide the ambulance. The spouses alone had to manage all these activities. The spouses were sometimes hesitant about their decision to call and wondered if the situation truly warranted calling the EMD-centre for an ambulance. They felt it was easy to make mistakes while being stressed and wanted to avoid calling unnecessarily. This hesitation caused delays for medical treatment, in some cases for hours. The uncertainty that arose when making decisions caused ambivalent feelings of doing right or wrong and feelings of aloneness when acting on the decision. When they perceived their partners’ lives were at risk, the spouses experienced worry, uncertainty, stress, fear of loss, feelings of aloneness and desperation. They felt forced to act to preserve life, a situation that required an ability to act. The spouses gave their interpretation of the situation, conveyed their observations and relayed second hand information regarding their partner’s medical status, which needed to be understood immediately.
Managing responsibility, uneasiness and a sense of aloneness

Being responsible was challenging as was daring to do what had to be done to preserve life. Trying to remain as calm as possible was important in order to manage to give support to their ill partner. The spouses that had been through similar experiences were reminded of earlier incidents and were aware of what could happen if not that time, some time in the future. They felt alone when having those thoughts and they did not always want to talk about them. The worst outcome was something they needed to be prepared for, but realised it would be difficult to manage emotionally. For some spouses it was the first time they had called the EMD-centre in an emergency, for others it was an experience they had gone through many times before, which helped them to be more prepared. Previous experience they felt helped them to rely on their ability to handle the situation. The spouses felt uncertain when their partner’s condition deteriorated rapidly, the symptoms occurred suddenly or were difficult to interpret. To manage the frightening situation, physical and psychological separation was one strategy used by the spouses. When it was hard to interpret the situation they waited to see if the symptoms would subside. Frustration occurred when they felt the emergency operator questioned what they said, and as their frustration increased they tried to pull themselves together to answer the questions or do what they were instructed to do. Frustrations were also felt when the spouses did not understand what the PEC personnel said or did, or when they felt too much time was elapsing. After their partners had been taken care of by the ambulance personnel the spouses could feel exhausted and just wanted to be alone for a while, some needed to cry in private and found it difficult to relax. Being able to manage the uneasiness, stress and strain and to feel trust in the uncertain situation was not easy even for the experienced spouse. Afterwards a sense of relief was felt, but they always feared bad news would await them some day.
Paper III, Emergency operators’ perspective of working in PEC

*Having to rely on personal qualities, professional capabilities and information from callers*

Based on the interviews with the emergency operators there were three themes identified from the situations they found difficult to deal with: *Uncertainty*, *Communication difficulties* and *Internal and external resources* (Table 6). *Personal qualities* and *Acquired skills* were the two themes that were identified as important in the management of these difficult situations (Table 7).

**Table 6** Emergency operators’ experiences of situations they found difficult to deal with, the sub-themes and themes developed from the structural analysis

<table>
<thead>
<tr>
<th>Sub-themes</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diffuse symptoms</td>
<td><em>Uncertainty</em></td>
</tr>
<tr>
<td>Lack of information</td>
<td></td>
</tr>
<tr>
<td>Uncertain circumstances</td>
<td></td>
</tr>
<tr>
<td>Communication handicaps</td>
<td><em>Communication difficulties</em></td>
</tr>
<tr>
<td>Professional communication-jargon</td>
<td></td>
</tr>
<tr>
<td>Foreign languages</td>
<td></td>
</tr>
<tr>
<td>Self-identification with the situation</td>
<td><em>Internal and external resources</em></td>
</tr>
<tr>
<td>Children involved</td>
<td></td>
</tr>
<tr>
<td>Limited resources</td>
<td></td>
</tr>
</tbody>
</table>

**Table 7** Emergency operators’ experiences of what was important in the management of difficult situations, the sub-themes and themes developed from the structural analysis

<table>
<thead>
<tr>
<th>Sub-themes</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual traits and personality</td>
<td><em>Personal qualities</em></td>
</tr>
<tr>
<td>Intuition and the power of insight</td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td><em>Acquired skills</em></td>
</tr>
<tr>
<td>Experience</td>
<td></td>
</tr>
<tr>
<td>Active listening</td>
<td></td>
</tr>
</tbody>
</table>
Trying to understand is crucial when lives are at stake

The situations the emergency operators experienced as difficult to deal with were both ordinary and dramatic and a common denominator in these situations was the great amount of energy needed to manage them. A strategy the emergency operators used to deal with the difficult calls was to make every attempt to understand the caller and put themselves on their same “wavelength”. They felt alone in the situation and it was a challenge to try to get callers that were giving unclear or insufficient information to elaborate to a point they could be understood. It was an even greater challenge when they had to deal with uncertainties or communication problems. The emergency operators needed to “collect themselves” between the calls, and not bring negative feelings into a new call. They worked under great pressure, and misunderstandings or incorrect decisions could have serious consequences. Situations that the emergency operators experienced as difficult to deal with were when uncertainties occurred due to diffuse symptoms, a lack of information or other circumstances which complicated the case. Foreign languages, communication handicaps or unfamiliar professional medical terminology or jargon could cause communication difficulties. As they were using themselves as a “working-tool” they felt strained when their inner resources were put on trial, such as when they identified themselves with the situation, when children were acutely ill or injured, or when accessibility to ambulance resources was limited.

Using qualities and capabilities effectively in fast-paced complex situations

The emergency operators’ management of difficult situations was interpreted as trying to stay calm and collected in a dynamic process that shifted between the less dramatic and the chaotic. This process often takes place under stressful circumstances with very little time. They tried to understand the difficult situations, to prioritise their actions and make their decisions to the best of their ability. The emergency operators stated that they needed more guidance, feedback, and education in their work. To manage these difficult situations, special skills, knowledge and experience were regarded as important. In addition, personal qualities, such as; sensitivity, empathy, and intuition were vital in order to handle difficulties. The emergency operators’ tasks are complex as well as intricate and they need to be; flexible, compassionate and efficient when making decisions. The emergency operators also felt that their challenging working
tasks require a responsible attitude, the ability to cope with stress, patience, and a wide range of personal and professional knowledge.

**Paper IV, Emergency operators’ and nurses’ perspectives of working within PEC**

*Finding the possibilities in and overcoming the difficulties of teamwork*

The aim was to describe emergency operators’ and RNs’ experiences of working together at an EMD-centre two years after the RNs had been added to the team to increase medical and nursing competence. Even teamwork could be a challenge when decisions about the changes in work were coming from ‘above’. From interviews with RNs and emergency operators’ one theme “Complementing each other” and two categories “Competence at a higher level” and “Cooperation at stake” were identified and pertained to both the emergency operators and the RNs (Table 8-9).

**Emergency operators dealing with their feelings of being in question**

When the RNs were introduced to the team at the EMD-centre, the emergency operators with their many years of experience found the new work organisation challenging and said it felt like they were ‘pushed off balance’ and they became sceptical of the situation. They felt their competence was being questioned and they were uncertain as to how their positions at work would be affected. The scepticism they felt in the beginning subsided and eventually changed to acceptance and appreciation. The cooperation that developed was appreciated as it led to increased emergency competence and knowledge e.g. increased medical and nursing care skills. It also increased their sense of confidence and they gained different new experiences.

**Table 8** Emergency operators’ experiences of working at the EMD-centre after the addition of RNs, the sub-categories, categories and theme developed from the content analysis

<table>
<thead>
<tr>
<th>Sub-categories</th>
<th>Categories</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased medical skills</td>
<td><em>Competence at a higher level</em></td>
<td>Complementing each other</td>
</tr>
<tr>
<td>Increased confidence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Different experiences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scepticism</td>
<td></td>
<td>Cooperation at stake</td>
</tr>
</tbody>
</table>
Table 9 RNs experiences of working with emergency operators at the EMD-centre, the sub-categories, categories and theme

<table>
<thead>
<tr>
<th>Sub-categories</th>
<th>Categories</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being of real use</td>
<td>Competence at a higher level</td>
<td>Complementing each other</td>
</tr>
<tr>
<td>New experiences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frustration</td>
<td>Cooperation at stake</td>
<td></td>
</tr>
</tbody>
</table>

**RNs dealing with a new work situation and form of nursing**

The RNs also felt challenged with their new roles and new work place. They were surprised that they were perceived as being a threat to the emergency operators’ positions. Not being able to physically meet the person they were supposed to help was challenging, as was the short time in which they were to handle the acute emergency situations. Uncertainties and the level of difficulty could increase when the RNs did not have the possibility to speak directly with the sick or injured person. They expressed that they lacked tele-care training in their education and felt that years of experience as an RN before working at the EMD-centre was not only beneficial but necessary. According to them, both work and life experiences seemed to be important. The RNs’ initial frustration turned to a feeling of being of real use and with their work together with the emergency operators they gained new and valuable experiences.

**Finding ways to utilize each other’s knowledge and competence**

Initial frustration and scepticism changed to more positive experiences that resulted in improved cooperation and service. The RNs expressed difficulties dealing with the most urgent acute calls, as it was a challenge when they could not see the person they were to help. The emergency operators on the other hand expressed difficulties with the more complicated, somewhat diffuse cases such as stomach problems. The RNs were more accustomed to handling such cases and it was easier for them to interpret the symptoms. Through their complementary abilities and cooperation, the two groups could work well together to help those in need in an emergency to feel more safe and secure.
Paper V, Ambulance personnel’s perspectives of emergency calls

*Being dependent upon and having to rely on the information given*

For the emergency operators it was a challenge to convey the best possible information to the ambulance personnel, and for the ambulance personnel it can be challenging to be dependent upon and have to rely on the information from the emergency operators. The information given is a prerequisite for the ambulance personnel’s ability to understand the acute situation and be prepared for whatever actions they may need to take. In this study, the most common caller to the EMD-centre due to acute chest pain alarms was a next of kin, such as the spouse who conveyed their second hand information and observations about the patient’s condition to the emergency operator (Table 10).

### Table 10 Callers to the EMD-centre by frequency (n=336)

<table>
<thead>
<tr>
<th>Callers</th>
<th>Frequency n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Next of kin</td>
<td>174 (52)</td>
</tr>
<tr>
<td>Health-care professional</td>
<td>83 (25)</td>
</tr>
<tr>
<td>The patient</td>
<td>72 (21)</td>
</tr>
<tr>
<td>Unknown</td>
<td>7 (2)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>336 (100)</strong></td>
</tr>
</tbody>
</table>

*Dealing with information of not high quality in the best way possible*

Characteristics in the written comments associated with high and not high quality information received from the EMD-centre were indicative of the complex situations that the patients with acute chest pain as well as the ambulance personnel found themselves in. High quality information was associated with relevant assessments and prioritisations, as was receiving sufficient information about the patient’s condition and history. That the patient was informed and prepared seemed important as it had a bearing on the speed and accuracy in which the case could be processed (Table 11).
Table 11 Ambulance personnel’s perceptions associated with high quality information received from the EMD-centre, the frequency within the categories (n=240)

<table>
<thead>
<tr>
<th>Categories associated with high quality information</th>
<th>Frequency of perceptions n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevant assessment and adequate prioritisation</td>
<td>139 (58)</td>
</tr>
<tr>
<td>Information about previous illnesses or disabilities</td>
<td>42 (18)</td>
</tr>
<tr>
<td>Patient informed and prepared</td>
<td>32 (13)</td>
</tr>
<tr>
<td>Information related to duration and degree of pain</td>
<td>22 (9)</td>
</tr>
<tr>
<td>Speedy handling of the case</td>
<td>5 (2)</td>
</tr>
<tr>
<td>Total</td>
<td>240 (100)</td>
</tr>
</tbody>
</table>

Table 12 Ambulance personnel’s perceptions associated with information not of high quality received from the EMD-centre, the frequency within the categories (n=158)

<table>
<thead>
<tr>
<th>Categories associated with information not of high quality</th>
<th>Frequency of perceptions n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deficient assessment and inadequate prioritisation</td>
<td>57 (36)</td>
</tr>
<tr>
<td>Uncertain information</td>
<td>36 (23)</td>
</tr>
<tr>
<td>Patient not informed and prepared</td>
<td>30 (19)</td>
</tr>
<tr>
<td>Deficient information related to pain</td>
<td>26 (16)</td>
</tr>
<tr>
<td>Deficient information about the patients medical condition</td>
<td>9 (6)</td>
</tr>
<tr>
<td>Total</td>
<td>158 (100)</td>
</tr>
</tbody>
</table>

Deficiencies in the assessment, communication and the processing of the cases were categories associated with information that was not of high quality (Table 12). To be able to sufficiently grasp the situation and procure, the necessary information from the caller during the emergency call so that as much high quality information as possible could be relayed to the ambulance personnel, was found to be a challenge. Unfortunately not all information can be of high quality in these complex situations. The ambulance personnel need to deal with the challenges that develop when less than high quality information is relayed to them.
REFLECTIONS ON FINDINGS

Maintaining an intact chain

To describe the challenges surrounding PEC based on the experiences of the different actors involved (I-V) was the aim of this thesis. For the PEC personnel as well as the persons seeking emergency help for themselves or others due to acute chest pain, this is a challenging experience since lives are at stake. Providing care (III-V), being cared for as a patient (I) or, being in the acute situation as a spouse (II) in the PEC chain entails situations often filled with uncertainties (I-V), fear and anxiety (I-II). PEC is provided via telephone (III-IV), in private homes or in public places (V), which implies being in and working in uncertain circumstances. Acute situations are time sensitive and are fragile in that small errors can have profound consequences. The risk of not understanding or not being understood is ever present in the encounters between the persons in need of emergency help and the PEC personnel (I-V). Misunderstandings are obviously something to be avoided as much as possible, but unfortunately they do happen. The acute situations can be pervaded with feelings of having faith in the system or distrusting it (I-II).

The demands on the PEC personnel are great when they need to solve every case in the best possible way, in every circumstance and under all conditions. Their job entails a great deal of responsibility and they have the authority and power to act (III-V). Mistakes or misunderstandings and lack of knowledge on how to handle the situations can compromise patient health and safety as well as lead to incident reports (III-IV). Most inhabitants understand the serious nature of calling the emergency number; especially older adults, who perhaps have too much reverence for it and therefore hesitate to use it (I-IV). On the other hand hoax calls pose problems for the EMD-centres and they can increase feelings of uncertainty for the personnel (III-IV). PEC is a vulnerable link in the health-care chain and this vulnerability can in itself lead to or cause weaknesses. The problems that can occur in the PEC contacts are however offset by the possibilities for positive outcomes. PEC and the persons working in it save many lives. That the health-care system and in particular the PEC chain functions as it should is something inhabitants in our society not only expect but take for granted. Each link in the health-care chain needs to be firmly connected with the next since a break in it can have serious consequences.
Challenges in the PEC chain

Being dependent upon each other

The PEC chain needs to work optimally since people’s lives are at stake. In the PEC chain, persons in need of acute help are dependent upon the PEC personnel to safely, securely and efficiently assist and prepare them for the in-hospital phase of their health care and eventual recovery. The PEC chain that this thesis refers to begins with the caller (I-II). The EMD personnel (III-IV) respond to the caller. They are responsible for deciding the appropriate prioritisation and for passing on adequate information to the ambulance personnel (V) who then administer emergency care and medical treatment, and transfer the patient to the hospital. In the next segment of the health-care chain, the emergency department personnel based on the condition of the patient and the information received decide on further care and treatment for the patient (Bruce & Suserud 2005). Each personnel group within PEC makes up their own part of the chain. They work in and are responsible for one link and are dependent upon the others. Together, they have responsibilities and must meet the demands necessary to carry the person in need of help through the PEC chain. Since each PEC personnel group is working as one link of the PEC chain and that no chain is stronger than its weakest part, the weakest part could occur in the connection between two links. It is in these connections that the challenges could appear, and if they fail and the chain breaks, the person in need of help is put at risk.

It seems that the phenomenon of dependency is central in the PEC system. The PEC personnel are dependent upon each other in the different parts of the PEC chain and in a similar manner the patients or spouses are dependent upon the PEC personnel for help. The PEC personnel are there to give help in life-threatening situations and the demands in these situations are not only to be a good professional helper but also to perform this task in a good moral manner. Martinsen (2006) emphasises this in her philosophy about interdependency, which gives a moral aspect to the relationships among people and to life. The patient or callers are dependent upon the PEC personnel who have the authority to make decisions and the power to act, a task that requires time, professional knowledge and great humility. Martinsen
(1989) writes that the person receiving care is always in a situation of dependency. This dependency has implications on the PEC caregivers’ responsibilities and duties.

*The perception of time*

For the caller, spouse or patient, time seemed to stand still while waiting for help to arrive, for the PEC personnel time flies by quickly. PEC is a time sensitive activity, but for the patients (I) and spouses (II) interviewed, their sense of time was obscured. For them the seconds they waited for the emergency operator to answer the call felt like minutes, and the minutes they waited for the ambulance to arrive felt like hours. Davis (2005) writes that time has an impact on patients’ health care expectations. People categorise time as being in the past, present and future. They identify it as being measured time or lived time depending upon their present perspective. The experience of time is individual and can be experienced objectively in exact time, or subjectively as qualitative time or ‘internal’ phenomenological time (Kristensson-Uggla 1994). The patients (I) or spouses (II) cognitively understood that the ambulance would be there shortly, but the experience of waiting was prolonged and intensified by their or their spouses’ serious illness. Even though time is of an essence the PEC personnel (III-V) must take time to understand the patient’s problem and decide on the action (Shattell *et al.* 2006). Due to the patients’ serious situations and the need for rapid assessments, decision-making and rescue, time was experienced as being precious and too limited. Time was a challenge for the different actors in PEC (I-V).

*Individual experiences influencing the PEC situation*

The emergency operators had many years of experience in their profession and expressed the importance of experience when handling difficult cases (III). The patients (I) and the spouses (II) have also had individual experiences that influenced their understanding and perception of the emergency situation. Experience is a huge concept within the different scientific realms. According to the philosopher Gadamer (2002) experience is a concept that has been the subject of little research. Experience is described as being a process such as participation in an event. Experience can be something we have. It can be something we do, like when we understand a concept and by doing so, our intellectual horizon is widened. An experience is valid as long as it is confirmed and as long it is not offset by a new experience. A person cannot have the
exact same experience more than once (Gadamer 2002). Usually the same event can be experienced or perceived differently by two persons (Polit & Beck 2004). Experiences are events that convey meaning and can also be defined as significant situations from which you can learn. New knowledge is developed through experiences. Experience gives knowledge of what something is about, it gives insight, and self-insight is a higher level of knowledge. A person with experience is not synonymous with someone who knows more and better than others, but is someone that has self-insight and is open for new experiences (Gadamer 2002). According to Travelbee (1971) caring situations are dynamic processes between the personnel and the patient. The caring situations are experiences or happenings in time and space that have the purpose of achieving a change in the patient.

The patients, spouses and all the actors involved in the PEC situation have unique individual experiences as human beings and as professionals. Acute chest pain alarms are often a matter of routine for the PEC personnel since they have experienced them many times before. For the patients or their spouses it can never be a matter of routine they said, even if they had previous similar experiences. Understanding the patient’s needs is essential for helping them. Shattell and colleagues (2006) write, “Without an accurate appreciation of the patients’ experience of the problem, it is difficult to meet their health care needs.” Active listening is important in PEC (III) as elsewhere in the health-care system. Listening is important for understanding. “A person can listen without caring, but can’t care without listening” (Shattell et al. 2006). It is important to give the person you meet your full attention since this attention can be helpful in understanding the other person’s experiences (Martinsen 1993b, Olsen & Helland-Finstad 2003). It is reasonable to assume that this attention and self-insight is crucial for the emergency operators when they are delivering a service to those in need of acute help. This service is produced and consumed at the same time. For the PEC personnel it is of importance that they are open for new experiences in order to meet the demands placed upon them from those in need. The emergency operators past experiences can be of consequence when making decisions in emergency situations (cf. Cioffi 2001). Experiences that are challenging can be emotionally disturbing, and can also lead to personal growth that involves self awareness and an ability to understand another person’s situation. Trying to understand the lived world of others is another aspect of nursing practice and care, which is just as important as the skilled technical
aspects of care (Arbon 2004). Even if the PEC personnel (III-IV) have had long experience in working within the prehospital field, each day can bring with it new challenges and uncertainties.

Uncertainty, communication problems and unpredictability
Weaknesses in the chain could cause feelings of uncertainty both among the persons in need of help (I-II) and among the PEC personnel (III-V). To call for an ambulance in an emergency is for most people a major decision (Ahl et al. 2006) and there are barriers that can exist (Morgans et al. 2005). The emergency call may have been preceded by uncertainty and hesitation in the instances the caller did not want to call unnecessarily (I-II). The patients (I) that called in an emergency were in a potentially life-threatening situation and felt there was little other choice than to call for help. The PEC personnel might not be aware of the situation leading to the turning point when a person decides to call the EMD-centre or for how long they have hesitated to do so. Ahl and co-workers (2006) concluded in their study that professionals need to be mindful of both the patient’s medical needs as well as their reactions to the experience of being in a threatening situation.

When the patients were afraid of being rejected (I), they searched confirmation for their decisions to call by contacting relatives or friends. These delays or hesitations can lead to complications, increased health-care costs and a worsened prognosis for recovery. In some interviews mostly with older adults (I), it was stated that they hesitated to call because they did not want to be a burden to the health-care system. According to Kaur and co-workers (2006) there are many factors influencing the decision to call such as the interpretation of the symptoms, the family situation, cultural beliefs and coping strategies. Delays in seeking treatment may be a result of previous experiences with the health-care system, since according to Martinsen (1993a) situations are interpreted individually. Moser and colleagues (2005) reported that there was no difference between men and women in the amount of time they delayed calling, but there was a gender difference in the reasons for the delays and in the pattern of the decision-making. Schoenberg and co-workers (2003) reported that negative encounters with health-care providers could be a reason for why women with cardiac symptoms delayed seeking help and eventual treatment. This is in line with Travelbee (1971) who writes that earlier negative experiences, denial and defence mechanisms can play a role
in delays. Illnesses that pose a threat to the individual can influence how that individual person reacts. Each person is unique and acts in his own individual way. The PEC personnel (III-V) must deal with these acute situations made worse by delay. Information campaigns or patient education can help prevent such happenings (Ingarfield et al. 2005).

In general, the patients and spouses that had met the challenges associated with acute chest pain felt satisfied with their PEC experience. The hesitation and delay that occurred with the call for help put the patient at risk. Spouses (II) were the most common caller in acute chest pain situations (V) and in many cases they had called multiple times without hesitating. It is reasonable to assume that with favourable past experience; positive contact and good advice from the PEC personnel there will be less hesitation and delay in these situations and therefore an improved chance for a good outcome. This is in accordance with Sørlie and co-authors (1996) that reported improved satisfaction with health-care when family members received professional advice and counselling in acute illness situations. The challenge associated with hesitations and subsequent delays could be reduced and satisfaction with the healthcare system increased with good professional advice throughout the PEC chain. On the other hand, uncertainties can also lead to over utilization of PEC services. This was apparent in the cases where the spouses after their partner had been treated and discharged from the emergency department questioned if they had made the correct decision in calling for an ambulance. The spouses and the EMD-personnel made their decisions given the information they possessed at the time, and it is a well-known fact that it is easier to understand events afterwards.

For the professionals there are a number of overlapping factors that can contribute to feelings of uncertainty and according to Williams & Sibbald (1999) these are; uncertainty in relation to ones professional identity, working in a risk filled environment, experiencing uncertainty in relation to a patient’s changing status, and uncertainty in relation to new roles. These uncertainties are in accordance with findings presented in papers III-IV. French (2006) wrote that uncertainty in a workgroup could be known and accepted, hidden or unrecognised. The presence of the RNs at the EMD-centre led the emergency operators to feel pushed off balance and elicited a feeling of uncertainty in the early stages of their work together (IV). Health-care is a complex activity (Leonard et al. 2004) and PEC is an important part of the whole health-care
system. Due to this complexity; misunderstanding, communication failures, or incorrect decision-making can result. Effective teamwork and communication can help prevent such happenings and therefore unfavourable consequences.

PEC personnel have to work with and manage multiple sometimes somewhat uncertain and unpredictable circumstances. For example, Wireklint-Sundström (2005) writes that ambulance personnel are paradoxically prepared, and at the same time unprepared, they are in other words prepared for the unprepared. The challenges associated with unpredictability can lead to both positive as well as negative experiences. Positive experiences arise from stimulation and excitement that comes from a job with variation but if these challenges are experienced as too demanding they can easily become negative (cf. Wireklint-Sundström 2005).

Another source of uncertainties in PEC is the implementation and use of the new high technological developments. Disputing opinions regarding the benefits of new technology can lead to professional uncertainty (Wichowski 1994), which was reported among the emergency operators in paper III. New technologies that are introduced without sufficient information and education can be difficult to use and appreciate, and thereby be the source of uncertainties among the emergency operators or other PEC personnel. New technology leads to new techniques, which then must be adapted for use in health-care (Barnard & Sandelowski 2001). The technology could be seen as both a challenge and an uncertainty. Advanced technologies are useless if competent people in praxis cannot use them (Tjora 2000). It is reasonable to assume that uncertainties arising in PEC can result from insufficient information or education relative to the level of responsibility that is to be assumed. The emergency operators (III) in their interviews mentioned how more education, guidance and feedback would be beneficial.

Communication problems can occur and complicate the case when the caller has problems defining the symptoms or there is something else that leads to miscommunication and misunderstandings (Cooke & Wilson 1998, cf. Farmer et al. 2006). Communication failures are a common cause for the occurrence of inadvertent patient harm (Leonard et al. 2004) and the emergency operators reported on the risks associated with communication in their work (III). A failure in communication can cause a break in the PEC chain that can lead to increased uncertainties and have serious consequences for persons in need of help. Good effective communication and
cooperation between the different professionals in PEC can decrease feelings of uncertainty. Uncertainty was identified in paper IV when the RNs and emergency operators began to work together. In the beginning they felt frustration and scepticism and the emergency operators felt they were being put in question. As communication and the level of cooperation increased, they learned different skills from each other, gained new insights, experiences and knowledge, and they also realised how they complemented each other so that together they strengthened their link in the PEC chain.

Uncertainty is not an unambiguous concept. Uncertainty prevails in human existence, and can be described as the state a person is in when they have a goal but do not know how to achieve it. With uncertainty the individual is unable to determine the expected course, progression or comparative efficacy of the options in the actual situation (Penrod 2001). Uncertainty can occur when a person is unable to recognise and categorise stimuli and this can result in an inability to get a clear notion of the situation. Situations appraised as uncertain can get the person to mobilize resources in order to adapt (Polit & Beck 2004). In a state of uncertainty a person exists in the present and is unable to perceive the future as a reality (Penrod 2001). John Dewey an American philosopher wrote that situations are uncertain because they are “transitions to and possibilities of later experiences” (Dewey 1980). For the callers it was a challenge to manage the uncertain situation and even though they were sure of what number to call, they were not always sure of when to call it since they were uncertain of how serious their symptoms were (I-II). Uncertainty was identified in all of the papers (I-V). There is always the risk that PEC personnel will encounter uncertain situations where it is difficult to know what to do. This problem of uncertainty is applicable to everyone since as humans we know there is nothing that is certain in life (Sørlie et al. 2000).

Managing aloneness
Being in the acute situation meant not only managing the situation but having the ability to act. For the patients (I) or spouses (II) it was an experience where dealing with worry, uncertainty and responsibility was a reality, it was a situation of vulnerability and dependency. They needed help and they needed it from PEC (I-II). In papers I-IV in this thesis the actors recounted a sense of aloneness during the alarm
situation in some way or another. To some degree everyone has been alone or experienced loneliness, it is universal and is a part of being human (Killeen 1998). Closely related concepts to aloneness are loneliness, social isolation and solitude (Killeen 1998). Loneliness is a psychological experience, and it has been described as occurring when there is a discrepancy between the desired state of a person's relationships and their actual one. When a person feels lonely they long for companionship often for a particular person. Someone that is alone may be lonely but not necessarily so. The concept aloneness indicates being apart from anything or anyone and you can experience a sense of aloneness even when among other people (Killeen 1998). A dichotomous description of the essence of aloneness was presented by Wilkinson & Pierce (1997) to be a movement between vulnerability/self-reliance, fear/hope, helplessness/resourcefulness, a loss of self-control/self-determination and identity confusion/self-reflection. It is likely that persons involved in an emergency situation (I-IV) also experience the same sort of movement between these feelings. It is reasonable to assume that the patients (I) and spouses (II) that were experiencing a potentially life threatening situation were hovering between such feelings.

It happened that patients (I) were alone when they called the EMD-centre or felt they were alone even if they were not. The feelings of aloneness may have appeared when they realized their life was at risk and were unsure the help they needed would find them in time. Even if the patients were not alone, communication between couples could be lacking. When discordance exists couples may not share their feelings with each other (Svedlund & Danielsson 2004). Lack of information or when the partners withhold information about their symptoms (Svedlund & Axelsson 2000) can make it hard for the spouse to arrive at a decision about when to call the EMD-centre (II).

As the number of older adults increases and more of their care is given in their homes (Melby & Ryan 2005), the possibility they will require help when they are alone also increases. This feeling of aloneness can increase their fear and feeling of insecurity. With more severe illnesses being cared for in private homes, there will be a need for more PEC services in order to respond to an increased number of acute potentially life threatening symptoms (Melby & Ryan 2005). These circumstances can affect PEC since the cases can be more complicated and the symptoms more difficult to discern. Aloneness was felt by the spouses (II) when they alone decided what to do
when their partner was acutely ill; they alone had to be the one to take responsibility for the call. Eriksson & Svedlund (2006) wrote that chronic illness is considered an “intruder” in peoples’ life. According to Eriksson & Svedlund (2006) emotional aloneness could be experienced by the spouses of partners with a long history of heart problems even though they were living together.

The PEC personnel (III-IV) also had feelings of aloneness while performing their duties at work. They felt aloneness while making decisions in difficult cases and acting on them. Challenges in the caring culture at the working place can cause feelings of aloneness. If it is not an open climate with the possibility for dialogue, feelings of aloneness among the personnel can appear, e.g. not being able to discuss what was found to be a difficult experience (Sørlie et al. 2003). It is reasonable to assume that in the beginning of the cooperation between emergency operators and RNs (IV) when feelings of frustration and scepticism occurred, feelings of aloneness were present.

Meeting the demands and the interdependent complexities

“When a care provider crosses the threshold of a patient’s door, he or she crosses a border, moving from the world of practical preparation into that of a healing relationship in which everything he or she does is in the service to the patient. This border crossing brings care providers into the patient’s and family’s world - a world about which they know little - and within which they must tread with great humility” (Felgen 2004). The ambulance personnel cross the patients’ threshold when they come to rescue them and the emergency operators cross their threshold when they enter the call. For the EMD personnel it can be difficult to prioritise a call. They base their decision on their perception of what has been communicated to them by the caller, their knowledge about symptoms and differential diagnoses, their experiences, and their ability to understand the situation. In order to meet the demands and challenges in the often complex situations encountered while working by telephone at the EMD-centre, it is necessary to try to understand the caller. Martinsen (2006) writes that perceiving and understanding are separate but not independent of each other. “We perceive and understand at the same time, and we understand on the conditions of perception.”

Knowledge and information regarding possible or real weaknesses, or disturbances in the PEC chain can prevent unwanted consequences. It is
understandable that the person calling will have trouble communicating clearly and the big challenge is to successfully grasp the situation so that a reasonable decision can be made. Problems occurring between the other links of the PEC chain are a challenge but they can be easier to manage. One method is to have the different personnel groups act more as a chain and not just as individual links. It is important to think beyond individual professional territories and consider the entire picture and pathway that the patients must follow. Those in need of help have expectations that someone will come to their rescue and that they will receive good quality care. PEC is characterized by its rapid pace. Perhaps it is not the quantity of time the emergency operators and ambulance personnel spend with the patient that is important, but more so the quality. Uncertainties have to be handled in the best way possible, and the PEC personnel need to see the person as an individual and treat them with dignity, humility and sensitivity when managing the complex situations. A theoretical model can be used to examine and discover possible weaknesses in the PEC chain and thereby make it easier to do something about them.

A theoretical model to illuminate PEC
As a caregiver in PEC or elsewhere in the health-care system it is a challenge to give the best care possible. The organisation, the economic issues or the political decisions can infer possibilities or limitations. These limitations can also be due to the personnel working in the organisation or problems in the working environment. It is important to make the best out of the available resources. According to Martinsen (2006) care is provided in different settings, it is practical and involves concrete actions and situations. Caring can be understood from the ontologically concrete, practical or the organisational level. Knowledge and wisdom are developed during practice through our experiences. Our senses are important for our perceptions and experiences. Martinsen (2000) describes sight as the most dominant sense, one that gives mankind a general overview and an idea of the whole picture. Hearing is less dominant and together with the other senses helps human beings understand situations. In the prehospital phase the encounter between the person in need of help and the caregiver is short. The emergency operator cannot see the person they are supposed to help and have only their sense of hearing to rely on, the ambulance personnel on the other hand can in principle use all of their senses. We are always in a situation or in a particular
space (Martinsen 2006) especially in PEC. The tone of the situation has an effect on the ambience and how it is perceived (Martinsen 2006).

To illuminate the complex situations for the patients (I), spouses (II) and personnel in PEC (III-V), a theoretical model inspired by FAMM (The Five Aspects Meal Model) can be useful as a pedagogic tool and to facilitate practical work (Gustafsson 2004, Gustafsson et al. 2006, Forslund et al. 2005, 2007) (Figure 1). The theory of the American philosopher J. Dewey was the basis for this model, which has the aim to integrate both practical and theoretical knowledge (Gustafsson 2004, Gustafsson et al. 2006). It has been modified to illuminate PEC and the care given in the prehospital phase of the health-care system of which The Room, The Meeting, The Interventions, The Atmosphere and The PEC system aspects are included (Forslund et al. 2005, 2007).

![Theoretical model for PEC practice and education inspired by FAMM](image)

Figure 1 Theoretical model for PEC practice and education inspired by FAMM

The Room
PEC takes place in a room or setting. It can be in the ambulance, a public arena when the ambulance team cares for an injured person at the scene of an accident or when they care for a person with acute chest pain in their home (V) (Mistowitch et al. 2004). There is also the virtual room, the short communication the callers (I-II) have with the personnel at the EMD-centre (III-IV) by phone. When the room is the ambulance, the ambulance personnel are in a familiar working milieu doing what they are trained to do (V). The patient and spouses involved in this situation are in an unfamiliar milieu and experiencing something new and often frightening (I-II). In the ambulance the
patients or their spouses are aware of the environment and their senses are involved and they can remember the situation well (I-II). For the PEC personnel it is a challenge to provide the best possible care in the room they work in even though many uncertain factors are involved. If the person is uncomfortable and ill at ease in the room they will be less satisfied with the experience and perhaps even dissatisfied.

The Meeting

The health-care system is built on meetings between those who need help and those who can provide help, as well as meetings between the many professional groups (Åhlund 1996). The PEC phase is relatively short and the patients are in a vulnerable and dependent position (I) making the interaction between patient (I) and PEC personnel and interaction among the professionals (III-V) rather important to the outcome. It is a brief interpersonal encounter and the PEC personnel must care for the patient’s needs under uncertain circumstances (III-V). During the emergency call it is important that the caller is understood within a few seconds (I-II). The patients need to be understood and confirmed and their problems be taken seriously (Nyström 2003) and the way they are met can be crucial to their experience (I-II). The patients and the spouses are dependent on the PEC personnel (I-II) and are in a situation where there is a risk for errors especially when uncertainties can be involved (I-V) (Thompson & Dowding 2001, French 2006). For the patients it can be experienced as a caring or uncaring encounter (Wiman & Wikblad 2004). Meetings that are based on dignity, respect and a caring attitude will have a better level of communication. A good meeting between the different actors will increase satisfaction.

The Interventions

Patients expect an optimal combination of medical and caring interventions that are based on theoretical as well as practical knowledge when their health is at stake. It happens that highly technical PEC with accompanying advanced medical interventions are administered under uncertain and stressful circumstances (I-V). In a possible acute myocardial infarction emergency for example, the PEC intervention is the life saving care and treatment given (I) (cf. Johansson et al. 2004). CPR, ECG tests, administration of pain relieving medications and other nursing procedures are possible interventions. At the EMD-centre the PEC intervention is the emergency call and all
that it entails; a service that is given and received at the same time (I-IV). There is a risk that mistakes can be made in these situations (I-IV). The PEC intervention and the quality of it can be life saving (I-V). The right intervention in a timely manner requires an optimally working PEC system. Uncertainties are obstacles that can lead to incorrect interventions that put patient safety and lives at stake.

**The Atmosphere**
The aspect of atmosphere plays a central role in the care and it can influence the holistic perceptions and is of great importance for those in need of acute help as well as for the PEC personnel. The atmosphere of the prehospital setting (I-V), which eventually continues into the emergency department (Sørlie *et al.* 2004) and beyond in the health-care system is important for the patient’s overall experience (I). All of the patient’s senses are involved in their care or medical experience. Patients and staff can differ in their perceptions of what is considered to be a good atmosphere and a good social climate (Schjødt *et al.* 2003). The PEC personnel give the patients a feeling of safety and security (I-IV). They make lasting impressions on their patients who remember their PEC experiences rather well (I). The atmosphere in which the PEC personnel work is of importance in order to create a good working environment and better cooperation (IV) in order to give high quality service to those in need of help (I-V). If the atmosphere is fraught with a sense of indecision it can be felt and passed on throughout the entire PEC chain.

**The PEC system**
Leadership, economic, logistic and legal aspects are important in PEC (I-V). In PEC the patients are dependent on the availability of ambulances, which is governed by the number purchased by management (I). The patient is not always aware that a decision made by management has lead to their dissatisfaction with the care they received that began when they felt they were waiting too long for an ambulance to arrive (I-II). When patients have to wait for what they perceive as being an unnecessarily long time for care due to organisational shortcomings or cutbacks in the PEC system, their level of dissatisfaction can increase. It is also important the managers realise the risk that new roles and changes can create a culture of uncertainty (Williams & Sibbald 1999). For the PEC personnel it is the PEC system and organisation that regulates the
possibilities for what can be done. Health-care policies are changing internationally, nationally (Koivusalo 2005) and on the local level, which can have an impact on the working environment and the individuals working in the health-care system. Political decisions and economical issues can even have a trickle down effect all the way down to the care the patient receives. A lack of political interest and economic support can lead to dissatisfied patients as well as PEC personnel.

This model can facilitate an examination of the PEC chain by breaking it down into five aspects in order to discover its’ strengths and weaknesses. It can influence holistic perceptions of patient care. In PEC providing good quality care and service that is not only practical and productive but also ethical and aesthetic, requires knowledge. This model can stimulate new ways of thinking and reflection and thereby help improve PEC. The model can be useful as a theoretical model in PEC education as well as in concrete practical situations in order to achieve increased satisfaction in this first link of the health-care system. Although the theoretical model seems to have simple principles it can be useful and relevant. The caring theory presented by Martinsen challenges society, politicians and the health-care workers to realize the value of caring through concrete policies and care practices. Martinsen wants us to put ourselves mentally into the situation and arrive at a choice of action based on situational understanding, professional insight and caring (Martinsen 2006, Ahlsvåg 2006). This theoretical model can be a tool to do just that. It can be used by the PEC personnel as well as other health-care workers in order to reflect on and become aware of their work situation and thereby better serve patients (Forslund et al. 2007).

Methodological considerations
A descriptive design was used in all five papers included in this thesis. Most of the data analysis has been qualitative (I-IV). In one paper (V) a combination of qualitative analysis and descriptive statistics was carried out. Data was collected from interviews (I-IV), a questionnaire and written comments (V). In study V frequencies as well as quotations were used to illuminate perceptions of quality. Both numbers and words are two fundamental languages used in human communication. The intention behind the use of a combination of data collection methods as well as the use of different
participants in this thesis was to capture varying perspectives (I-V) and to reach a deeper understanding (I-III) of PEC experiences.

**Papers I-IV**

In papers I-III a qualitative approach (Malterud 1998) was used to reach a deeper understanding and meaning of how it was being a patient with acute chest pain that received PEC (I), a spouse that called for help for someone in that situation (II) and how emergency operators working at the EMD-centre deal with difficult situations (III). Qualitative research is designed to study research problems that inquire into the meaning of what the individual or group describes is a human or social problem, or phenomena (Creswell 2007). A qualitative approach can be useful when the issues are complex and the answers are complicated (Malterud 1998). The aims of papers I-IV seemed best approached using narrative research interviews. The participants decided which experiences and relationships they felt were most important in making their own actions understandable (Befring 1994). The interviews (I-III) captured individual descriptions of situations the participants have experienced, which would not have been possible if a questionnaire had been used. The textual analysis of the interviews was based on a phenomenological-hermeneutic approach (I-III) (Lindseth & Norberg 2004), which seemed appropriate since the intention of this approach is to grasp the meaning of the participants lived experience. The analysis process has been described such that the reader should be able to follow the steps that were taken (I-III) (Lindseth & Norberg 2004). The phenomenological-hermeneutic approach inspired by Ricouer (1976) is meant to reveal the meaning behind the text. The interviewees cannot validate the interpretation, as they are not always aware of what their narrations have exposed. The trustworthiness should be seen in light of what the text is directed towards. There is more than one way to interpret a text, but one is more probable than others (Ricoeur 1976). The interpretations in papers I-III were the ones the authors found to be the most probable. The authors’ interpretations were made from their pre-understandings and perspectives they gained through their experiences as RNs working in emergency and primary care, and as researchers. Co-assessments (I-III) increased the trustworthiness of the findings. Malterud (1998) writes that the probability that a finding is valid increases when more people agree upon the reasonableness of the findings. Within qualitative research, consensus assessment is not generally relevant for
validation, but it can be useful to see the data from different perspectives and from a different knowledge base.

The audio taped interviews (I-IV) took different lengths of time and were transcribed verbatim. Even though some of the interviews did not seem to last very long the text they produced was rich in content and it is the richness of the content that is important when analysing the text. When one participant (III-IV) did not allow the use of a tape-recorder, the content of the written notes that were taken during the interviews were confirmed with the interviewee directly afterwards. This text was analysed in the same manner as the others. The interviews in papers I-II were carried out one to three weeks after the emergency call was made when the situations still were vivid and the interviewees were keen to tell their experiences. The interviews for paper IV were carried out in the same way as those for papers I-III, but in paper IV another qualitative approach was used for the analysis.

Qualitative content analysis was used to analyse the text from the interviews with emergency operators and RNs (IV). The interpretation of the written text can range from a concrete to an abstract level and from a manifest that was performed in paper V, to a latent level which was performed in paper IV (Graneheim & Lundman 2004). The interview text from the emergency operators and the RNs (IV) was analysed separately and the findings are presented in two parts. The steps in this type of analysis differ from the other in that coding of the condensed meaning units is done before the sub-categories, categories and themes are identified. In the analysis in paper IV it was possible to make an interpretation of the underlying meaning, the latent message. Co-assessments increased the trustworthiness of the findings (IV) (Graneheim & Lundman 2004). The findings were discussed among the researchers; and a theme was identified and reflected upon in the discussion section. PEC is organized differently throughout the world, even within the Nordic countries (Langhelle et al. 2004). The findings presented are from people living in Sweden that have access to, or work in the socialized Swedish health-care system and since the organisation of health-care systems is different worldwide, the findings cannot be generalised. Even though it is not possible to generalise the findings, they are credible if persons with similar experiences recognise the descriptions and interpretations (Sandelowski 1986), and they can be transferred to similar situations (Ricouer 1976). The findings can be understood, transferred and applied to similar situations in a new
context (Sandelowski 1986) such as other prehospital care settings. Appropriate quotations and descriptions of data collection, analysis, setting and participants facilitate the transferability (Graneheim & Lundman 2004).

**Paper V**

Paper V involved the use of a questionnaire addressed to ambulance personnel. The questionnaire was an initial attempt to describe the quality of the information given to the ambulance personnel from the EMD-centre. The ambulance supervisors took part in the development of the questionnaire together with the researchers. Future studies will be of interest where new instruments can be developed and tested for validity and reliability (Polit & Beck 2004). A scale with several degrees of agreement or disagreement had been more appropriate in this study than the dichotomous “Yes” or “No” answer type used. In one area it was possible to make written comments to the questions related to the quality of the information given by the EMD personnel. These comments were analysed using manifest content analysis. The analysis dealt with the written comments and focused closely on what was written (Baxter 1991). The manifest content of the written comments was a description close to the text (Graneheim & Lundman 2004). The short written comments cannot describe the complete reason for the assessments. Qualitative and quantitative research methods have complementary strengths and weaknesses. An integrated approach can therefore give insights into the multidimensional nature of reality (Polit & Beck 2004). A combination of methods can be used to expand the scope of the study when the researchers seek various dimensions of a phenomenon (Sandelowski 2000), which in our case was the quality of information given.

The limited geographical uptake area and the subsequent composition of the participants may have affected the papers in this thesis. It is possible that if we had had the option of selecting participants from a wider area, perhaps nationally, different findings may have developed. As “no single study can ever definitively answer a research question” (Polit & Beck 2004) future studies would be of interest both nationally and internationally especially since research within the prehospital field is relatively limited compared with others within the health-care system.
CONCLUSION

Existing in PEC are many interdependent complexities that present demands and challenges to all the actors involved (I-V). In general those who have received acute assistance from PEC were satisfied, but the margins between success and failure are small. Risks for errors exist throughout the PEC chain and time poses a challenge. To understand the acute situation and be understood is crucial for all involved in PEC and the same situation can be experienced differently. The challenges inherent in PEC are daring to be in the acute situation either directly or indirectly. In addition there are challenges associated with aloneness, uncertainty, vulnerability and the unpredictable situations that can occur. Dependency on each other is another challenge. Those in need of acute help (I-II) are dependent upon the PEC personnel (III-V), system and organisation. PEC personnel are also dependent upon the system and organisation as well as each other and the caller. All involved must rely on and are dependent upon the information supplied and or relayed, and another person’s interpretation of the situation. Individualised care is important to strengthen trust and confidence for those in need of PEC. More information addressing the problem of hesitation in calling with acute chest pain problems can help save lives.

Working in PEC is challenging since every call and every situation is unique and people’s lives are at stake. Personnel are challenged if they do not have the ability to see the patient they are supposed to help. They have to make serious decisions based on the contact made by phone. Personnel skills, experience, professional knowledge and a caring attitude are important attributes for those working in PEC. The PEC personnel have the authority and power to act and make decisions, in which responsibility, sensitivity and human dignity must be addressed. Lives are saved every day with PEC despite all the challenges and possibilities for error. With the insights provided by this thesis the challenges can perhaps be better understood and dealt with. A model has been presented that can be of use in this quest.
Utmaningar i den prehospitala akutsjukvården – patient-, anhörig- och personalperspektiv


Syfte med avhandlingen
Det övergripande syftet med avhandlingen var att beskriva utmaningar i den prehospitala akutsjukvården utifrån patienternas, de anhörigas och personalens erfarenheter.

Delstudie I: Patientperspektiv

Delstudie II: Anhörigperspektiv
anhörig till en person i behov av akut medicinsk assistans och akutsjukvård tolkades som att ”Vara ansvarig och försöka rädda liv” och ”Kunna hantera känslan av obehag och känna tilltro i en osäker situation”. De anhöriga med sin känsla av ensamhet var i en eskalerande spiral av oro, osäkerhet, stress, rädsla för förlust samt desperation när deras partners liv var i fara. De måste hantera den känslosmässiga våndan och de kände sig tvingade att agera för att rädda liv, en situation som var en utmaning att klara.

Delstudie III: Larmoperatörernas perspektiv

Delstudie IV: Larmoperatörernas och sjuksköterskornas perspektiv

Delstudie V: Ambulanssjukvårdarnas perspektiv
Syftet med denna studie var att beskriva ambulanspersonalens uppfattning om kvaliteten på den information de fått från larmcentralen angående larm om akut bröstsmärta och dessutom att beskriva karaktäristika av hög respektive icke hög kvalitet från ambulanspersonalens perspektiv. Genom en enkät tillfrågades ambulanspersonalen angående den information de fått från larmcentral och kvaliteten på den givna informationen; dessutom innehöll enkäten en öppen fråga varför de skattade informationen som de gjorde. Totalt inkluderades 336 larm angående akut bröstsmärta som alla hade högsta prioritet. Ambulanspersonalen angav informationen som hög kvalitet i 203 larm och som icke hög kvalitet i 133 larm. I de skrivna kommentarerna framkom att hög kvalitet associerades med relevant bedömning av larmet, information om patientens smärttillstånd och tillräcklig information om patientens tillstånd och sjukhistoria. Det ansågs viktigt att patienten var informerad och förberedda och att hanteringen av larmet gjordes snabbt och med precision. Brister i bedömning och osäkerhet i informationen associerades med icke hög kvalitet. Hög kvalitet på informationen är en förutsättning för ambulanspersonalens möjlighet att förstå och förbereda sig för den akuta situation de skall möta. Resultatet kan vara till hjälp för larmoperatörerna i deras praktiska arbete så att mer information av hög kvalitet når ambulanspersonalen.

Konklusion

Arbetet i den prehospitala akutsjukvården är en utmaning, då varje larmsamtal och akut situation är unik och människors liv kan stå på spel. Personalen tar viktiga beslut baserade på kontakt via telefon, och det är en utmaning att inte se den de skall hjälpa. Yrkesmässig och personlig kunskap, erfarenhet och en omvårdande attityd är viktigt för den personal som arbetar i den prehospitala akutsjukvården. Personalen har befogenhet och makt att agera och ta beslut, vilket kräver förmåga att ta ansvar, fingertoppskänsla, ödmjukhet och respekt. Trots komplexiteten och riskerna i den prehospitala akutsjukvården räddas många liv dagligen. Denna avhandling kan bidra till ökad insikt och förståelse för den prehospitala akutsjukvårdens situation och ge möjlighet till att förbättra hanteringen av dess utmaningar.
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REFERENCES


Patients with acute chest pain – experiences of emergency calls and pre-hospital care

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Summary
Acute chest pain is a common reason why people call an emergency medical dispatch (EMD) centre. We examined how patients with acute chest pain experience the emergency call and their pre-hospital care. A qualitative design was used with a phenomenological-hermeneutic approach. Thirteen patients were interviewed, three women and 10 men. The patients were grateful that their lives had been saved and in general were satisfied with their pre-hospital contact. Sometimes they felt that it took too long for the emergency operators to answer and to understand the urgency. They were in a life-threatening situation and their feeling of vulnerability and dependency was great. Time seemed to stand still while they were waiting for help during their traumatic experience. The situation was fraught with pain, fear and an experience of loneliness. A sense of individualized care is important to strengthen trust and confidence between the patient and the pre-hospital personnel. Patients were aware of what number to call to reach the EMD centre, but were uncertain about when to call. More lives can be saved if people do not hesitate to call for help.

Introduction

Acute chest pain is a common reason for people to establish initial medical contact in an emergency, by calling the 112 telephone number to SOS Alarm, the Swedish emergency medical dispatch (EMD) centres. There are 20 such centres in the country, employing approximately 600 emergency operators. The emergency operators who receive the calls are trained to handle these emergencies and acute chest pain is often a routine matter for them. The communication during the telephone call to the EMD centre is regarded as an integral part of treatment prior to arrival at the hospital.1,2

Pre-hospital emergency care has undergone major changes over the last decades. Earlier the ambulance was more a means of transporting the sick or injured to the hospital. Nowadays care given before arrival at the hospital is regarded as the extension of the hospital into society,3 where medical interventions are increasingly important. Higher professional competency has been required of ambulance personnel. Prompt early treatment at the scene of an emergency saves lives and can limit and prevent complications and reduce human suffering.4,4

Acute chest pain can be a sign of serious heart disease. About 50% of patients with acute chest pain who contact the health-care system are later diagnosed with acute myocardial infarction. The remaining persons have other heart disorders, abdominal problems or other illnesses that are difficult to diagnose.4 Prompt care is of importance from both a medical and a psychological point of view,6 as is the rapid alleviation of pain. Acute chest pain connected with myocardial infarction may increase as a consequence of emotional stress and its subsequent negative effect may cause an even larger infarct. Pharmacological treatment in combination with information for decreasing stress and anxiety can alleviate chest pain.7 Patients who call in an emergency are in a stressful situation and have a very short...
encounter with the emergency operator.8,9 It is difficult to find studies of how patients with acute chest pain experience the emergency situation and what kind of care is given by the pre-hospital personnel. The aim of the present study was to illuminate how patients with acute chest pain experience the emergency call and their pre-hospital care.

Methods

The study consisted of patients who experienced acute chest pain and placed an emergency call to the EMD centre and were assessed as high priority. The actual EMD centre in this study is located in central Sweden and serves an area with 275,000 inhabitants. It receives approximately 700,000 calls annually, requesting help or emergency assistance from medical personnel, police or the fire brigade. Approximately 130,000 of these are emergencies, of which 35,000 require the dispatch of an ambulance.10

The 13 patients interviewed in this study resulted from the selection of every fifth questionnaire distributed in a previous study and consisted of three women and 10 men, aged 52–90 years (mean 67), who had placed an emergency call from their homes complaining of acute chest pain. When the call was made, nine were alone and four had assistance from a significant other. Participation was voluntary and consent was given after the ambulance personnel and the research team had provided both verbal and written information. The study was approved by the appropriate ethics committee.

Data collection

Patients were interviewed 10 days to three months after they had made the emergency call, depending on their medical status. The interviewees decided where and when the interview should take place and chose between the hospital and their homes. The interviewees were asked to discuss their experiences of the emergency call and pre-hospital care. The interviews lasted 5–35 min. Open-ended questions which focused on the patient’s experiences were used.11 The initial question was ‘Can you tell me about the call you made to the EMD centre?’ Follow-up questions were ‘What did you do then?’ and ‘How did you feel when that happened?’ An additional question was ‘How did you experience the contact you had with the ambulance personnel?’ All interviews were audio-recorded and transcribed verbatim by an experienced secretary.

Analysis

The transcribed interviews were analysed using a phenomenological-hermeneutic approach inspired by Ricoeur.12,13 This method was developed at Tromsø University, Norway, and Umeå University, Sweden, by Lindseth and Norberg,14 and has previously been used by several authors.15–18 The phenomenological-hermeneutic approach is based on the assumption that it is possible to grasp the meaning of lived experiences through an interpretation of the subjects’ narratives. The interpretation involves various phases: the naive reading, the structural analysis and the interpreted whole. This constitutes a movement between explanation and understanding and between the parts and the whole.15–14

Naive reading

The analysis began with a non-critical reading of the interviews, after which the initial superficial interpretation of the text as a whole was recorded. In this phase, the interviews were read keeping an open mind in order to gain a naive understanding of the meaning of being in emergency situations as a result of acute chest pain.

Structural analyses

The aim of the second phase was to describe the various parts of the text and to validate or invalidate the understanding gained in the first phase (naive reading). In this detailed analysis phase, all that is related by content and relative to the aim was sorted into ‘meaning units’. A ‘meaning unit’ can be a part of a sentence or a paragraph related by content. These meaning units were then condensed, abstracted and organized into subthemes and themes.15–14

Interpreted whole

The third phase consisted of a critical, in-depth interpretation, based on the dialectical movement between the whole and the parts, and the understanding and explanation of the text. According to Ricoeur,12 to understand a text means to follow its movements from what it says, to what it talks about. In this interpretation, the researcher’s ‘pre-understanding’, the essence of the naive reading and the findings from the structural analyses are taken into account, in order to achieve a deeper understanding of the text as a whole.12 The second author performed a co-assessment on 6 of the 13 transcriptions randomly selected for analysis. The material was read independently for the purpose of evaluating the
descriptions, the interpretations and the subthemes. The authors then agreed on the content and the themes, as well as the method of presentation. Examples of the steps in the analysis are shown in Table 1.

**Results**

**Naive understanding**

The patients expressed their experiences as stressful. They realized that they were dependent on other people for help. Patients who delayed calling the EMD centre and allowed the pain to increase later became desperate and needed to be understood immediately. An expressed fear was that the operator would not understand the seriousness of their problem. Answering questions was difficult due to the nature of the pain. Those who were alone stated that waiting for the ambulance was difficult and they were terrified that no one would find them if they lost consciousness. The contact with the operator was important and the information that the ambulance was on its way reassured them.

**Structural analysis**

The structural analysis was performed in order to describe how patients with acute chest pain experienced the emergency call and their pre-hospital care. The themes and subthemes that were formulated are shown in Table 2.

**Vulnerability**

**Experience of pain**

In addition to the chest pain, patients also experienced pressure, difficulty in breathing and profuse perspiration. The pain could be so intense that they lost awareness of the event, the conversation or how long it lasted. Patients who recognized their symptoms knew that they should take their heart medicine and then call the emergency number. Sometimes patients chose to wait until the pain was excruciating before calling for help. Others called relatives or friends for advice before contacting the EMD centre.

**Experience of fear**

Later, when they reflected, fears of what could have happened if they had not called for help were voiced. During the emergency they were afraid that they would not be able to reach the EMD centre, that no one would answer quickly enough and that they would not get help in time. They felt threatened and their fear was compounded when they felt that they had no control over the situation. It was terrifying when they realized that it was a life-threatening situation.

**Experience of loneliness**

If the patient was alone when the chest pain occurred, the feeling of loneliness was magnified. Without someone there by their side for support, the patient had to rely on the contact with the emergency.

<table>
<thead>
<tr>
<th>Subthemes</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience of</td>
<td>Vulnerability</td>
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<tr>
<td>Pain</td>
<td></td>
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<tr>
<td>Fear</td>
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<tr>
<td>Loneliness</td>
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<tr>
<td>Uncertainty</td>
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<tr>
<td>Need of</td>
<td>Dependency</td>
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<td>Availability</td>
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<td>Help</td>
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<td>Care</td>
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<td>Treatment</td>
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</table>

Table 2 Themes and subthemes formulated in the structural analysis from pre-hospital experiences as described by patients with acute chest pain

<table>
<thead>
<tr>
<th>Meaning units</th>
<th>Abstractions</th>
<th>Subtheme</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘I was lying there on the stairs, I remember it was in the middle of the night and it was pitch black out, I wondered if they would ever come.’</td>
<td>He was alone, lying on the stairs in severe pain, waiting for the ambulance to arrive. He was worrying they were not going to find him and thinking it was taking too long.</td>
<td>Experience of loneliness</td>
<td>Vulnerability</td>
</tr>
<tr>
<td>‘She told me what was going to happen and where they were going to take me. Then she told me to remove my clothes above my waist and to lie down and take it easy.’</td>
<td>The emergency operator told her what was going to happen, which hospital they were going to take her to and gave her instructions of what to do while waiting for the ambulance.</td>
<td>Need of help</td>
<td>Dependency</td>
</tr>
<tr>
<td>‘... and I got such a pain that I nearly thought I could die... I have never been ill in my whole life, not anything at all, and then just bang.’</td>
<td>He experienced sudden pain so severe that he thought he was going to die. He had never been ill before so it was unexpected.</td>
<td>Experience of pain</td>
<td>Vulnerability</td>
</tr>
</tbody>
</table>

Table 1 Examples of the steps in the analysis: meaning units, abstractions, subthemes and themes
operator. In their loneliness, they said that it felt as though they waited a long time for the ambulance to arrive. The time spent waiting for the ambulance was the worst part and having someone to talk to for advice and support was desirable.

Experience of uncertainty

When a sense of uncertainty developed during contact with the emergency operator or ambulance personnel, the patient felt insecure. Having previous experience of chest pain seemed to help the patient handle the current emergency with less fear and uncertainty. This was also true for those patients who had experience of making emergency calls for someone else. Those patients who felt that previous contact with the emergency operator was not good or felt that they had not been taken care of properly were, however, hesitant and uncertain about calling and waited longer to do so. Patients explained that they lacked adequate information and felt that they were a nuisance and wanted to avoid burdening the health-care system. When the patient had known someone else who had experienced something similar, they feared the same thing could happen to them.

Dependency

Need for availability

Patients expressed a feeling of dependency on other people and on the availability of ambulances during the emergency. It was easy to remember the emergency call number and they took it for granted that someone would answer their call. It was very important that treatment began in their home and continued on the way to hospital. It also seemed important for the patients that the contact with the emergency operator helped them feel safe and secure by confirming that they were being taken care of. The patients mentioned feeling safe when they knew that they had access to professional help and that the ambulance was well equipped. The feeling of security was enhanced when the patients were able to maintain contact with the emergency operator while waiting for the ambulance.

Need of help

The patients said that, even though the emergency call was brief, the information and help they received from the emergency operator had great significance. Feeling that they were understood and were receiving proper care was invaluable. They mentioned how difficult it was to answer all the questions the emergency operator asked regarding the nature of the pain. The patients experienced the call as being positive and they felt less anxious when the emergency operator quickly understood the gravity of the situation and gave them advice and guidance.

Need of care

Since it was an emergency when the patients called, they hoped that someone would answer immediately, understand their problems quickly and get them help promptly. They wanted to be taken care of properly without really knowing what that entailed. In general, patients remembered the emergency call and their contact with the ambulance personnel rather well. When the ambulance personnel arrived, they assumed responsibility and the patient felt relieved that they no longer had to manage alone. They emphasized the importance of adequate information during the telephone conversation. Details such as the ambulance being on the way and when it was due to arrive seemed to be appreciated.

Need of treatment

The patients were in a life-threatening situation and needed to have the seriousness of their problem understood and confirmed. Good advice and a sense that ‘everything will be all right’ was what they hoped for. They expected competent personnel who could solve their problems. The patients’ sense of self-worth improved when they felt that they were of central importance, the treatment was individualized and that highly qualified professional care was given in their own home. A sense of trust and a feeling of hope developed after experiencing friendly and competent personnel.

Discussion

Interpreted whole and reflections

Acute chest pain is a medical condition often successfully managed in the pre-hospital phase by skilled personnel following well practised routines. For the person calling, however, it is a unique experience fraught with fear, anxiety and pain, which the patients expressed as being threatening, stressful and frightening. The patients were grateful that their lives had been saved, and were generally satisfied with their contact with the emergency operator and the ambulance personnel. They felt that in general they had received good and proper care, although they sometimes complained that it took too long for the
operator to answer the call and understand the urgency. Communication problems are not uncommon occurrences during emergency calls, and are often due to the patients’ emotional state; this was reflected in the present study.

The patients experienced stress and the sense of time was obscured in these situations. Seconds felt like minutes until the emergency operator answered the call and minutes like hours until the ambulance arrived. Kristensson-Ugglam wrote that time is an individual experience. Time can be seen in an objective way or it can be seen as subjective. It is reasonable to suggest that the patient cognitively understands that the ambulance will be there in a few minutes, but the experience of waiting can make it seem much longer. This internal phenomenological time is typical in situations when time seems to stand still, such as when seriously ill people are waiting for help.

When patients found it difficult to express themselves and answer the operator’s questions, they could begin to scream as they tried to explain their pain, symptoms and location. They understood how this style of communication could make it more difficult for the operator, which increased their sense of panic because if they could not make themselves understood they feared they might die. According to Heltz et al., it is not always possible in the pre-hospital phase to know the cause of the symptoms. One cannot assume that acute chest pain is always a myocardial infarction. This is a complicated situation for everyone, and for the patient anything that complicates things further increases their fears and anxiety. To be human is to be vulnerable and as a patient one is especially vulnerable. It is, therefore, reasonable to suggest that the patients in this study experienced increased dependency and vulnerability as they were in life-threatening situations.

The patients said that they felt alone in a serious situation while waiting for help. According to O’Brien and Pothergill-Boubonnais, the feeling of being alone was described using negative words such as scary or frightening, which depicts vulnerability and dependency and is in accordance with the present study. McKinley et al. wrote about patients’ experiences of being seriously ill in an intensive care unit. The central concept was vulnerability related to physical and emotional dependency. Lack of information or depersonalized care increased the sense of vulnerability and was associated with uncertainty, fear and anxiety. In the present study, the patients hoped to get proper care from qualified personnel and valued the fact that the personnel knew exactly what to do. Enough information was obtained to provide individualized care after only telephone contact with the operators and a brief encounter with the ambulance personnel. Wahlberg found that the individual perspective is important and that the caller expects to be treated as a unique human being, to have the personnel understand the seriousness of their problems and to attain a feeling of security. Wiklund and Weman wrote about caring and uncaring encounters in an emergency department. Caring aspects include being open and perceptive of others, being genuinely concerned for the patient, being morally responsible and being truly present. Aspects of uncaring include instrumental behaviour, lack of interest and insensitivity. The patients in this study expected to be taken care of in a caring perspective and to be treated as individuals.

The patients were in a situation which they could no longer handle on their own, and were terrified if they lost consciousness that no one would find them. Therefore, the emergency call was the patients’ lifeline in a frightening situation. Their feeling of dependency on another person’s competence was evident. They expected and took for granted that they would be cared for properly, even though not everyone knew what that entailed. Baldursdottir and Jonsdottir wrote about patients receiving care at an emergency department. In that study, the patients scored these items as important: ‘knowing what they are doing’, ‘knowing how to give shots’ and ‘knowing how to handle equipment’. This is in accordance with the present study, where the patients, due to their vulnerability, had to rely on the competence of the pre-hospital personnel.

Patients who tried to ignore the pain waited as long as they could before they called. They delayed calling even though they knew the emergency number because they wanted to avoid ‘burdening’ the health-care system. Such behaviours could be explained by inadequate information and knowledge regarding the health-care system. Johansson et al. found that some patients with acute myocardial infarction believed that the ambulance should be called when the pain became unbearable, as it was only then that they felt they were sick enough to do so. In the present study, patients reported seeking confirmation from a friend or relative that they were sick enough to call for an ambulance. Patients do not always understand the seriousness of their condition and therefore they need confirmation of how to deal with an acute situation.

One reason why patients waited before calling was that they did not always understand the importance of avoiding delay in cases of myocardial infarction. Studies have shown that women may ignore chest pain and other symptoms. Another reason why patients
hesitated to contact the EMD centre may be that they were afraid of being rejected or ignored. They realized that they were dependent on others more than ever during a serious illness.

For a person to feel a sense of trust, security and calm, time to listen and time to see them is necessary. For the operators and ambulance personnel, time is of the essence, due to the patient’s serious situation and the need for rapid assessment and decision-making. Perhaps it was not the length of time that the operators and ambulance personnel spent with the patients that was most important. The quality of that brief contact with them and the fact that they survived the ordeal was of greater importance. This may be why the patients felt afterwards that they had received good and proper care.

**Methodological considerations**

The present study was aimed at deepening the understanding of how patients with acute chest pain experience the emergency call and their pre-hospital care. The interviews managed to capture personal accounts, which would not have been possible if a questionnaire had been used. A phenomenological-hermeneutic approach was chosen to grasp the meaning of the patients’ lived experiences. Although some interviews were seemingly concise, they were rich in context and in this study it was the analysis of the text that was important. The researchers’ ‘pre-understanding’ was based on their backgrounds as registered nurses with experience in emergency care, intensive care, cardiac care, paediatric care and geriatric care. The results of this study apply to a small number of people living in the Swedish culture and accessing the Swedish health-care system, and cannot be generalized. However, the results are credible if people of similar experience can recognize the descriptions as their own.

**Conclusion**

Acute chest pain can be a life-threatening experience that leads to feelings of insecurity, vulnerability, dependency and fear. The results of this study show that the patients were aware of what number to call to reach the EMD centre, but uncertain about where to call. More lives can be saved if people do not hesitate to call for help. When the call is made, a sense of individualized treatment is important in order to strengthen trust and confidence between the patient and the pre-hospital personnel. It seems crucial that the public receives adequate information regarding the usage of this life-saving service to reduce morbidity and mortality.

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Acute chest pain – spouses’ experiences of the alarm situation, emergency call and prehospital care

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ABSTRACT

The call to the Emergency Medical Dispatch centre is often a person’s first contact with the health-care system with acute problems. The aim was to illuminate how spouses to persons with acute chest pain experienced the alarm situation, the emergency call and the prehospital emergency care. Interviews were conducted with nineteen spouses. A phenomenological-hermeneutic approach was used for the analyses. The two themes responsibility and uneasiness and the overall theme of aloneness emerged. The spouses with their sense of aloneness were in an escalating spiral of worry, uncertainty, stress, fear of loss, and desperation, when their partners’ life was at risk. They had to manage emotional distress and felt they were forced to act to preserve life, a challenging situation.

KEYWORDS: Emergency call, emergency medical dispatch, acute chest pain, spouse
INTRODUCTION

In cases of acute illness or injury, the call to an Emergency Medical Dispatch (EMD) centre is often a person’s first contact with the health-care system and their point of entry into it (Forslund et al. 2004). The emergency operator’s task is to determine the nature of the caller’s problem, if needed alert the ambulance and provide life support instructions over the telephone. The emergency operators at the EMD-centres in Sweden are educated and trained to manage all kinds of emergency calls, such as medical, police or fire department cases (SOS Alarm 2007). To facilitate and deploy the appropriate support they use guidelines to make their assessments and form their decisions regarding the level of urgency of each call (Zenit 2006, SOS Alarm 2007). Between 900,000 and one million ambulance transportations are dispatched annually in the country (SOS Alarm 2005).

The emergency call is considered as an integral part of the patient’s treatment in the prehospital phase of the health-care system, that is to say the care given before the patient is taken care of at the hospital. Early treatment in cases of acute illness or injury can save lives, prevent complications and decrease human suffering (Swedish National Board of Health and Welfare 1997, 2002). The duration of the emergency call is often very short, initial decisions and actions regarding the case are usually made after only 20 to 40 seconds (Forslund et al. 2004). This is made more difficult for the EMD personnel since they do not see the person they are trying to help (Forslund et al. 2006) and it is further complicated if the information is provided by someone other than the person in need (Wahlberg et al. 2003). The most common caller to the EMD-centre is a next of kin (Hjälte 2005, Forslund et al. 2006).

The contact with the ambulance personnel is also very short and could be experienced as stressful for the patient (Forslund et al. 2005) and the other persons involved. The most common reasons for the dispatch of an ambulance with the highest priority are trauma,
chest pains or other heart problems (Hjälte 2005). In a Canadian study approximately 25% of the emergency ambulance transports were due to cardiac illnesses (Shuster et al. 1995), which is similar to 22% in a Swedish study (Hjälte 2005). Several studies report that early identification, rapid diagnosis and early thrombolysis with myocardial infarctions can improve patient prognosis (Johnson et al. 2006, Herlitz et al. 2002). Prehospital thrombolysis can benefit recovery rates in younger as well as older adults (Väisanen et al. 2005).

It has been reported that people can hesitate to call for an ambulance until the chest pain becomes unbearable (Kaur et al. 2006). Other reasons among many are an uncertainty that the symptoms are not severe enough to warrant an ambulance, that they will subside or that it is some other illness (Meischke et al. 1995). This hesitation can lead to delays that can have life threatening consequences in cases of myocardial infarction (Carney et al. 2002).

Price (2006) writes “There are many stages between a patient’s call for help and a safe arrival in the hospital, of which initial response is just one.” There have been few Swedish studies that have investigated the emergency call and the prehospital emergency care, which is the first link in the health-care system. In cases of acute chest pain it is the next of kin that make most of the calls. It was therefore of interest to investigate and focus on the spouses’ experiences surrounding the acute chest pain alarms. The aim of the study was to illuminate how spouses to persons with acute chest pain experienced the alarm situation, the emergency call and the prehospital emergency care.
METHOD

Setting and participants

There are 18 EMD-centres in Sweden with about 600 emergency operators employed. The study took place in a county with about 275,000 inhabitants and the EMD-centre receives about 700,000 calls annually requesting help or emergency services. At the EMD-centre there were 16 emergency operators employed.

From another part of the larger research project a questionnaire was collected from ambulance personnel that had responded to chest pain alarms given the highest priority. From the questionnaires every fifth one was selected. For this paper only the ones where the spouses had made the call to the EMD-centre were included. This resulted in the 13 wives and six husbands that participated in this paper (Forslund et al. 2002, Forslund et al. 2006). They resided in both urban and rural areas and the age range for the spouses was about 50 to 85 years. In our research project the most common caller was the next of kin and they accounted for about 50% of the calls (Forslund et al. 2002, Forslund et al. 2006). Among these next of kin it was often the husband or wife that made the call and the perspectives of persons with other relationships to the patient will be presented elsewhere.

The patients gave permission to contact their spouse for an eventual interview. Participation was voluntary and consent was given after both verbal and written information was provided. The participants were informed that they could terminate their participation at any time without providing a reason. Confidentiality was assured and it would not be possible to trace the findings to any of the participants. The Regional Research Ethics Committee approved the study.
Data collection

The participants were contacted and the interviews were conducted one to three weeks after the call had been made. The interviewees decided where and when the interview should take place and most chose their homes. They were asked to discuss their experiences of the emergency call and the prehospital care. The interviews lasted up to 30 minutes, and averaged 25. Open-ended questions were used that focused on the spouses experiences (Mishler 1986), which encouraged the participants to speak freely. The initial question was “Please tell me about the call you made to the EMD-centre”. Follow up questions were: “What did you do”, “Tell me more about that” and “How you felt after that”. An additional question was: “What was your experience of the contact you had with the ambulance personnel”. The purpose of the follow up questions was to deepen, clarify or develop the answers (Kvale, 1997). All interviews were tape-recorded and transcribed verbatim.

Analysis

A phenomenological-hermeneutic approach inspired by Ricouer was used to analyse the interviews (Ricouer 1976, 1993). This method was developed at Tromsø University, Norway and Umeå University, Sweden by Lindseth and Norberg (2004) and has been used by several researchers previously (Söderberg et al. 1996, Sørlie et al.2000, Torjuul 2006, Frid et al. 2001). The phenomenological-hermeneutic approach is based on the assumption that it is possible to grasp the meaning of lived experiences through the interpretation of the subjects’ narratives. There are three phases used to perform the analysis: the naive reading, the structural analysis, and the interpreted whole. Together they constitute a spiral movement between explanation and understanding, the parts and the whole and the three phases (Ricouer 1976, 1993, Lindseth & Norberg 2004).
Naive reading

A first non-critical reading of the interviews yields an initial interpretation of the meaning of the text as a whole. In this phase, the first author read the interviews as open-mindedly as possible in order to gain a naive understanding of the meaning of being involved in an emergency situation as a spouse to a person experiencing acute chest pain.

Structural analyses

This second phase comprised a detailed analysis of the text, “meaning unit” for “meaning unit”, in order to explain the meaning of the text and to validate or invalidate the understanding gained in the naive reading. These meaning units comprise one or more sentences or paragraphs related to the content, which were then condensed, abstracted and organized into sub-themes, themes and main-theme (Table 1). The findings are a result of co-assessment and discussion.

Table 1 Examples of the steps in the analysis; Meaning units, abstractions, sub-themes and themes

<table>
<thead>
<tr>
<th>Meaning units</th>
<th>Abstractions</th>
<th>Sub-theme</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>“He has gone to the hospital so many times before and don’t want to go if it isn’t absolute necessary. It went to crises nearly panic, he couldn’t breath and had such a pain; I took the decision to call.”</td>
<td>Her husband did not want to go to the hospital if it was not absolute necessary. She took the decision to call when his condition worsened acutely.</td>
<td>Making decisions</td>
<td>Responsibility</td>
</tr>
<tr>
<td>“I thought they will not find us, I know I had nothing on my feet and I was really cold when the ambulance arrived.”</td>
<td>She went outside barefooted (in wintertime) to guide the ambulance.</td>
<td>Accomplishing task</td>
<td>Responsibility</td>
</tr>
<tr>
<td>“Yes I called, and I told them that I don’t know what’s wrong with him, but I told them that he had pain in his back and behind his heart and he have had heart failure before.”</td>
<td>The wife was uncertain of the symptoms, but she tried to explain and told about his earlier heart problems.</td>
<td>Being uncertain</td>
<td>Uneasiness</td>
</tr>
</tbody>
</table>
Interpreted whole

In the third phase the text was considered as a whole again and interpreted to obtain a critical in-depth understanding. According to Ricouer (1976) to understand a text means to follow its movements from what it says, to what it talks about. In this interpretation, the researchers ‘pre-understanding’, the naive reading, and the findings from the structural analyses and literature are taken into account in order to achieve a deeper understanding of the text as a whole (Ricouer 1976, 1993, Lindseth & Norberg 2004).

FINDINGS

Naive understanding

Spouses that contacted the EMD-centre described the situation as being stressful, filled with anxiety and one in which they felt forced to act. They experienced a sense of aloneness in the alarm situation. It was difficult to be the intermediary of information and describe the symptoms to the emergency operator, as they sometimes realized that their spouse did not reveal all their symptoms. To be confirmed and taken seriously was crucial and it was important that what they said was not questioned. Previous experience of calling helped them feel more calm and at ease since and they knew what to do, but they also feared for the worst. They described a feeling of anxiety and insecurity with what they considered to be worsening odds. If the emergency operator or the ambulance personnel seemed unsure, their feeling of doubtfulness and insecurity increased. It happened that spouses apologized when they called for an ambulance; they thought the call might be unnecessary, and had even tried to get a taxi before they realized the seriousness of the situation. Their indecisiveness may have led to a delayed treatment of their partner.
Structural analysis

The analysis was performed in order to describe how spouses experienced the emergency call and the prehospital care. The sub-themes, themes and main-theme that developed are presented in the text and in Table 2.

Table 2 Spouses experiences of the acute chest pain calls and prehospital care, sub-themes, themes and main-theme developed from the structural analysis

<table>
<thead>
<tr>
<th>Sub-themes</th>
<th>Themes</th>
<th>Main-theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daring to see the seriousness of the situation and do something about it</td>
<td>Responsibility</td>
<td>Aloneness</td>
</tr>
<tr>
<td>Trying to understand and be understood</td>
<td></td>
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<tr>
<td>Daring to be the helpful coordinator</td>
<td></td>
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<tr>
<td>Daring to rely on yourself and on others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dealing with uncertainty and worry</td>
<td>Uneasiness</td>
<td>Aloneness</td>
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<tr>
<td>Dealing with the frightening situation</td>
<td></td>
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<tr>
<td>Dealing with frustration</td>
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<tr>
<td>Dealing with after-effects</td>
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Aloneness

Responsibility

**Daring to see the seriousness of the situation and do something about it**

To make the decision to call for an ambulance for someone else was difficult and it was not unusual that they waited as long as they possibly could before they contacted the EMD-centre:

“Finally in the morning I said this has gone on far too long, we have to go to the hospital and I called.”
The spouses hesitated when they were not sure if they were making the right decision and wondered if the situation truly warranted calling the EMD-centre for an ambulance, especially when the symptoms were unclear. It was felt that it was all too easy to make mistakes in judgement while under stress. Their uncertainty over the decision they made and the urgency of the situation could continue even after talking to the emergency operator:

“I told them not to use the sirens and lights, but to come IMMEDIATELY!”

Afterwards they sometimes questioned their decision when their spouse felt better and their pain was gone after only a few hours treatment at the hospital. They also wondered if their partners’ symptoms would have disappeared without treatment. In general they did not like the feeling they were a burden on the health-care system and even tried to apologise for making the call:

“But when it’s happening, you get upset and scared and you just have to do something.”

A turning point arose when the seriousness of the situation became so obvious that the spouses were forced to make the decision to call. The length of time before they made the decision was anywhere between one minute to many hours.

**Trying to understand and be understood**

The spouses told how difficult it was to give the emergency operator information during the stressful situation and that they found it hard to express themselves clearly. They gave their interpretation of the situation and conveyed their observations to the emergency operator. One wife expressed:

“I tried to explain, it was what he told me, but he didn’t tell me everything. I realized later he kept some information to himself.”

Previous experience of calling the emergency number facilitated the contact with the emergency operator since the questions asked were somewhat familiar. Some spouses had many years
experience of calling and for others it was the first time. When they thought the emergency operators asked too many questions they felt they were being pressed too hard for information. This not only made them annoyed but also anxious as they considered it to be a waste of precious time:

“I think they do their job but they are probing and stubborn and it all takes time, too much time.”

The spouses not only provided vital information, they were also given instructions about what to do while waiting. Even though they were told what to do to help their spouses, some felt it necessary to leave them unattended in order to go out and meet the ambulance to show the way.

Some found it difficult to understand everything that was happening and what they were being advised to do. Those that were older commented that at their age, it was difficult to understand the medical activities and the professional jargon they were exposed to. The novice caller was not as prepared for the questions that were asked or how to answer them as were those with many years experience of living with a spouse with heart problems and had called previously. It was very important that what the spouses had said was not questioned and they were taken seriously and believed by the prehospital personnel.

Daring to be the helpful coordinator

A spouse to a person that becomes acutely ill has to assume and manage different roles. They make the call for help and give needed information, as well as find out how to act and what they can to do assist and support their ill spouse while waiting for the ambulance to arrive. Another task is to manage any surrounding practical problems:

"I had the dog to take care of too…and I had to gather together all the things she would need."
Spouses with a long history of caring for a husband or wife with heart problems felt they always needed to be prepared to go to the hospital:

“I have been through this so many times, I know you have to prepare things in the evening and put all the clothes in order, because you never know if there will be an emergency during the night.”

A more difficult task was that of guiding the ambulance. Initially, they had to give the emergency operator the address and directions on where to find them. They were anxious the ambulance personnel would not be able to find where they were fast enough. Some went outside to meet the ambulance to help the ambulance personnel find the way and get to their spouses quicker. The whole situation was stressful and they could feel split between their tasks:

“I usually go outside and look for the ambulance and then run up and see if he still is alive and then I cry and go out again, it’s always the same.”

**Daring to rely on yourself and others**

For the spouses it was important to strive to manage and not panic during the situation:

“I'm calm when it's going on, because if I wasn’t, anything really awful could happen and everything could go wrong. Afterwards when it’s over, I can feel sorry for myself.”

Taking command over and managing the situation together with some previous experience of calling, helped them feel more at ease and secure in the situation. They explained how they could only do their best and that they had no other alternative then to call the EMD-centre.

When their husband or wife developed acute chest pain and exhibited life-threatening symptoms, spouses had to rely on the ambulance personnel and hand over to them:

“I feel very secure; they do what they should do, I suppose...they are skilled and know what to do, but I can’t help think about next time and then I can’t feel so secure.”
Whatever happened it was important for them try to remain as calm as possible and try to give support to their ill spouse. They were always aware of the worst outcome and they needed to be prepared for that too, but they realised that would be difficult to manage emotionally.

Uneasiness

*Dealing with uncertainty and worry*

The spouses often expressed that they felt uncertainty, especially when the symptoms occurred very fast or the spouses did not recognise the symptoms:

“She has always had problems with her stomach... It never dawned on me it could be her heart.”

They did not always understand the seriousness of the situation and waited to see if the symptoms would subside. When the spouse’s condition rapidly deteriorated and their anxiety increased, they became really stressed and worried over how they should handle the situation:

“I’m not used to calling, I’d never done it before, and I really tried to describe his symptoms. I saw he was in really bad shape... it was a nightmare and it came down to whether he would live or not.”

While waiting for the ambulance, the spouses were uncertain of what they had said to the operator and wondered if they had given them enough information. Others knew exactly but worried if it was the right information and that the ambulance would not get there in time. To decrease anxiety it was important that the emergency operator assured them that the ambulance was on the way and told them how long it would take it to arrive. After making the decision to call for help they were not always certain who they should call. It was not uncommon to call for a taxi or the health-care centre first, which delayed the dispatch of an ambulance:
“I called the taxi first but there wasn’t any available just then so we decided there was no point with that. We then called 112 (the emergency number) and I told the operator that we couldn’t wait for a taxi.”

The spouses also reported the problem of anxiety and how to manage the rest of the prehospital care. The women tended to stay at home or accompany their husbands in the ambulance. Following later to the hospital by car or bus also occurred. If the husbands did not stay at home they drove immediately to the hospital, which could be dangerous when they were upset and nervous:

“It’s about not panicking because then you can’t drive, when I get in the car then I forget everything else, I followed just behind the ambulance at high speed.”

**Dealing with the frightening situation**

To manage the somewhat unreal and frightening situation, one strategy the spouses sometimes used was distancing. A sense of separation could help them concentrate and decrease their anxiety so they could try to manage the situation and be supportive to their spouse. It was not always possible to take in the advice the emergency operator gave or dare to follow the spouse to the hospital:

“On the whole in my mind I was not there. A person who stands there crying is not of any use...although I tried to keep myself together, I didn’t manage it, I just cried and screamed.”

Others did manage to take care of their spouse and follow the advice given them while waiting for the ambulance but told how it felt like it took a long time even if it was just a few minutes. After treatment had been given and the ambulance was driving away, the spouses told of the separation anxiety and sense of aloneness that was felt:

“But just when they took her away in the ambulance, that’s when you feel she is leaving you and I felt so very helpless and alone.”
Dealing with frustration

Frustration could occur when the spouses felt questioned:

“She started to ask the questions once more, ones that I told her I had just answered.”

The spouses expressed frustration when they felt the questions seemed too simple and similar to the ones that would be asked at the local health clinic to someone with the flu. That the EMD-operator remained calm or was perceived as too slow also increased frustration levels. It was felt that the questions had been read from a book without a sense of involvement, which also caused spousal frustration:

“I was so angry; they didn’t listen to what I had to say.”

As their frustration increased and they felt more and more pressed, they tried to pull themselves together to answer the questions, but when that became too difficult they lost their patience:

“And finally…I couldn’t help it and I screamed SEND AN AMBULANCE NOW QUICKLY! It’s coming they said.”

Frustrations also developed when the spouses did not understand what the ambulance personnel said or did and when they felt everything was taking too long.

Dealing with the after-effects

After their spouses had been taken care of by the ambulance personnel or had been received at the hospital, they said they felt exhausted. The spouses told how they could want to be alone for a while, as they needed to cry in private, and found it difficult to sleep and relax. Others stressed that they needed to have people around them, but that did not always help, as their feelings of aloneness and exhaustion were overwhelming. Stomach problems and an exacerbation of chronic illnesses such as asthma were also reported:

“I’m not that healthy either, I have asthma and it gets worse when I get nervous and overly stressed.”
If the husband or wife had a long history of heart problems, their spouse felt they could not talk about their own ailments since they considered their partner’s problems to be even worse:

“I can’t talk about my pain, because his pain is worse. It’s no idea to complain about my problems.”

The husband and the wife could be rather old, have serious health problems and yet still live in their own home. According to them it is not easy living with a spouse that has heart problems. The tension associated with it causes exhaustion. They claim that it is hard to get over the experience of having to call for an ambulance and send their spouse to the hospital:

“To some extent you get used to calling, when you have done it for many times. But it never gets easier, he survived last time, how will it be this time?”

Afterwards a sense of relief was felt when the ambulance had left with their spouse still alive but they always feared for the worst some day.

**INTERPRETED WHOLE AND REFLECTIONS**

The aim was to illuminate how spouses to persons with acute chest pain experienced the alarm situation, the emergency call and the prehospital emergency care. *Aloneness* is an overall theme that can be identified throughout the two themes that emerged, which were *responsibility* and *uneasiness*. The alarm situation could develop suddenly or have a more gradual onset. The decision to call the emergency number varied from a minute when the spouses feared there was an imminent risk for cardiac arrest to hours when the usual measures to alleviate the chest pain was unsuccessful and the spouse’s condition worsened. With the realization that the chest pain could be life threatening, the spouses felt they had the vital task to manage during the emergency situation and summon help. Even though the decision to call for an ambulance could be made alone or jointly, it was the spouse that made the call and spoke to the emergency operator. To
relay information and observations to the emergency operator was difficult when the emergency
call was a new experience or even a repeated occurrence. The acute situation was also influenced
by how the spouses managed their own emotional distress.

Managing the challenges of responsibility, uneasiness and the sense of aloneness

Being a spouse to a person in need of acute medical and nursing assistance was interpreted as:

*Being responsible and trying to preserve life*

Human life is fragile; in a single moment the calm of daily life can turn into crisis, and people
become dependent on others for help and support (Silfverberg 2005). Being in the position of
helping their partner in a life or death situation is something the spouses found difficult to be
fully prepared for, even if it had occurred several times before. For spouses new to the situation,
it could be experienced as an unpleasant surprise that caused a type of temporary paralysis, stress
and anxiety. For others that had experienced a similar situation before, there was hesitation,
reluctance and delay associated with the decision to call for an ambulance. It is a situation of
uncertainty for the acutely ill person (Forslund et al. 2005) their spouses and the prehospital
personnel involved. The spouses knew they had to assume responsibility in order to preserve the
life of their partner as well as their life style. After making the call to the EMD-centre, a response
to this sense of responsibility could vary and the spouses could either participate actively or
withdraw and stand more in the background. Hesitation over the significance of the symptoms
with a subsequent delay in placing the emergency call was not uncommon. The belief that the
symptoms were not serious enough to warrant an ambulance was one reason behind the
reluctance or hesitation in calling the EMD-centre (Leslie et al. 2000, Lozioni et al. 2005). Patients
with chest pain can be considered “over admitted” since all too often their chest pains were not
later diagnosed as being a myocardial infarction (Ekelund et al. 2002). Another study showed an
under utilisation of ambulance services among patients with myocardial infarction (Johansson et al. 2004). Cardiac pain could also be symptoms of a panic disorder (Hamer et al. 2006). For a spouse it can be extremely hard to interpret the symptoms and then try to relay the information to the emergency operator so they can understand the situation. They had a sense of responsibility for the situation and a desire to give the emergency operator correct information but not knowing if their partner had told them everything about their condition caused a sense of uncertainty. When they found it difficult to answer the operators’ questions, uncertainty could increase. The second hand information the spouses relayed could cause problems for the emergency operator when prioritising the case (Wahlberg 2003, Karlsten & Elowsson 2004, Forslund 2005).

For the spouse with previous experience, deciding was a process that could take hours, until it was decided their partners’ medical condition was critical. They were aware that their spouse’s heart problems could escalate at any time and it was hard to ever fully relax. Moser & Dracup (2004) wrote that spouses could experience an even greater degree of anxiety or depression and a lesser degree of perceived control than their partners who had experienced the acute myocardial infarction or other cardiac event. There was a risk that their quality of life and general health would decline (Sewitch et al. 2006). This is associated with the uneasiness, uncertainties, feelings of aloneness, and fear of the unknown future. In this paper the experienced spouses reflected how they lived in the fear that this time or next time their partner’s life might not be possible to save. To live with a person with a history of heart problems could imply a change in life style (Stewart et al. 2000). The illness becomes an intruder in their life (Eriksson & Svedlund 2005). Svedlund & Axelsson (2000) wrote that couples tried to live as normal as possible and tried to adapt to the situation after an acute myocardial infarction, which entailed a feeling of loss of freedom in their life. It was interpreted in their study that women who had had
an acute myocardial infarction felt distressed and vulnerable and had to struggle against fear caused by the illness. The partner’s challenge was to try to adapt to the women’s experience of the illness, which was difficult when the women withheld their feelings and there was a lack of communication between the couples. Discord may be experienced between spouses that try to protect each other. Couples experienced aloneness when they had not shared feelings about cardiac events or the acute situation (Svedlund & Danielsson 2004). Patients experienced a feeling of aloneness in the acute situation even when they were not alone (Forslund et al. 2005, Ahl et al. 2005). The spouses in this study could feel alone and anxious when they assumed responsibility, made the call to the EMD-centre and waited for the ambulance to arrive. A fear of separation and loss of their partner lead spouses to call for an ambulance even when their partner denied the seriousness of the situation. It is a difficult task to assume responsibility and manage in acute situations. According to Silfverberg (2005) courage is not only needed to manage in extreme situations but also in daily life. This perhaps is especially so when there is chronic illness involved such as heart problems. According to Løgstrup (1992), when human beings are together they have a responsibility to and are dependent upon each other. One can have power more or less over someone else’s life and for the spouses in this paper; it was impossible to avoid taking power over their critically ill partner.

**Being able to manage the uneasiness and feel trust in an uncertain situation**

Being in the position to help and a necessary link between life and death, the spouses felt they had to manage different challenges in the acute situation. They felt forced and responsible to act in some way, even if they felt anxious and stressed.

The spouses had to manage their feeling of uneasiness and anxiety. Being a witness to a partner’s acute illness is an extreme and almost unreal situation that is hard to imagine. In the
literature there are different viewpoints as to whether or not family members should be present during resuscitation efforts (Halm 2005). In this research the spouses were the first ones to witness the acute situation. It was an event that they could not run away from or deny no matter how much they wanted to and no matter how stressed and frightened they were. They were standing in the centre of the emergency and they “alone” had to choose how to act. Løgstrup (1996) wrote, when making a choice, you are the master of the situation. There are different choices available and one is to avoid choosing anything at all. He further wrote that making a decision involves more than making a choice. There is more at risk with a decision and when it cannot be realised, a new decision must be made. Each spouse managed the acute situation in their own individual way and that depended on if it was a new experience or not and on their level of their emotional distress. Being with someone who is critically ill can be experienced as an emotional trauma (Theobald 1997). For the spouses it seemed essential to be believed and confirmed, and they did not want their information to be questioned. They were certain someone would answer their call for help; they were trustful in society’s emergency organisation and that they would receive help in times of need.

After the decision had been made and the emergency call was completed, the spouses told how waiting for the ambulance seemed more like hours than minutes. During the wait a feeling of helplessness would make them feel even more ill at ease. They were at times unsure of what was most vital to do or take care of. “Waiting is a paradoxical human experience of turbulence/stillness all at once” (Bournes & Mitchell 2002). Bournes & Mitchell (2002) also write that waiting is a universal experience that everyone describes individually relative to their life and it is an especially vivid when an acute illness of a loved one is involved. A study by Carney and co-authors (2002) reported that patients with a previous heart history did not call earlier for assistance when having heart problems than others without this experience. Patient
delay, rather than transport or hospital delay appeared to be the major cause for the delay in treatment (Jurgens 2006). Rosenfeld and colleagues (2005) wrote that women delay seeking treatment for myocardial infarction because they feel their symptoms have other causes. Husbands in our study that hesitated in making the decision to call may have done so when it was difficult to interpret their wife’s symptoms. Kaur and co-authors (2006) wrote about the multidimensional factors influencing the decision to seek treatment with the onset of chest pain.

Making a decision in the emergency situation was experienced as being stressful and anxiety filled. The possibility of the partner’s death was one cause of the stress (Theobald 1997). The spouses had to deal with the uncertainty of their husband or wife’s survival and alternated between feelings of hope and despair. “Uncertainty is defined as the cognitive state resulting from a situation that lacks clarity and information, is unpredictable and is associated with inaction at a physical and/or mental level” (Jurgens 2006). The spouses had to manage all their feelings. As a spouse, to be unable to manage emotional distress made them ill-equipped to be a support for their partner.

The spouses were worried about the present and about the future. Caring and worrying are human responses to the vulnerability in others and is a moral basis of human existence and the human response to the appeal of others in need of care. The more a person cares for another the more they worry, and the more they worry the stronger the desire is to care for them (van Manen 2000). For the spouses in this paper it was a situation of worry and complexity when their partner’s life was at stake. They were in an escalating spiral of worry, uncertainty, stress, fear of loss, feeling of aloneness, and desperation. For spouses the experience of their partner’s acute chest pain could be described as one of overwhelming emotional turmoil, in which their task was to preserve life, a situation which was a challenge to manage.
METHODOLOGICAL CONSIDERATIONS

A qualitative approach was chosen to capture rich interview text. The intention of the research was to illuminate spouses’ experiences of acute chest pain alarms. The phenomenological-hermeneutic approach was chosen to grasp the spouses lived experiences of being in the acute situation and to deepen the understanding of the spouses’ situation, which would have been difficult to capture with a questionnaire. There is more than one way to interpret a text, but one is more probable than others (Ricoeur 1976). The interpretation in this research was the one we found to be the most probable. The interpretation was made from the pre-understanding and perspectives of the researchers’ experiences as registered nurses working in emergency and primary care. The co-assessment increased the trustworthiness of the findings. As the findings were based on interviews with persons whose spouses had received care in the Swedish health-care system they cannot be generalised. They can however lead to a deeper understanding of how it is being a spouse whose partner had experienced acute chest pain. The findings may be credible for persons with similar experiences and can be transferred under similar circumstances (Ricoeur 1976, Sandelowski 1986).

CONCLUSION AND CLINICAL IMPLICATIONS

The spouses felt they could trust the system and expected someone to answer their emergency call, they were however hesitant when to call. The emergency situation is time sensitive and stressful for those involved.

It is a challenging situation to be a spouse to a person experiencing acute chest pain that needs emergency medical and nursing assistance. It was interpreted as “Being responsible and trying to preserve life” and “Being able to manage the uneasiness and feel trust in an uncertain situation.” The spouses with their sense of aloneness were in an escalating spiral of
worry, uncertainty, stress, fear of loss, and desperation, when they felt their partners’ life was at risk. They had to dare to rely on themselves and others, manage their emotional distress and dare to act in the acute situation. A better understanding of the challenges encountered by the spouses can help prehospital personnel provide better service and care.

ACKNOWLEDGEMENT

Our thanks to Maria Ekholm for transcribing the interviews.

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Operators' experiences of emergency calls

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Summary

In Sweden, the operators at emergency dispatch centres are responsible for allocating resources (e.g. ambulances, fire brigade, police) in response to calls. We analysed situations that the emergency operators experienced as difficult and their reflections on how they managed them. Interviews were conducted with all 16 emergency operators at a centre that serves a population of 275,000 and receives about 700,000 emergency calls annually. A phenomenological-hermeneutic approach was used for the analysis. Situations that operators experienced as difficult were characterized by uncertainty, communication difficulties and insufficient resources. Skills, knowledge and experience were regarded as important in the management of these situations, as were personal qualities such as sensitivity, insight, empathy and intuition. The emergency operators stated that they needed more guidance, feedback and education in their work. This would lead to an increased sense of certainty, which would lead to decreased stress and a better outcome for those in need.

Introduction

Since 1973, anyone in Sweden has been able to contact SOS Alarm, the Swedish emergency dispatch centre, directly by telephone when they require emergency assistance. On average, it takes approximately 20-40 seconds for the first action to be taken during the emergency call. Operators receive all kinds of emergency calls, such as those that require ambulances, the fire brigade, the police or other acute services. The emergency operator answering an emergency call is responsible for triage, that is, making decisions, prioritizing cases reported in the light of available resources and initiating action.

In medical emergencies treatment is initiated before the patient reaches hospital. During the past few years, Swedish ambulance staff have become more medically qualified; the goal is now to include at least one nurse in every ambulance team. This might have affected the work of the emergency operators, for example the level of competence required. The emergency operators are trained for one year before they qualify and thereafter undergo annual stress tests to show their capacity to manage several things at the same time. Personal characteristics and professional experience were the main criteria for employment, but now formal medical education is also desirable.

The emergency operators are often confronted with situations in which decisions must be made in a matter of seconds. It is vital that the person making an emergency call is understood and supported by the operator. The caller sometimes needs advice while waiting for help to arrive. The emergency operators must ask the right questions and interpret the answers correctly, while using guidelines for support. One of their duties, after making assessments, is to give information to the rescue team or the paramedics as to what they can expect to find at the scene of an emergency. Good communication between the caller and the receiver of the emergency calls creates opportunities for skilled care, which must be based on scientifically tried and tested experience.

Wahlberg and Wredling have suggested that telephone nursing and triaging by telephone in Sweden can be a demanding task. There have been studies of emergency or ambulance nursing, but there appear to have been few studies of Swedish emergency operators' work. Emergency operators use advanced equipment. Furthermore, they have their own personal ways of managing different situations and it is therefore important to examine these. The aim of the present study was to analyse the situations that emergency
operators experienced as difficult to deal with and their reflections on how they managed them.

Methods

Setting and participants
All 16 telephone emergency operators (10 women, 6 men) from one emergency dispatch centre in central Sweden were interviewed. The SOS centre serves a population of 275,000 and receives about 700,000 emergency calls annually. The participants ranged in age from 34 to 56 years (mean 43) and had an average of 15 years’ experience (range 6–22 years). All participants were authorized emergency operators but none had any formal medical education. Participation was voluntary and consent was given after both verbal and written information had been provided. The participants were informed that they could terminate their interview at any time without giving a reason. Confidentiality was assured and it was not possible to attribute any finding to any particular participant. The study was given approval by the appropriate ethics committee.

Interviews
Individual interviews were carried out in a separate room at the emergency dispatch centre and these lasted 45–90 minutes (mean 60). The questions were wide ranging and open ended, which encouraged the participants to speak freely, and they were not interrupted. They were asked to describe their experiences during difficult situations from both a professional and a subjective perspective. The initial question was: ‘Can you tell me about one or more situations that you experienced as difficult to deal with in your work as an emergency operator?’ If prompting was needed this was followed up with, for example, ‘Please tell me more about the situation’ or ‘How did you deal with the situation?’ Follow-up questions sought to clarify the circumstances the participants described in their interviews. The emergency operators each described one to five situations. The tape-recorded narratives were transcribed verbatim.

Analysis
The transcribed interviews were analysed using a phenomenological-hermeneutic approach inspired by Ricoeur. This method was developed at Tromsø University, Norway, and Umeå University, Sweden, by Lindseth and Norberg, and has been used by several others. The phenomenological-hermeneutic approach is beneficial when attempting to reveal the meaning of a lived experience through an interpretation of the subject's narratives. The interpretation of a text consists of three phases: the naïve reading, one or more structural analyses and an interpreted whole.

Naïve reading
The analysis began with a non-critical reading of the interviews, the naïve reading, and a superficial interpretation of the text as a whole. This indicated the direction for further analysis. In this phase, with an open-minded attitude, the first author read the interviews in order to gain a naïve understanding of the meaning of being in situations that were considered as difficult to deal with at the SOS centre.

Structural analyses
The second phase was a detailed analysis of the text with the purpose of explaining parts of it and validating or invalidating the understanding gained from the first phase. ‘Meaning units’ were condensed, abstracted and organized into sub-themes and themes. A meaning unit can be a part of a sentence, a whole sentence or a paragraph.

Two structural analyses were conducted in the present study. The first identified the situations that the emergency operators experienced as difficult to deal with. Three themes were identified: uncertainty, communication difficulties, and internal and external resources. The second structural analysis was performed with the purpose of describing how the emergency operators felt that they had managed these difficult situations. Two themes were identified: personal qualities and acquired skills.

Interpreted whole
The third phase, the interpreted whole, consisted of a critical, in-depth interpretation based on the dialectical movement between the whole and the parts, and the understanding and the explanation of the text. According to Ricoeur, to understand a text means to follow its movements from what it says to what it talks about. In this interpretation, the researchers’ ‘pre-understanding’, the essence of the naïve reading, and the findings from the structural analyses were taken into account in order to achieve a deeper understanding of the text as a whole.

The second author performed a co-assessment on four of the 16 transcriptions randomly selected for analysis. She read this material independently in order to evaluate the descriptions, the interpretations and
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Table 1 Examples of the steps in the analysis: meaning units, abstractions, sub-themes and themes

<table>
<thead>
<tr>
<th>Meaning units</th>
<th>Abstractions</th>
<th>Sub-theme</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;The tough times are when their condition is not so serious but they are deteriorating... you are thinking that it is going in this or that direction, but actually it could be something else entirely.&quot;</td>
<td>Uncertain and unclear descriptions of symptoms can lead to a risk of misunderstanding</td>
<td>Diffuse symptoms</td>
<td>Uncertainty</td>
</tr>
<tr>
<td>When you have children of your own you can relate to the person and you could say it gets to you... especially if they are the same age as your own kids, or if you have parents of the same age.&quot;</td>
<td>Emergency operators can identify with situations when the child or the parent is the same age as their own child or parent</td>
<td>Self-identification with the situation</td>
<td>Internal and external resources</td>
</tr>
<tr>
<td>&quot;Difficult calls... to have the courage to be there and answer them. It is just this type of call where I think it depends on what you are made of and what you yourself can give, so to speak.&quot;</td>
<td>To have the courage to be there and be supportive during these difficult calls depends on your personality</td>
<td>Your own traits and personality</td>
<td>Personal qualities</td>
</tr>
</tbody>
</table>


the sub-themes. Through a process of reflection and discussion, all three authors agreed upon the content and the themes as well as the method of presentation. Examples of the steps in the analysis are presented in Table 1.

Results

Naive understanding

The difficult situations that were the subject of the emergency operators’ narratives included the ordinary as well as the dramatic. Several operators said that these situations required a great deal of energy. The operators seemed to need to ‘collect themselves’ between the calls to avoid bringing any negative feelings to the new calls. They believed that it was possible to convey negative feelings to the ambulance staff and thereby complicate their work. Hoax calls were a problem, more particularly because they meant that the operators could not always trust the person calling.

The operators maintained that they had to be psychologically strong in order to function well at their work and they also felt that they had to be on the same ‘wavelength’ as the person calling when they were trying to take control of a situation. They felt that they were under great pressure, as an incorrect decision could lead to catastrophe. In turn, this could lead to a feeling of powerlessness. Comments about stress and lack of time were made, and the participants wanted more education and counselling.

Structural analysis 1

The first structural analysis identified three themes (Table 2).

Uncertainty

Three sub-themes were identified.

Table 2 Themes and sub-themes formulated in the first structural analysis

<table>
<thead>
<tr>
<th>Themes</th>
<th>Sub-themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertainty</td>
<td>Diffuse symptoms</td>
</tr>
<tr>
<td>Communication difficulties</td>
<td>Communication handicaps</td>
</tr>
<tr>
<td>Internal and external resources</td>
<td>Self-identification with the situation</td>
</tr>
</tbody>
</table>

(1) Diffuse symptoms. The emergency operators found it difficult to deal with calls where diffuse symptoms were described, such as stomach-ache, heartburn, shortness of breath or chest pain. They also found it difficult to prioritize in these cases. People express themselves individually and it is difficult to describe some symptoms, for example the type of pain, degree of fever or the exact time when the symptoms first appeared. Chronic illnesses such as diabetes can disguise and complicate symptoms. It was therefore sometimes difficult for the operators to decipher the symptoms and this made it difficult to know which symptom was most important.

(2) Lack of information. The emergency operators had to rely on the callers. They described feelings of powerlessness when the information they were given was so inadequate that not enough resources were sent to the scene of the accident, or a seriously ill person had to wait unnecessarily for the ambulance to arrive. The participants described the ‘relay syndrome’, when information went from one person to another and then eventually to the emergency operator, and vice versa. The emergency call was experienced as easier to deal with if the operator spoke directly to the sick or injured person, instead of via relatives or medical staff.
(3) **Uncertain circumstances.** It was annoying for the emergency operators when they did not manage to grasp the ‘whole picture’. Getting control of the situation became complicated when unforeseeable things occurred. However, situations that were difficult to master still had to be solved efficiently and effectively. This could also occur when hoax calls were made, especially by children; these were not only difficult to interpret but also generated unnecessary costs. Further, the operators described how difficult it often was to obtain adequate information about the location of the accident. People who passed the scene of an accident did not always stop; instead, they called later on to report the accident. Sometimes they did not know how many people had been injured or if anyone had been injured at all. The operators felt that people called them to relieve their own conscience and then shift all the responsibility on to them.

**Communication difficulties**

Three sub-themes were identified.

(1) **Communication handicaps.** Dealing with those who were deaf or blind or who had aphasia could be difficult. It took time to assess emergency calls from deaf people via telephone text services and even then the information was often very meagre. Assessments and prioritizations were made from a short textual dialogue. People with mental impairment, or small children, could not always describe symptoms or situations. These calls could be dramatic experiences for the emergency operators and the person in need of help.

(2) **Professional communication.** The emergency operators said that when nurses or physicians used medical terminology it was difficult for them to understand. Often, the emergency operators and these callers could not agree about what was considered an emergency. The emergency operators pointed out that, quite often, public health nurses called the non-priority ambulance transportation number instead of the emergency number, and were placed in a queue. This could delay the transport of a severely ill patient to the hospital. Sometimes the receptionist at the health-care clinic made the call and he or she might not have even seen the patient.

(3) **Language.** Foreign languages, and even regional Swedish dialects, could be difficult for the emergency operators. Problems in understanding the language and cultural differences could obstruct their work and complicate the triage process. Cultural differences included, for example, the ways in which pain is expressed. Immigrants and foreigners making emergency calls often used their native language. The emergency operators explained that the children of immigrants often had to make the calls to the SOS centre in order to translate for their parents. This produced a risk of misinterpretation, especially when operators had to ask children questions about a mother’s labour or a relative’s psychological problems.

**Internal and external resources**

Three sub-themes were identified.

(1) **Self-identification with the situation.** Through insight and empathy the emergency operators could relate to the situation of the caller. They explained that they felt responsible and furthermore realized that it could have been their own child or mother, or even themselves, in a particular situation. In this connection, the operators often gave examples of accidents, both minor and serious, that had severe consequences for the persons involved.

(2) **Children involved.** The emergency operators said that situations where children were involved were often difficult to deal with, especially when the children themselves called for help. They found it frustrating to talk to a child living in a difficult social milieu (e.g. one characterized by drug abuse and physical violence). At Christmas or during other holidays this phenomenon was more frequent. Every day there were calls from small children or teenagers in mental distress. Sudden infant death syndrome was another difficult problem that was emotionally exhausting for all involved. Adults were upset and hysterical when their children were hurt or ill, which made the emergency call more emotional, stressful and hard to control.

(3) **Limited resources.** The emergency operators had to tolerate complaints from staff at hospitals or nursing homes who wanted to speed up the transport of their own patients. Medical personnel could find it hard to understand the emergency operators’ dilemmas when they were trying to prioritize and allocate the available resources. The operators emphasized that the effects of the financial cutbacks in the medical welfare system, such as very short hospital stays, affected their work. Assessing and prioritizing the emergency calls were difficult when resources were limited. Patients, particularly the older ones, could be shuffled back and forth between their home or a nursing home and hospital several times within the space of a few days.
Table 3 Themes and sub-themes identified in the second structural analysis

<table>
<thead>
<tr>
<th>Themes</th>
<th>Sub-themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal qualities</td>
<td>Your own traits and personality</td>
</tr>
<tr>
<td></td>
<td>Intuition and the power of insight</td>
</tr>
<tr>
<td>Acquired skills</td>
<td>Knowledge</td>
</tr>
<tr>
<td></td>
<td>Experience</td>
</tr>
<tr>
<td></td>
<td>Active listening</td>
</tr>
</tbody>
</table>

Structural analysis 2

The second structural analysis identified two themes (Table 3).

Personal qualities

Two sub-themes were identified.

1. **Your own traits and personality.** The emergency operators described how they used their own personal traits as a tool. They said that they had to be stable in order to manage stressful situations at work. An effective personal trait was to try to find the good in even the most tragic situation. A sense of light-heartedness could make a difficult situation easier to handle. The emergency operator gained a sense of satisfaction when a person in need of help was able to understand instructions and was thereby able to handle an extremely stressful situation.

2. **Intuition and the power of insight.** One emergency operator described this feeling as ‘alarm bells ringing in my head’—a kind of feeling that warned them when something was not right. The participants explained that they had stored both positive and negative situations in their ‘library’ of knowledge and experiences. This continued to develop with each situation. Some emergency operators explained that they needed to be sensitive, because if they used their own set of values they could make inappropriate judgements. They said that they strove to hear what people were trying to say; they were ‘reading’ the people they were talking to, in order to interpret the emergency call. The situations that were experienced as difficult to deal with required a great amount of energy from the operators. They had to listen carefully and be aware of the person’s tone of voice. Creating a ‘personal picture’ of the situation seemed to be important.

Acquired skills

Three sub-themes were identified.

1. **Knowledge.** In addition to their specific professional knowledge, the emergency operators seemed to need a well rounded general base of knowledge. They explained how they had to find solutions to many diverse problems. They felt that they needed more knowledge about specific illnesses such as diabetes, and they wanted more information on interview techniques and psychology. They considered this kind of knowledge as important when handling difficult situations such as giving support and advice while the caller was waiting for an ambulance to arrive. They felt that great demands were placed on them and a strong sense of personal responsibility developed.

2. **Experience.** The operators held that practice makes perfect. After many years of experience they felt safer when making assessments in their professional role. These experiences helped them to be able to anticipate and to use their sensitivity. Experience could make their work more foreseeable.

3. **Active listening.** The participants said that it was important to provide adequate information to the ambulance staff so they were prepared. If the operator felt unsure or hesitated in any way, it was easy to transmit those feelings to the ambulance staff. The operators listened and formed their opinion of the situation, and they said that people were capable of learning active listening skills. They did not want to be deceived and they had to trust the person calling. Language and words were important, as well as non-verbal signals.

Discussion

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**Interpretation whole and reflection**

The emergency operators’ narratives about dealing with difficult situations at the SOS centre described both minor and serious incidents that had been remembered from among the many thousands of other emergency calls. The operator had to interpret the verbal and the non-verbal information that was given. Feelings could be experienced as contagious, especially fear and insecurity, and these could complicate and obstruct the work of the emergency operator and therefore also of the ambulance staff. Uncertainty and unpredictability seemed to be the major causes of stress.

A balance appeared to exist between personal qualities and acquired skills in the management of difficult situations. The emergency operators’ methods were interpreted as a dynamic process in which people worked together under pressure of time. Mistakes could
not be undone but measures could be taken to correct them, although these used up valuable time. Their work swung between: control—lack of control, power—powerlessness, certainty—uncertainty, understanding—not understanding, and prioritizing—re-prioritizing. The operators’ questioning process depended on the situation and whom they spoke to, and this added to the stress.

Weibel et al.21 found high levels of cortisol among emergency medical dispatchers. To minimize stress it seems important to identify those aspects of the work that are particularly stressful and to set targets for improvements within the organization.

Self-knowledge and a good psychological balance helped the operators in their work, since they used themselves as their tools22. From the participants’ descriptions in the interviews, managing calls could be interpreted as an often-repeated process, where they strove to understand and take control in order to come to a decision. Their management of difficult situations involved three steps:

(1) striving to understand;
(2) striving to take control;
(3) decision making.

The emergency operators’ working situation was interpreted as complex and intricate, and it required flexibility, empathy, swiftness and courage when making decisions. Having a compassionate attitude and an ability to relate to other people’s feelings, psychological reactions or the nature of the situation were seen as crucial20,25. Being able to empathize in both an intellectual and emotional way was also regarded as important25, as was imagination, since factual knowledge was not enough to understand all situations26.

The person calling the SOS centre in an emergency has a very short encounter with the operator and is often in a very stressful and vulnerable situation. The operators were in a position of control, because they had the power to make decisions. The operator was expected to find the best solution for the person needing help27,28. When illness or catastrophe affects people’s lives, it can be experienced as a loss of control and the ability to influence and predict one’s life29.

The emergency operators had to adjust and find a balance between the available resources and the measures that needed to be taken. On average, the emergency operator had made the first decision in approximately 20–40 seconds25. In the interviews, the participants explained how important it was to have the competence to make speedy and effective decisions. They wanted to be authoritative and not hesitant, to avoid uncertainty and mistakes. Decision making is a complex process and the emergency operators spoke of the need for continuous practice in this area. Personal knowledge, practical knowledge, experience and intuition were combined in the process of the operator’s decision making30.

The emergency operators could experience a feeling of powerlessness in situations where they had more difficulty taking control and mastering the situation, such as when they received emergency calls from people with communication handicaps. Lögstrup21 suggested that communication between people lies on a continuum from unbiased trust, vulnerability and full surrender to the exercise of power, which is accompanied by ethical responsibility. A person who is sincere in an encounter places a part of his or her life in the other person’s hands. Lögstrup31 made a distinction between taking responsibility for another person, which is said to be living up to an ethical demand, and taking responsibility from another person, which could be considered a misuse of power. This, however, could be a balancing act for the emergency operator, who had only a few seconds in which to make what might be life or death decisions.

More and more seriously ill or seriously injured people are cared for outside hospital, or while being transported to hospital in an ambulance. This means that even greater challenges will be placed on the person taking the emergency call. Edmonds32 suggested that advice given to people over the telephone can be fraught with danger. Safeguards are required for both the professional and the caller. Langhelle et al.3 wrote that 'there is a need for early triage to direct the patients to the correct medical facility and for a higher degree of medical competence early in the chain of survival', and called for evidence-based standards to be used. Indeed, the emergency operators stated that they needed more guidance, feedback and education in their work. Increasing their confidence in these situations and decreasing stress could be accomplished with such measures.

Methodological considerations

The emergency operators were informed about what the study involved in advance, by letter, and had time to reflect and prepare. The interviews were carried out at the SOS centre but it would have been more appropriate if the interviews had been carried out in a neutral location. The participants decided which experiences and relationships they felt were most important in making their own actions understandable33.

A qualitative approach was chosen for the study, as it lends itself to the analysis of discussions of complex issues34. The interviews managed to capture rich and personal accounts, which would not have been possible
if a questionnaire had been used to gather the information. A phenomenological-hermeneutic approach was chosen for the present study. The focus was on obtaining the meaning of the text, which cannot be validated by the interviews and which is in accordance with Ricoeur. Validation was accomplished by means of the structural analyses; also, in order to substantiate the interpretation and increase its credence, the authors performed co-assessments.

The results of the present study perhaps cannot be readily generalized, but they are credible if persons with similar experiences recognize the descriptions or the interpretations, in which case these results can then be transferred to similar situations. Even though this research approach is under development, many people have used it in their doctoral theses and published articles

Conclusion

The emergency operators experienced situations as difficult to deal with when uncertainties or communication difficulties emerged or when their inner resources were tested. Another problem that contributed to these difficult situations concerned external resources, such as an insufficient number of ambulances.

The meaning of how to handle these difficult situations, according to Lögstrup, could be interpreted as 'being responsible for someone else's life'. The emergency operators' tasks are complex and intricate. They need to be flexible, compassionate, efficient and courageous when making decisions. Their challenging job requires a responsible attitude, the ability to cope with stress, patience, and a wide range of personal and professional knowledge. The emergency operators stated that they needed more guidance, feedback and education in their work. This would increase their sense of certainty, which would lead to decreased stress and a better outcome for those in need.

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Experiences of adding nurses to increase medical competence at an emergency medical dispatch centre

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KEYWORDS
Emergency medical dispatch centre; Nurses; Emergency-operators; Medical competence

Summary
Introduction: Prehospital care begins when the call is placed to the emergency medical dispatch (EMD) centre and ends when the patient is cared for at the emergency department. The highly technical and specialized character demands advanced medical competence. Communication problems, serious and unpredictable situations can often occur during the emergency calls. A two-year intervention study involved the addition of registered nurses to an EMD-centre team to increase medical competence.

Aim: To describe registered nurses' and emergency-operators' experiences of working together at an EMD-centre after adding registered nurses to increase medical competence.

Methods: Qualitative content analysis was used to analyse the text from interviews with four registered nurses and 15 emergency-operators involved in the intervention.

Results: Initial frustration and scepticism changed to more positive experiences that resulted in improved cooperation and service. The registered nurses had difficulties dealing with the more urgently acute calls, while the emergency-operators had difficulties with the more complicated, somewhat diffuse cases. The two professions complemented each other.
Introduction

The emergency-operators (EOs) at an emergency medical dispatch (EMD) centre provide the first link in the chain of medical events for the sick or injured. The call to the EMD-centre is regarded as an integral part of the treatment given prior to arrival at the hospital (Swedish National Board of Health and Welfare, 2002). The EOs are confronted with difficult decision-making situations, when time is crucial and decisions must be made in a matter of seconds. Once contact is established, it takes about 20-40 seconds before the first action is initiated (Forslund, 2001; Forslund et al., 2004; SOS Alarm, 1999). In this short time the EO has to grasp the situation and take action based only on what is said and trust that the information is from a reliable source (Bång et al., 2002). The EO must ask the right questions and interpret the answers as correctly as possible and if needed use a medical guideline (Swedish National Board of Health and Welfare, 2002). Prehospital care is often stressful, time sensitive and complex.

Emergency medical interventions have become increasingly important and more specialized procedures can be done on site or during transportation to the hospital. Qualifications for ambulance staff have increased during the last few years and from 2005 at least one member in each ambulance crew must be a registered nurse (RN) (SOSFS, 1999:17; SOSFS, 2000:1; SOSFS, 2001:1) as a method of increasing medical competence (Suserud, 1997). This development has inspired the need for a higher level of medical competence at the EMD-centres than was even recommended by the Swedish National Board of Health and Welfare (1997, 2002). In Sweden few studies have been made in this area (Swedish National Board of Health and Welfare, 2002).

This study is part of a comprehensive investigation concerning necessary competencies for prehospital staff, their experiences and the experiences of those requiring emergency medical help. An intervention was performed over a two-year period that involved the addition of four RNs to the staff of an EMD-centre to provide increased medical competence. An RN worked in the same room assisting the EOs with emergency calls when needed. The aim of the present study was to describe EOs' and RNs' experiences of working together at an EMD-centre after adding the RNs to increase medical competence.

Method

Setting and participants

Participants were four female RNs and all 15 EOs (nine females and six males) from an EMD-centre in Sweden. The centre receives approximately 700,000 emergency calls annually and dispatches about 35,000 ambulances. The age range of the RNs was 26—41 years (mean 34) and 39—58 years (mean 45) for the EOs. The RNs had on average seven years experience that included emergency department or ambulance care. The EOs had on average 17 years experience working at the EMD-centre. All were certified EOs, but none had advanced medical education.

RNPs from outside emergency departments or health care centres in Sweden have previously backed up EOs with medical competence. RNs and physicians worked on staff only at the EMD-centres in the larger cities. About 600 EOs are employed at the 18 EMD-centres in the country. The EOs are educated for about one year and trained to take care of all kinds of emergency calls. They are also tested annually to evaluate their ability to work under stress (SOS Alarm, 2006).

Data collection

After the two-year intervention involving RNs, individual interviews (n = 19) lasting 25—60 min (mean 40) were carried out. All of the interviews were tape-recorded except one, when the participant preferred the use of written notes. The tape-recorded interviews were transcribed verbatim. The questions were open-ended, which encouraged the participants to speak freely (Mishler, 1986). The initial question was: "can you tell me your experiences of working together here at the EMD-centre during the last two years". Follow up questions were: "did you do anything differently, if so
In what way and what were your feelings'. The follow up questions were used to deepen, clarify or develop the answers (Kvale, 1996).

**Ethical considerations**

Participation in the study was voluntary and consent was given after both verbal and written information was provided. Participation could be terminated at any time without having to give a reason. Confidentiality was assured and there would be no possibility to trace the findings to the participants. The Regional Research Ethics Committee approved the study.

**Analysis**

A qualitative approach was chosen, as it is useful when the responses are rich with nuances (Malterud, 1998). Qualitative content analysis was used to analyse the interview text (Granheim and Lundman, 2004). A qualitative analysis concerns meanings, context, consequences or intensions. The interpretation of the written text can range from a concrete to an abstract level and from the manifest to the latent level (Granheim and Lundman, 2004). The interviews from the RNs and the EOs were analysed separately. After reading the text several times, it was divided into meaning units according to the aim of the study. Meaning units can be words, phrases or sentences. These were then condensed and labelled with a code and sorted into sub-categories that are based on content similarities or differences. There were four resulting sub-categories for the EOs and three for the RNs. From these, four categories developed, two from each group with the same headings and one theme that covered both groups (Granheim and Lundman, 2004) (Tables 1 and 2). The second author carried out a co-interpretation of five randomly selected interviews in an effort to ensure the trustworthiness of the results (Malterud, 1998). The first and third author discussed and agreed upon the interpretation and presentation of the data (Ricoeur, 1976).

**Results**

The results from the interview study with RNs and EOs have been divided into two main headings and are presented separately.

**EOs' experiences of working together with RNs that were added to increase medical competence at an EMD-centre**

The theme, categories and sub-categories are presented below with quotations from the interviews and in Table 1.

**Complementing each other**

**Competence at a higher level**

*Increased medical skills.* The EOs experienced their work to be increasingly demanding and felt a heavy responsibility to do the right things in their job. They told how they were afraid of forgetting vital components when they were stressed. In these situations both their professional and personal skills were put to the test:

"It's a horrible feeling when you feel you are on shaky ground and I start thinking; now I'm losing control.""

The development of their knowledge was considered essential for the EOs as was being able to work quickly and under stress without losing control of the situation. Anxiety was expressed over not keeping up to date with technical developments. Continued education in the technical as well as the medical fields was something they felt was important and necessary in order to improve their professional skills. The RNs experiences and medical knowledge were appreciated in the team. Their skills were of importance for the EOs when the patient's situation was unclear, and they learned from the RNs questions, evaluations and decisions:

"Medical problems are among the most difficult to deal with and it's seldom the most acute calls that are the problem, it's when the patient has many unclear symptoms.""

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<th>Theme</th>
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<tr>
<td>Complementing each other</td>
<td>Competence at a higher level</td>
<td>Increased medical skills, Increased confidence, Different experiences, Scepticism</td>
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The EOs appreciated the RNs’ medical knowledge i.e. knowledge about differential diagnosis and symptoms when the patients’ situation was unclear, and knowledge about pharmacology, which they felt was important in cases of poisoning, toxic symptoms or possible drug interactions. The EOs realized that by working together, the person requiring emergency medical help could receive improved services.

Increased confidence. The EOs experienced that people take for granted that help is immediately available when they dial the emergency number and do not always understand what is involved. Not until something goes wrong is there any attention given to the EMD-centre. The EOs underlined that the job at an EMD-centre is backstage:

"We are not to be noticed or seen but everything is expected to work, we are forgotten even if we are considered the hub in the wheel."

Realising that mistakes can be made is a stress factor for the EOs. Working together and learning from the RNs increased the EOs’ confidence:

"I feel more sure when I have support from the nurses."

By helping the EOs with the complex and diffuse cases, the RNs decreased some of the stress and uncertainty:

"The nurses are a resource that can be a lot of help that’s for sure, especially when the cases are hard to figure out, like abdominal pain, they have more medical knowledge."

Together with the RNs, the EOs felt they could increase accuracy in dealing with the emergency, which the EOs felt led to increased confidence and improved service.

Different experiences. The EOs were impressed with the professional identity and pride the RNs seemed to have. To some extent, the EOs felt this was lacking in their profession:

"Nurses are in the thousands and have a long tradition; we are only around six hundred with a much shorter history."

Advice given by the RNs in the more complicated diffuse cases was appreciated, since the RNs could take more time to deal with these calls. The EOs felt they had more experience communicating on the telephone, they understood it could be difficult for the RNs to work without seeing the patient. The EOs emphasised that the RNs were specialized and were more focused on the medical aspects while they had a more overall view of the situation. With help from the RNs, the problem of second hand information was easier to deal with. Prehospital care is dependant upon backstage organisation and direction. The EOs noticed that the RNs were not accustomed to working backstage.

Cooperation at stake.

Scepticism. In the beginning, the RNs were experienced as being 'a wedge' that was driven into the existing team that changed the work climate at the EMD-centre. The initiative for the change did not come from the EOs; it was a decision that came from the upper echelons. For many years, the EOs had managed their duties, and with the addition of the RNs they felt uncertain and inadequate despite their experience. Since they had not been sufficiently prepared for eventual changes, the scepticism the RNs felt was increased, and it lasted for months. They were not used to having their competence challenged and were uncertain of how things would work out with the RNs and were afraid of losing their working territory:

"We can’t just hand over everything that’s difficult and complicated to the nurses, then we are the losers."

Gradually the EOs feeling of scepticism changed to a feeling of appreciation and acceptance of the new profession in the team.

RNs’ experiences of working together with EOs to increase medical competence at an EMD-centre

The theme, categories and sub-categories are presented below with quotations from the interviews and in Table 2.

Complementing each other
Competence at a higher level

Being of real use. An important duty for the RNs was to help the EOs when the calls were complicated or when the patients’ symptoms were diffuse, which were not often the most urgent situations. They regarded the assessment of medical priorities as their most essential duty, and decided the necessity of an ambulance, whether to speed it up or even redirect it to another emergency. The RNs emphasised that more time was needed during the emergency calls to give sufficient advice, make decisions and access the priority. They told how they felt more stressed receiving calls at the EMD-centre then they did when working at emergency departments:

"At the EMD-centre it's more about seconds in a way, you get more stressed."
Table 2. Theme, category and sub-categories describing RNs’ experiences of working with EOs after being added to an EMD centre to increase medical competence

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<td>Competence at a higher level</td>
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<td>Cooperation at stake</td>
<td>New experiences</td>
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<td>Frustration</td>
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It was experienced as hard, working from a distance, especially when they could not see and speak directly with the sick or injured person. It was an uncertain situation for the RNs:

"Just because you are a nurse taking the call, doesn’t mean you always get it right, that’s for sure. It’s a person on the phone and it depends on what they say."

Emergency situations are unpredictable and personnel can never be fully prepared, the RNs said. They expressed that not meeting the person physically can be difficult and they lacked telecare training in their education. Their medical knowledge was useful when working at the EMD-centre:

"You ask in a different manner, you know that other illnesses interfere."

Due to the RNs competence, they were able to decide on the priority of an emergency, even though it was complicated. The RNs felt appreciated by their colleagues, after successfully assessing the priority of cases when there were limited resources, multiple illnesses, injuries or handicaps that complicated them.

New experiences. According to the RNs, before working at an EMD-centre experience of prehospital and emergency care was necessary. They felt some years of work experience were needed to develop professional and personal competencies:

"I had never managed working at an EMD-centre during my first year as a nurse."

For them it was obvious that both personal life experience and work experience was helpful in meeting the different situations.

The RNs felt competent in their medical knowledge but were uncomfortable with such a short time for handling the stressful emergency situations. From a medical point of view, the RNs found the urgently acute situations to be the most difficult to deal with:

"I think it is the really rapid fire, acute situations that are the most difficult to deal with, like accidents. When there isn’t enough information and the people are screaming. That’s when it’s tough."

Working together with the EOs and learning how they prioritise was valuable. The EOs knew the routines, they were specialists regarding the available resources, and knew how to use the technical equipment at the EMD-centre. The RNs had the advanced medical competence and gained an understanding of the difficulties involved with limited resources, prioritising and the intricacies of the health care system. The RNs emphasised the importance of a good working climate and cooperation among the staff. They realized they could cooperate in a good way by learning from each other, and thereby complementing each other.

**Cooperation at stake**

Frustration. The RNs were frustrated over the negative attitude the EOs had towards them in the beginning. They felt the EOs considered them a threat to their professional role. They had expected a more positive reception since they were added to the team to increase medical competence and thereby improve the prehospital service. It took them some months to get established and feel accepted by the EOs.

The RNs also felt frustrated when only a few calls were coming in, as they were more accustomed to the multifaceted fast pace character of their previous jobs:

"Sometimes I didn’t have much to do, not every call needs more advanced medical competence, which is my job."

**Discussion**

The purpose of the study was to describe EOs’ and RNs’ experiences of working together at an EMD-centre after adding the RNs to increase medical competence. In the beginning, the EOs with their many years of experience expressed it as being ‘pushed off balance’ and felt their professional knowledge and capabilities were not sufficient. The RNs on the other hand, were surprised that they were experienced as being a threat. According to Parmander (2005) changes at work often cause conflicting feelings, such as when new ways threaten a person’s position. When groups have differ-
Experiences of adding nurses to increase medical competence

ent concerns, and do not have the power to decide over the situation, there is a risk for irritation and frustration (Elde and Elde, 1997). Changes in work situations can cause conflict but the conflict can also contribute to the solution when the parties are forced to work through it (Parmander, 2005). Some months after the start of the intervention, the interviewees’ experiences of frustration, doubtfulness and scepticism turned into more positive ones.

The EOs mentioned the pride they felt the RNs had in their profession, which they felt they lacked. This is consistent with a study by Fahlgren (2001) where EOs seemed to have a lower degree of solidarity and unity than RNs working in telephone health care. The RNs may have a strong identity as a profession due to their long tradition and education that unified them (Fahlgren, 2001), which was referred to by the EOs in our study.

Holmström and Dall’Alba (2002) wrote that the conflicting roles of ‘caregiver’ and ‘gatekeeper’ caused stress among the nurses in their study. Stress was also mentioned in a study involving telephone nursing (Wahlberg et al., 2003). These findings are similar to the situations experienced by the RNs and the EOs in our study. Both professions worked as ‘gatekeepers or filters’ into the health care system (Fahlgren, 2001). They are aware of possible communication problems and the risk of making a mistake is always present (Forslund et al., 2004). When they have to read between the lines and are pressed for time, fear of misunderstanding or making a mistake is often a problem (Holmström, 2002). One of the most important duties for staff at the EMD-centre is to give information to the ambulance team so they can be prepared. Even with the best information, there is always something unknown in every situation that is difficult to predict (Wiredahl-Sundström, 2005). The EOs and the RNs can never give a complete picture of the situation. The patients’ reactions are individual when they experience threat to their life or health (Ahl et al., 2006). Few RNs have had any training in telephone nursing during their nursing education (Holmström, 2002) and find it difficult without visual contact (Wahlberg et al., 2003).

To use oneself, as a ‘working instrument’ can be difficult. Hem and Heggen (2003) wrote that it is a balancing act between being professional and being personal, and between intimacy and keeping a distance. Making vital decisions from a distance is a demanding task that requires taking responsibility, courage to make quick decisions, and an ability to work under stress while determining the priority of an emergency in a variety of situations. In this study as well as one by Weibel et al. (2003), the work situation at EMD-centres was experienced as being both stressful and demanding. Similar problems with second hand information and worrying that they might forget crucial information were found with EOs (Forslund et al., 2004) and health care centre RNs (Wahlberg et al., 2003; Wahlberg, 2004). Stress is understandable since EMD-centre personnel make crucial decisions often based on a dynamic and unpredictable context (Blandford and Wong, 2004).

The two professions seemed to complement each other. For the RNs the more urgently acute calls were the most difficult to deal with, while the more complicated somewhat diffuse cases were the most difficult for the EOs. Combining the RNs’ nursing experience and knowledge with the EOs’ knowledge may have improved the service for those requiring medical help. The EMD personnel’s medical experiences as well as an ability to handle all kinds of emergencies are important for the patient’s safety and security in the prehospital phase. Future research can address what the optimal level of competence is. Being the intermediary of information and directing the ambulance team while being ‘invisible’ is difficult. Such an important responsibility deserves visibility for all involved. Competent personnel, favourable working environments and supportive management are necessary for an effective and efficient EMD-centre team. Future health care needs and technical developments will be even more dependent on the prehospital team.

Method considerations

Prehospital care is organised differently throughout the world, even in the Nordic countries (Langhelle et al., 2004). As this is a qualitative study, the results cannot be generalised to all prehospital care settings but can be understood, transferred and applied to similar situations in a new context (Sandefors, 1986).

The written notes that were taken during the interview by the first author for one participant were read aloud to confirm the content. This text was analysed in the same manner as the other text.

Conclusion

For the RNs the more urgently acute calls were the most difficult to deal with while the more
complicated somewhat diffuse cases were the most difficult for the EOs. The two professions seemed to complement each other. Combining the RNs’ and EOs’ knowledge and experience at an EMD-centre can perhaps improve the prehospital care for those requiring emergency medical care.

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Acute chest pain alarms – ambulance personnel’s perceptions of the quality of the information received from the EMD-centre

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ABSTRACT

Aim: The aim of the study was to describe ambulance personnel’s perceptions regarding the quality of the information received from the EMD-centre with acute chest pain alarms, of interest was what information was considered to be high quality and what was not.

Methods: The study was descriptive. By means of a questionnaire the ambulance personnel were asked if the information received from the EMD-centre was perceived as high quality or not. An open question about why they rated the quality as such was also included. The written comments were analysed using qualitative content analysis.

Results: A total of 336 alarms concerning chest pain and given the highest priority by the emergency operator were included. The ambulance personnel perceived the information to be of high quality in 203 alarms and not high quality in 133 alarms. The written comments revealed that perceptions of high quality were associated with relevant assessment and sufficient information about the patient’s condition and history, and in particular information about duration of pain. An informed and prepared patient was also considered important as well as speed and accuracy in processing the case. Deficiencies in the assessment and uncertain information were categories associated with information that was not of high quality.

Conclusions: High quality information is a prerequisite for the ambulance personnel’s ability to understand and be prepared for the emergency situation. The results give the emergency operator an idea of what to consider when giving information to the ambulance personnel.

KEYWORDS

Ambulance, Emergency medical services, Emergency treatment, Heart disease
INTRODUCTION

Emergency Medical Dispatch (EMD) centres receive calls from persons with chest pain every day. Acute chest pain is a symptom of serious heart disease and about 50 % of the patients who contact the health-care system in Sweden with that symptom are later diagnosed with acute myocardial infarction. The other 50 % is diagnosed with other heart disorders, abdominal problems or other illnesses that require comprehensive diagnostic tests in order to diagnose.¹ A first action is initiated when the ambulance is alerted after only a few seconds into the often-brief conversation with the emergency operator.² ³ For the individual in need, the situation can be experienced as life threatening, stressful and anxiety filled. The situation can also be stressful for the next of kin or other people involved.⁴ ⁵ Access to prompt emergency care and proper treatment are corner stones in the health-care system that people have come to expect. Prompt care is important from both a medical and psychological standpoint⁶, as is the rapid alleviation of pain.⁷

Acute chest pain calls are often a matter of routine for the emergency operators, if needed there are guidelines to assist them but problems can arise any way. Emergency operators are trained to take care of all kinds of emergency calls and in Sweden they must pass annual tests that evaluate their ability to work under stress.⁵ One of their duties is to interview the caller to determine the nature of the problem⁸, make an assessment and decide which priority the emergency should receive. In Sweden Priority 1 is assigned when acute life threatening conditions or injuries are thought to exist, Priority 2 with believed acute but not life threatening symptoms and Priority 3 when medical transportation or ambulance matters that can wait are involved.² ⁹ Providing the ambulance personnel with adequate information is another important service. The emergency operators’ assessment, report and prioritisation of the call play a crucial role for the ambulance personnel as they paint a verbal “picture” of the situation. Skill is needed to manage the interaction with the caller in order to compensate for
the absence of visual information as in other telephone based activities. Communication
disabilities and foreign language barriers also need to be dealt with.3

Previously, ambulances generally only provided transport of the sick or injured
to the hospital, nowadays their services have been expanded to include advanced emergency
medical care. Ambulance personnel qualifications have increased during the last few years. In
an effort to increase medical competence11, since 2005 at least one team member must be a
registered nurse (RN).12, 13 The demand for an increased level of competence in ambulance
care can influence the competence demands of the EMD-centres since the emergency
operators make medical prioritisations and assessments.9, 14

This study is a part of a larger research project concerning the experiences of
prehospital personnel, persons requiring emergency medical help and others making the
emergency call for the person in need. Few studies have been made addressing this area and
according to the Swedish National Board of Health and Welfare9 research in this area is
needed. The emergency call generates an alarm at the EMD-centre that is then dispatched to
the ambulance personnel. The quality and usability of the information received by the
ambulance personnel plays a vital role in the care given in emergency situations. An
investigation into the quality and characteristics of the information dispatched with Priority 1
acute chest pain alarms, as experienced by ambulance personnel, is therefore of interest.

The aim of the study was to describe ambulance personnel’s perceptions
regarding the quality of the information received from the EMD-centre with acute chest pain
alarms, of interest was what information was considered to be high quality and what was not.

METHODS
The study had a descriptive design. It involved the use of a questionnaire addressed to
ambulance personnel that had responded to acute chest pain alarms. The questionnaire was
designed to generate data about the quality of the information received from the EMD-centre. The Regional Research Ethics Committee approved the study, participation was voluntary and consent was given after both verbal and written information was provided.

Setting and participants

The study took place in a county with approximately 275,000 inhabitants. SOS Alarm is the company that manages the Emergency Medical Dispatch in Sweden. There are 18 EMD-centres throughout the country with about 600 emergency operators employed. The EMD-centre in this study receives approximately 700,000 calls annually requesting help or emergency assistance from medical personnel, police or the fire department. About 130,000 are emergencies for which 35,000 require the dispatch of an ambulance.5

The responsibility for providing ambulance care rests with the county council. In the county studied, there were a total of nine ambulance stations with three main stations located at three hospitals. The total number of persons employed as ambulance personnel during the data collection periods were approximately 100. All were asked to complete a questionnaire after they had responded to a Priority 1 acute chest pain alarm during the selected period. The ambulance personnel had an emergency medical technician, assistant nurse or RN education.

Data collection

A total of 400 questionnaires were distributed for data collection, 200 to the main ambulance station at the university hospital and 100 to each of the other main ambulance stations at the two smaller hospitals. They were spread further to the other stations in order to reach a balanced distribution throughout the county. The first author and the ambulance supervisors at the three main ambulance stations gave verbal and written information about the study to all of their staff members and to those at the surrounding smaller stations. Only alarms from the
EMD-centre reporting acute chest pain and given the highest priority (Priority 1) were included in this study. Cases where the patients were dead on arrival to the hospital were excluded. The ambulance personnel completed the questionnaires after the patients were admitted to the emergency departments. The ambulance personnel who cared for the patient in the ambulance were instructed to complete one questionnaire per case. The completed questionnaires were collected from boxes placed at the ambulance stations or the emergency departments.

In the questionnaire the ambulance personnel were asked if the information received from the EMD-centre was perceived as high quality or not and could be answered with “yes” or “no”. An open question about why they rated the quality as such was also included. Background data requested in the questionnaire identified who had made the call.

Out of the 400 distributed questionnaires, 345 were completed. Nine were excluded because the perception of quality item was not completed. The final total number of questionnaires included in the study was 336.

**Data analysis**

Comments made in association with the perceived quality of the information received were analysed using qualitative content analysis. After reading the comments several times, they were divided into meaning units according to the aim of the study. The meaning unit could be a few words or a short sentence, which were labelled with a code and sorted into sub-categories based on content similarities or differences. According to Graneheim and Lundman\(^\text{15}\) the interpretation of a written text can range from a concrete to an abstract level, from the manifest to the latent level, and the interpretation can vary in depth and level of abstraction. In this study a manifest analysis was performed, which is a concrete analysis that
is closest to the content of the written comments. The frequency distribution of different perceptions in the written comments is presented in the results.

RESULTS

A total of 336 alarms concerning chest pain and given the highest priority (Priority 1) by the emergency operator were included in the study. In most cases the next of kin or health-care professionals had made the call and provided the emergency operator with information (Table 1).

Table 1 Frequency of the callers to the EMD-centre (n=336)

<table>
<thead>
<tr>
<th>Callers</th>
<th>Frequency n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Next of kin</td>
<td>174 (52)</td>
</tr>
<tr>
<td>Health-care professional</td>
<td>83 (25)</td>
</tr>
<tr>
<td>The patient</td>
<td>72 (21)</td>
</tr>
<tr>
<td>Unknown</td>
<td>7 (2)</td>
</tr>
<tr>
<td>Total</td>
<td>336 (100)</td>
</tr>
</tbody>
</table>

The ambulance personnel considered the information they received from the emergency operator to be high quality in 203 alarms and not high quality in 133 alarms. In 313 questionnaires there were written comments in the open question about why they rated the quality as such. Some questionnaires had several written comments. The analyses of the written comments resulted in 240 meaning units related to perception of high quality information and 158 related to perception of not high quality. The frequencies of the different perceptions of quality are presented in Table 2 and Table 3.
Perceptions associated with high quality information

Description of the categories associated with high quality information (Table 2).

Table 2 Frequency of perceptions associated with high quality information received by the ambulance personnel from the EMD-centre within the different categories (n=240)

<table>
<thead>
<tr>
<th>Categories associated with high quality information:</th>
<th>Frequency of perceptions n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevant assessment and adequate prioritisation</td>
<td>139 (58 %)</td>
</tr>
<tr>
<td>Information about previous illnesses or disabilities</td>
<td>42 (18 %)</td>
</tr>
<tr>
<td>Patient informed and prepared</td>
<td>32 (13 %)</td>
</tr>
<tr>
<td>Information related to duration and degree of pain</td>
<td>22 (9 %)</td>
</tr>
<tr>
<td>Speedy handling of the case</td>
<td>5 (2 %)</td>
</tr>
<tr>
<td>Total</td>
<td>240 (100%)</td>
</tr>
</tbody>
</table>

Relevant assessment and adequate prioritisation

Pertinent assessment of the patient’s medical condition and symptoms were the most frequent comments associated with perception of high quality. “It all fit with the patient’s symptoms and our observations”. Prioritisations of high quality were noted when the emergency operators seemed to have sensitivity to what the callers reported and an ability to conduct good interviews with the callers. “Correct prioritisation, in spite of the patient’s indistinct symptoms.”

Information about previous illnesses or disabilities

Information about health conditions or medical treatment that could interfere with the actual situation was of great value. “It was important that we found out he had a previous heart problem.” Being given updated information on the patient was considered important as was
receiving descriptive information regarding the emergency site and if there was anything in particular to prepare for.

**Patient informed and prepared**

It was of importance that the patient or the caller was well informed and had received instructions on what to do while waiting for the ambulance. “To lay down and take it easy and remove clothing above the waist to be prepared for ECG.” The written comments revealed that even simple instructions were valuable and helpful to the ambulance personnel when they reached the patient. Information about a particular medicine or a list of medications could save time.

**Information related to duration and degree of pain**

Other information considered to be of importance was the degree of pain the patient was in, if the patient had lost consciousness, taken any medication and if it had any effect. “Pain for 15 minutes, has taken 3 Nitromex without effect, is cold and sweaty. That’s what we need to know.”

**Speedy handling of the case**

It is important that the emergency operators quickly grasp, assess and prioritise the situation in order to increase the patient’s chances of receiving rapid treatment and pain relief. A few comments emphasised that time was a decisive factor. “Speedy handling of the case resulted in prompt ambulance arrival.”
Perceptions associated with information not of high quality

Description of categories associated with information not of high quality (Table 3).

**Table 3** Frequency of perceptions associated with information not of high quality received by the ambulance personnel from the EMD-centre within the different categories (n=158)

<table>
<thead>
<tr>
<th>Categories associated with information not of high quality:</th>
<th>Frequency of perceptions n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deficient assessment and inadequate prioritisation</td>
<td>57 (36 %)</td>
</tr>
<tr>
<td>Uncertain information</td>
<td>36 (23 %)</td>
</tr>
<tr>
<td>Patient not informed and prepared</td>
<td>30 (19 %)</td>
</tr>
<tr>
<td>Deficient information related to pain</td>
<td>26 (16 %)</td>
</tr>
<tr>
<td>Deficient information about the patients medical condition</td>
<td>9 (6 %)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>158 (100 %)</strong></td>
</tr>
</tbody>
</table>

*Deficient assessment and inadequate prioritisation*

In the written comments associated with perception of not high quality information, the ambulance personnel expressed an understanding for the difficulty assessing and prioritizing emergency calls. They realized that the stressful situations could make it difficult for the emergency operator to acquire needed information. “The patient’s wife who was the caller was rather stressed; it turned out to be abdominal pain not acute chest pain. It must have been difficult to get any medical history at all.” The ambulance personnel were also aware of how easy it was for the emergency operator to have opinions and be hesitant when making assessments and prioritisations. “Sometimes it can be difficult when the patient has called several times before for an ambulance and no heart problem could be found.”
**Uncertain information**

The ambulance personnel perceived uncertainties in the information when for example the person calling the EMD-centre was not at the same location as the patient and the emergency operator had not talked to the patient directly. "*When we arrived with the ambulance, the patient even denied the acute chest pain and refused to go to the hospital.*" When a next of kin or a friend made the call and the emergency operator had to work with second hand information, there was a risk for misunderstanding leading to uncertain information for the ambulance personnel. Communication disabilities could also increase the risk for uncertainties. "*The patient could not hear very well, this caused misunderstanding in the contact with the EMD-centre.*" Foreign language was another obstruction to communication. "*Difficulties in speaking and understanding the language, made it unclear as to how serious the problem was.*"

**Patient not informed and prepared**

According to the ambulance personnel it was much easier to take care of the patients if they were prepared. Irritation could be felt when they did not receive any information on what to do while waiting. "*The patient had not received any instructions at all. He stood in the garden with his clothes on; he didn’t even know we would be taking an ECG in the ambulance.*"

**Deficient information related to pain**

In some cases information about the patients’ duration and degree of pain was reported as being deficient and was cited as being important information to obtain. "*Is the pain moderate or is the patient in a cold sweat?*"
Deficient information about the patient’s medical condition

There were some comments concerning incomplete information about the patient’s medical condition. The ambulance personnel expressed an understanding for the difficulty assessing and prioritising emergency calls when the patient had multiple other illnesses and/or disabilities. “The patient is old, generally in bad condition and in pain.”

DISCUSSION

The emergency call is often the ticket into the health-care system and acute chest pain is a common reason for calling. Good quality information from the emergency operator is important for the ambulance personnel and can be crucial for the patient’s safety and wellbeing. Ambulance personnel are dependent upon what is reported and must rely on the information given them. According to Wireklint-Sundström\textsuperscript{16} there is always something unknown to the ambulance personnel, which is hard to be prepared for. In this study perceptions of high quality information were more frequent than perceptions of not high quality information among the ambulance personnel. Relevant assessment of the patient’s symptoms, meeting an informed and prepared patient as well as sufficient information regarding the patient’s medical condition and duration of pain were included in their written comments when they reported high quality information.

Deficient assessments and uncertain information were associated with perception of information not of high quality. The ambulance personnel expressed an understanding in the written comments that it could be difficult for the emergency operator to get information, interpret the case, and then respond, act and sufficiently communicate in the stressful situation. Uncertainties in the assessment are understandable since the emergency operators do not see the patients they are trying to help. The person calling can vary in their ability to communicate the seriousness in the emergency. Edwards\textsuperscript{17} reported how RNs working by
telephone had to rely on and were dependent upon what the caller had noticed or observed about the injury or the symptoms. Wahlberg and co-authors\textsuperscript{18} wrote in their study that second hand information from next of kin or other persons can make it difficult to assess the urgency of a call. The patients’ interpretation of the symptoms and how they or someone else reports them when the emergency call is finally made can possibly explain some of the deficient assessments reported in this study. The ambulance personnel have hands on contact and see the patients with their own eyes, which might make it easier to judge what the emergency operator should have figured out, responded to and communicated further. According to Salk et al.\textsuperscript{19} poor agreement is found between the assessments made in person and assessments made over the telephone regarding the same patient.

Time is of essence in the prehospital phase and measurements are often based on response time\textsuperscript{20} and survival rates.\textsuperscript{21} In a study that illuminated patients’ experiences of emergency calls and prehospital care, the time spent waiting for the ambulance to arrive was often fraught with fear, anxiety and pain, and was experienced as being threatening, frightening and stressful.\textsuperscript{5} Some of the ambulance personnel in this study also considered time to be important. The information they received was expected to be relayed to them quickly. However, information of a higher quality may cost more time and comments regarding relevant assessment had the highest frequency among the high quality information categories. The speed in which cases are handled may be slower when there is more information sought and/or communicated.

With an aging population more heart related illnesses and emergencies are a reality. It is not uncommon that nursing personnel in primary care or community home services need to call the EMD-centre when patients are having a medical emergency such as chest pain. In our study, health care professionals made 25 % of the emergency calls. Uncertainties in these complex situations can occur\textsuperscript{22} in the contact between professionals.
Melby and Ryan\textsuperscript{23} write that the older patients are a vulnerable group often with multiple pathologies, mental health problems or social needs and this vulnerability is especially exposed in times of acute illness. They discuss the need for education among the prehospital personnel to better care for the older patients in the prehospital phase.\textsuperscript{23} More education may be helpful regarding the problem of deficient information but even with the best information there is still an uncertainty factor that puts the patients’ health at jeopardy. Uncertainties are difficult to identify and be prepared for. The rapid technological development within emergency care and the aging population with their more complex health histories increase the need for quality information but at the same time these developments make it more difficult for the EMD personnel to produce and communicate quality information.

**Methodological issues**

Quality is a large and multidimensional concept and in the present study, subjective perceptions were used to define quality. The questionnaire used in this study was an initial attempt to describe the quality of the information given to the ambulance personnel from the EMD-centre. The ambulance supervisors took part in discussions about the questionnaire together with the researchers. The use of a scale with five levels or more had been better than the dichotomous yes or no question used. It would have facilitated a more detailed rating of the quality of the information and not only if the quality was considered to be high or not.

In one area it was possible to make written comments to the question related to the quality of the information given by the EMD-personnel to the ambulance personnel. These short written comments cannot fully describe the reason for what is considered high quality information or not. Future studies that develop new instruments based on the categories associated with quality brought forth in this study, would be of interest.\textsuperscript{24}
This study was carried out in a geographically defined area. The study was made at one EMD-centre in the country and the size of the EMD-centre; its urban or rural location can perhaps make a difference. The prehospital care is organized differently throughout the world even within in the Nordic countries. The results of this study cannot be generalised to all prehospital care settings but can be understood, transferred and applied to similar situations in a new context.

CONCLUSION

The quality of the information the emergency operators give to the ambulance personal plays a vital role in the care given in the emergency situation. This study was an attempt to distinguish high quality from not high quality information out of the ambulance personnel’s perspective. Pronovost and Holzmuller write, “Measuring quality is exactly like a collage. Looking at independent measures of quality may not give us the whole picture, but if we put all the measures together, we get an accurate picture of quality”. It is important to keep in mind that the patients’ perception of quality might be different from the personnel’s.

Written comments from the ambulance personnel concerning the perception of the quality in the information received from the EMD-centre seemed to reflect the complexity of the situation that exists for the patients as well as for the professionals involved in the prehospital phase. Perceptions of high quality were associated with relevant assessment and sufficient information about the patient’s condition and history and in particular information about duration of pain. An informed and prepared patient was also considered important as well as speed and accuracy in processing the case. Deficiencies in the assessment and the information were categories associated with information that was not of high quality.

Information and communication in the prehospital phase of the health-care system are crucial since work within this area is stressful, time sensitive and lives are often at
stake. The results in this study give the emergency operator an idea of what to consider when giving information to the ambulance personnel. Hopefully the results are helpful for the EMD-team in their complex work praxis so that more high quality information reaches the ambulance personnel.

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2. SOS Alarm, 2007 www.sosalarm.se


