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Identifying and Improving Quality of Care at an Emergency Department

Patient and healthcare professional perspectives

ÅSA MUNT LIN



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Abstract

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Background: Patients in the emergency department are not always satisfied with the care received and the nursing care in the emergency department is sometimes described as instrumental and non-holistic. Structured quality improvement work and evidence-based practice are needed. **Aim:** The overall aim was to emphasize general patients in the emergency department to enhance the knowledge on how they perceive the quality of care and how the care could be improved through collaboration with the healthcare professionals. **Methods:** Four studies, with quantitative and qualitative designs, were conducted in a Swedish emergency department. Two hundred patients answered a questionnaire, after which 22 healthcare professionals comprising five focus groups were interviewed, and finally 200 patients were included in an intervention study. **Results:** The following five areas for improvement were identified: “information, respect and empathy”, “pain relief”, “nutrition”, “waiting time” and “general atmosphere”. Of these areas, the healthcare professionals prioritized “information, respect and empathy”, “waiting time” and “pain relief” to be highlighted in the quality improvement work. Although goals and suggestions for changes were stated, barriers to quality improvement at different levels in the health care were detected. The results of the intervention study showed that structured nursing assessment of the patients’ abdominal status and nurse-initiated intravenous opioid analgesic could increase frequency of analgesic and reduce time to analgesic in the emergency department. Patients perceived lower pain intensity and improved quality of care in pain management. **Conclusions:** An uncomplicated nursing intervention, related to pain management, based on the results from a patient questionnaire and interviews with healthcare professionals, can improve the care process and pain management in the emergency department, as well as patients’ perceptions of the quality of care in pain management. To succeed with continuous quality improvement work, barriers to change should be addressed.

Keywords: nursing, emergency department, quality improvement, evidence-based care, patient perspectives, healthcare professional perspectives, pain management, intervention, implementation

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*To my family,
Joakim, Ingrid & Jonathan*

*“...knowing begins and ends in experience; but it does not
end in the experience in which it begins”*

(Lewis, 1934)

Cover composition made by Kerstin Athlin, 2009.

[kai' zen] consists of two Japanese symbols where kai means "to change" and zen means "good". Kaizen is often used synonymously with continuous improvement.

List of Papers

This thesis is based on the following four papers, which are referred to in the text by their Roman numerals.

- I. Muntlin Å, Gunningberg L, Carlsson M. Patients' perceptions of quality of care at an emergency department and identification of areas for quality improvement. *J Clin Nurs*. 2006;15:1045-1056.
- II. Muntlin Å M.-Y, Gunningberg L A.-C, Carlsson M A. Different patient groups request different emergency care – A survey in a Swedish emergency department. *Int Emerg Nurs*. 2008;16:223-232.
- III. Muntlin Å, Carlsson M, Gunningberg L. Barriers to change hindering quality improvement: the reality of emergency care. *J Emerg Nurs*. 2009. In Press.
- IV Muntlin Å, Carlsson M, Säfwenberg U & Gunningberg L. Nurse, could you please give me something for my stomach ache? – A quasi-experimental study of a nurse initiated IV analgesic protocol in the emergency department. Submitted.

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Abbreviations

CQI	Continuous quality improvement
ED	Emergency department
EU	European Union
IASP	International Association for Study of Pain
LPN	Licensed practical nurse
NRS	Numerical rating scale
PARIHS	Promoting Action on Research Implementation in Health Services
PDSA cycle	Plan-Do-Study-Act cycle
QI	Quality improvement
QPP	Quality from the Patient's Perspective
RN	Registered nurse
SCQIPP	Strategic and Clinical Quality Indicators in Postoperative Pain Management
WHO	World Health Organization

Terms used in this thesis

Healthcare professionals	Physicians, registered nurses and licensed practical nurses
Licensed practical nurse	= Assistant nurse
Nurses	Registered nurses and licensed practical nurses

Preface

In 1997, when I started to work at an emergency department my life was more or less happy-go-lucky. I got a job in an interesting medical area at a university hospital and the staff seemed to be friendly and professional.

After a while, I began to perceive that although we tried to do our best in our work with the patients we could not always do this. An old and non-functional environment, increase in patient volume, low staffing, economic constraints and the organization's view of the work in the emergency department made that work hard. The patients were dissatisfied and complaints were common. Some days it took hours before the patients were seen by a nurse and still more hours to be seen by a physician. Sometimes the physician on call was busy in the operating theater or on the wards. This meant their work in the emergency department was frequently interrupted.

I remember one situation in particular. One morning, a mentally challenged elderly man was sent from a nursing home to the emergency department because of a stomach ache. After many hours, he was assessed and treated by the surgeon who then decided to send him back to the nursing home. But before the discharge procedure was finished, the old man almost lost consciousness due to a very low level of blood glucose. He was then treated and admitted to the intensive care unit. Because of the stomach ache he had been fasting, as is also the standard procedure in the case of surgery. No one noticed that he had not eaten or had anything to drink since he arrived. Neither did he have someone with him who could voice this for him.

Patients in the emergency department are vulnerable. Along with the underlying complaint that they sought medical attention for, I perceived that they also suffered from pain, hunger, thirst and lack of information. They also criticized the long wait times. For me, every workday ended in exhaustion. I wished I could provide nursing care of the highest quality, but was unable to. I was frustrated and decided to do something to change it. That change started with a degree in nursing and led to years of hard work, summarized here in my doctoral thesis. Along my journey, I have learned that words are power and that it is worth struggling for improvement. I hope that the results of my thesis will inspire and facilitate continued work to improve the quality of care for patients in emergency departments.

Introduction

Quality of care

For many years, work with quality of care and quality improvement (QI) has been a continuously ongoing process in health care, nationally and internationally. However, some healthcare areas have been explored and developed more than others.

Over the course of the research project, there were several concepts that had to be clarified and taken into consideration. Firstly: what is “quality of care” and how can it be defined? My view of this is that it depends on who you ask and who measures it. Quality of care is complex and definitions have been discussed by many researchers and within different health care-related professions [1,2,3]. Donabedian’s definition [1] says that quality of care is a combination of technical, interpersonal and organizational aspects. This definition is a common basis for today’s QI work. Quality of care can also be seen as a reflection of the values and goals of individual healthcare organizations and the medical care system as a whole [4].

Providing good quality of care is a dictate from the highest levels of the World Health Organization (WHO) and the European Union (EU) to the national level. The overall mission stated by WHO is the achievement of the highest possible level of health for all people [5]. The EU’s new health strategy for 2008-2013 [6] builds on a set of common overarching values and operating principles, such as quality, safety, patient involvement and care that is based on evidence and ethics, valid across the EU [7]. According to the Swedish Health and Medical Service Act [8], “care shall be provided with respect for the equal dignity of all human beings and for the dignity of the individual. Priority for health and medical care shall be given to the person whose need of care is greatest.”

Internationally, the following six areas have been defined, covering the entire spectrum of the healthcare system: knowledge-based and purposive health and medical care; safe health and medical care; patient-centered health medical care; effective health and medical care; equality in health and medical care; and health and medical care in reasonable time [9]. These six quality areas have been adopted in the Swedish healthcare system and are

reflected in Swedish law, regulations and guidelines for the health care. This has also resulted in enhanced demands on quality of care and patient safety. The National Board of Health and Welfare has declared in law [8] and regulations [10] that the quality of care must be systematically and continually developed and guaranteed. The regulations also enhance the responsibility of leaders (at all levels of the organization) and healthcare professionals to develop and take part in the QI process to achieve patient safety and high quality of care for the patients.

In view of the many recent organizational, political and economic changes, there is a need to use available resources in more effective ways in today's health and medical care [11,12,13]. WHO and the EU stress the importance of developing cost-effective health service systems [5,6]. Furthermore, the Swedish purchaser and provider system (i.e. obtaining medical care agreements) increases demands on quality, patient safety and effective care.

To conclude, several laws and regulations stress the onus on leaders (at all levels of the organization) and healthcare professionals to provide care of high quality. However, the concept of quality of care is complex and, despite these laws and guidelines, there remains a need to improve the quality of care. Further investigation of this topic is therefore important. The intention of this thesis is to do this from the perspective of the patients in the emergency department (ED) setting.

Quality improvement work

Quality improvement could be defined as “the combined and unceasing efforts of everyone – healthcare professionals, patients and their families, researchers, payers, planners and educators – to make the changes that will lead to better patient outcome (health), better system performance (care) and better professional development (learning)” [14]. Batalden and Davidoff [14] also state that the idea that everyone in health care has two jobs in a workday: to do their work and to improve it. The main goal of QI is to change performance, not to discover new knowledge [15].

Endeavors for quality of care have led to changes in care processes and work routines in health care. These changes should be considered more carefully, as Langley and co-workers [16] have emphasized: “all improvements require change, but not every change is improvement.” What is an improvement? An improvement may be defined as something that is faster, better, more effective and safer [16]. Berwick [17] has drawn attention to the need for a changed healthcare workforce strategy, highlighting a more structured and effective workforce to effectivize the improvements. Langley and co-

workers [16] note, in addition, that to achieve effective improvement we must focus on “change” and deepen our understanding of the principles of improvement. The principles of improvement are about identifying why there is a need for improvement, determining what measurements will help to confirm that an improvement has been achieved, developing a change that could lead to an improvement, testing the change and measuring to find out whether an improvement has indeed occurred and, finally, implementing the change on a larger scale.

There are several methods and models for evaluation of quality of care and QI work. Some have their origin in the work of Walter Shewhart, Joseph M. Juran, W. Edward Deming and Kaoru Ishikawa, who were leading profiles in quality and QI in the early and mid-19th century. The philosophies of the American researchers formed the basis for development of the concept of continuous quality improvement (CQI) work and these were adopted by the Japanese, who successfully practiced CQI. Ishikawa also introduced “quality circles” to get everyone in the organization involved in the CQI work [3, 16]. One of the CQI models that stems from Shewhart’s and Deming’s work is the Model for Improvement, which has been used effectively [18, 19, 20]. This two-step model starts with three key questions: *What are we trying to accomplish?* (Goal); *How will we know that a change is an improvement?* (Measurement); and: *What change can we make that will result in improvement?* (Improvement). The second step is to use the Plan-Do-Study-Act (PDSA) cycle. “Plan” stands for the planning part, “Do” for testing, “Study” for observing and evaluating the results, and “Act” for learning and acting. The model makes CQI work more systematic and focuses on evaluating every action before continuing to the next one (Figure 1) [21, 16].

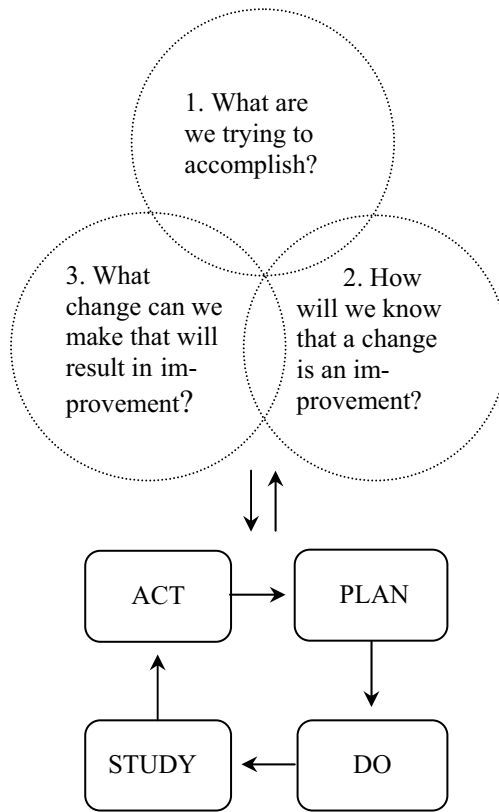


Figure 1. *The three key questions and the PDSA cycle in the Model for Improvement.*[21]

Implementing changes in the clinical setting is, however, a complicated and multidimensional process even when changes are based on evidence-based research. Langley and co-workers [16] emphasize that the motivation of those involved, i.e. healthcare professionals and patients must be considered. Participation in the entire improvement process and reasons for improvement that are clear to everyone are important aspects. Bartlett and co-workers [18] report that when using the Model for Improvement, staff felt that they were able to influence changes across the organization and that those changes could be made rapidly.

The Promoting Action on Research Implementation in Health Services (PARIHS) theoretical framework describes the following areas as important for the implementation process: evidence, context and facilitation. For successful implementation, clarity regarding the nature of the evidence being used, the quality of the context, and the type of facilitation needed to ensure a suc-

cessful change process should be addressed [22]. The level of interplay between these factors is decisive in determining whether the implementation will succeed or not [23, 24, 25, 26, 27].

The standpoint is that knowledge of the science of improvement is vital for understanding and developing effective changes and changes need to be evaluated structurally before an improvement is stated. QI work should be integrated in the clinical setting and both the patients' and the healthcare professionals' perspective should be taken into consideration. The challenge is to make QI work structured and to implement the improvements successfully.

Quality indicators

Quality indicators have been used in several cases of QI work. The Joint Commission [28] has defined quality indicators as "a quantitative measure that can be used as a guide to monitor and evaluate the quality of important patient care and support service activities." Quality indicators are seen as an important foundation for collocations and analysis of the quality of care [29]. There is ongoing collaboration, nationally and internationally, to develop quality indicators in health and medical care [30]. Nowadays, patient satisfaction or patient perception of the quality of care is often seen as an indicator for quality of care [31, 32, 33].

In Sweden, there are many national quality registries in health care, though only a few of these comprise nursing aspects. Development of quality indicators for nursing is in progress and so far there are 12 nursing quality indicators, for example, in areas such as pressure ulcers, falls and fall prevention, nursing documentation, cancer-related pain and malnutrition [29].

Finally, valid and reliable quality indicators are valuable in the clinical setting and could serve as a guide for healthcare professionals when measuring the quality of care. However, to obtain high quality of care, all aspects of the care should be included and measured. The importance of developing nursing quality indicators should be emphasized.

Evidence-based practice

The philosophical origins for evidence-based medicine date back to the mid-19th century, but knowledge about how to practice and teach it was not developed until the late 1990s. The discipline is relatively young and there is an ongoing evolution. In the beginning, evidence-based medicine focused most on well-designed research. Sackett and co-workers [34] argue that in

addition to the results of randomized controlled trials, evidence-based practice is also about the clinical expertise that determines the applicability of the external evidence to individual clinical decisions with thought also to the individual patient's situation and values. In 1993, the Cochrane Collaboration was founded. This collaboration conducts systematic reviews of health-care interventions to produce accurate information about the effects of health care available worldwide [35].

Evidence-based medicine has also been translated into the nursing field. In nursing, the research not only deals with questions regarding the efficacy, safety and cost-effectiveness of nursing interventions, it also addresses factors such as the reliability of nursing assessment measures, the determinants of health and the nature of patients' experiences [36]. Kitson [37] states that evidence-based care will improve patient outcomes. Furthermore, more intervention studies could advance the area of clinical nursing [38]. Rycroft-Malone and co-workers [25] have argued that there is a need to broaden the definition of "evidence". They suggest the following four types of evidence: research, clinical experience, patient experience, and information from the local context (e.g. QI data).

Before addressing the use of evidence-based practice as the goal for improving the quality of care, the results have to be looked at in a more critical manner. There are several steps to take into consideration, including enhanced critical appraisal skills to discriminate the level of quality of the large volume of research publications. Furthermore, differences in study designs and contexts could affect the results, meaning that research results should not automatically be applied in the clinical practice [39]. In addition, there should be more focus on healthcare professionals' use of the research to update their knowledge, which requires increases in staffing and a change in attitude toward the use of research in clinical practice [39, 40, 41].

To summarize, even though it does not follow the strict directives of research methodology to discover new knowledge, quality improvement is not unclear and unstructured work that can be done in a haphazard manner. It is also important to bear in mind that evidence-based practice is not only about results from randomized clinical trials, it is also about clinical expertise and patient values. Regardless of intention, QI work and evidence-based practice supplement each other in the work to provide high quality care for the patients (Figure 2).

What is quality?

“A degree to which a set of inherent characteristics fulfills requirements.” [42]

What is quality improvement?

“The combined and unceasing efforts of everyone – health-care professionals, patients and their families, researchers, payers, planners and educators – to make the changes that will lead to better patient outcome (health), better system performance (care) and better professional development (learning).” [14]

What is a quality indicator?

“A quantitative measure that can be used as a guide to monitor and evaluate the quality of important patient care and support service activities.” [28]

What is evidence-based practice?

“The conscientious, explicit and judicious use of current best evidence in making decisions about the health care of patients.” [43]

Figure 2. *A brief summary of key concepts and their definitions.*

The context in the emergency department

The process of care in the emergency department can vary depending on country or hospital size. The characteristics of the patient in the emergency department can also vary due to a wide variation in presenting illnesses, injuries and mental states [44]. The patients also differ in age, from young children to elderly people. Attending the emergency department is an unplanned situation and the patient is usually experiencing pain, fear and/or anxiety [45]. Sometimes life-saving procedures are needed. However, for most patients in the emergency department, minor medical interventions are sufficient [46]. Common reasons for seeking emergency care include headache, abdominal or chest pain, allergies, fractures and broken bones, and trauma.

The patient’s transit time can range from a few minutes to several hours and depends on patient flow, which fluctuates depending on the patients’ reasons

for attending the emergency department, i.e. the need for more or less urgent medical attention. Another explanation to unpredictable transit times may be that there are no limits to patient load in the emergency department [47]. Overcrowded emergency departments mean long wait times. Patients with non-urgent health-related problems are often classified as inappropriate patients in the emergency department [48]. On the other hand, the inability to obtain access to primary care is a common reason for non-urgent patients to attend the emergency department [49, 50]. Long wait times may also lead to some patients leaving the emergency department without being seen by a physician. This is a threat to patient safety and the quality of care in emergency departments [51, 52].

High patient load and limited time can influence clinical decision-making [53]. Continuing increases in patient volume in the emergency department lead to an extension of workload for the healthcare professionals, due to more patients to take care of and more decisions to make in the same period of time. This can influence patient safety and the quality of care in a negative way [54]. In addition to the clinical decision-making, there are ethical considerations that are unique to the ED environment. Even common ethical problems may be more difficult to handle in this setting due to factors such as urgency, unknown patient history and heavy workload [55]. Privacy in the ED setting can also be limited. Schriver and co-workers [47] argue that healthcare professionals in the emergency department are more exposed than other professionals and perform their professional responsibilities under the observation of others, such as other patients, relatives, paramedics and police. Communication in the ED work environment is complex. Interruptions from telephones, pagers and face-to-face conversations are common and might have a negative impact on performance and patient safety [54, 56, 57].

The categories of healthcare professionals in the emergency department usually consist of physicians, registered nurses (RN), ED nurses (RNs with special training in emergency nursing) and sometimes licensed practical nurses (LPN). Several countries also have emergency physicians and emergency nurse practitioners in the emergency departments. In Sweden, a specialist program for emergency physicians started quite recently. Unfortunately, there is no such specialty training in emergency nursing. However, some RNs working in Swedish emergency departments have specialized training in another area, for example, intensive care, anesthesiology, primary health care and prehospital emergency care. Nevertheless, Andersson and co-workers [58] found out that there is a need for supplementary emergency nursing education in Sweden and they call for requirements regarding special competence in emergency nursing.

A hospital's emergency department can receive up to 30-45% of the hospital's total patient visits and represent 20-30% of the total volume of laboratory tests and x-rays [59]. That means that the emergency department bears a large portion of the hospital's costs. It is therefore important to conduct a health-economic analysis and to highlight quality improvements that are not only evidence-based but also cost-effective. The challenge is to unite cost-effectiveness with quality of care from the patient's perspective.

In summary, in addition to the many characteristics of ED patients and their presenting symptoms, the unpredictability of the ED setting itself adds to the patient's vulnerability. In many ways, the ED setting is different from other wards in the hospital and special competence demands for healthcare professionals working in the emergency department are therefore important for patient safety and the quality of care.

Areas for improvement in emergency care

Several studies have investigated patients' perceptions of the quality of care in emergency departments and the results show that patients are not always satisfied with the care they receive [60, 61, 62, 63]. Studies of ED care often focus on waiting time as a key factor for patient satisfaction [52, 64, 65, 66]. On the other hand, other studies have found that it is important to focus on how the patients perceive other aspects of their ED visit, not only the number of hours or medical care [60, 67].

With an ageing population and increased movement across borders, the needs and characteristics of ED patients are changing. For example, Richardson and co-workers [68] note how older patients perceived that they had little involvement in the decision-making process and in the planning of their discharge. A Swedish study showed almost the same results [69]. Several studies [32, 70, 71] have also found that there is a need for improved cultural awareness by healthcare professionals in the emergency department. Arnaert and Schaack [71], for example, found that cultural respect and support from other people of the same culture had a more positive effect on the patient's ED stay.

Healthcare professionals in the emergency department spend less than half of their time on direct patient care tasks. The role of the emergency nurse is expanding, with demands for advanced skills, monitoring and documentation [47]. The nursing care in Swedish emergency departments is not a prioritized area [60, 72, 73, 74]. One study [72] showed that a holistic perspective on caring was lacking and that RNs did not emphasize nursing tasks as important indicators for quality of care. The RNs paid more attention to medical interventions. Another Swedish study [74] showed that RNs also claimed that

everyday tasks and routines were barriers to providing good nursing care. An uncaring behavior was more common than a caring behavior in the encounter with the trauma patient [73]. The patients also described the trauma team members' approach as instrumental, attentive and uncommitted [75].

Highlighting pain management in the emergency department

Pain is one of the most common reasons for seeking care at the emergency department, no matter whether looking at Swedish hospitals or international hospitals [76, 77]. According to the International Association for the Study of Pain (IASP), the definition of pain is “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” [78]. McCaffery [79] emphasizes that pain is a subjective experience. Pain should be seen as being whatever the patient says it is and happening whenever the patient says it does. Another important part of that definition is that the patient's self-report should be central to pain management. According to Trautman [80], there are two important mechanisms in acute pain that healthcare professionals have to understand in order to accurately manage pain, one being the physical stimulus and the other the patient's cognitive and emotional interpretation of that stimulus. In the literature, the use of the term “pain relief” can cover both the sensation of being relieved from pain and the medical treatment itself, with the two not always being clearly distinguished. When studying the topic of pain, it is therefore important to know when we are talking about sensory interpretations and when we are talking about medical interventions.

Insufficient pain management occurs in different healthcare contexts and the reasons for that have been reported as multi-factorial [81, 82]. Pain in the emergency department has been investigated in different ways but, despite this, poor pain management is still common in many emergency departments. Several studies [61, 62, 83] have shown that patients are dissatisfied with the pain management. This could be related to poor assessment of the patient's pain [62, 84]. However, one US study [85] showed that patients have high expectations when it comes to pain relief, but they do not always ask for analgesics. Another side of the problem is differences in the perception of pain. Puntillo and co-workers [86] observed that American nurses rated pain significantly lower both in triage and in the clinical area than the patients did. These results are confirmed by a study conducted at an emergency department in Ireland [87]. Poor assessment of pain could also lead to delays in delivery of analgesic. Several studies have indicated that patients in the emergency department waited up to two hours or more to get analgesic, which is alarming [62, 88, 89].

In summary, areas for improvement in the emergency department are sparingly described in the literature, nationally as well as internationally. The development of health care is an ongoing process moving forward at high speed, and ED care has to keep up the pace. The patient and the patients' perceptions of the care have to be highlighted more, in the ED setting as well. High quality pain management is important for patients in emergency departments and although several studies have been carried out, there is still a need for more focus on the topic. And when studying pain, it is important to clarify when we are talking about sensory interpretations and when we are talking about medical treatment. There is a call for suitable evidence-based improvements for several areas in ED care.

Rationale for the studies

The interest for this thesis was sparked by, besides my own clinical experience, the lack of studies on emergency nursing in the literature. In the Swedish context, there is a lack of research in emergency medicine and emergency nursing, and most of the research to date has focused on specific patient groups or the ED work process, relating, for example, to trauma patients, frequent visitors, and triage. There was thus a need for further study of general ED patients and their perceptions of the quality of care. The topic of “patient satisfaction”/“patients’ perceptions of the quality of care” has often been addressed in the Swedish research but not in the ED context. Patient-centered clinical research is mentioned as the best available external clinical evidence [34]. In addition to the limited research, there is a lack of intervention studies in the ED setting. It has been argued that research in the ED setting is difficult owing to the nature of the emergency department.

However, there was a feeling that merely studying patient perceptions of emergency care would not automatically lead to an improvement. Because several studies [90, 91, 92] have found that what healthcare professionals perceive to be good quality of care can differ from the patients’ perceptions, seeking the professionals’ perspective appeared necessary and valuable for the final result.

The patients’ situation in the emergency department should be emphasized. Traditionally, the organization of emergency care has limited the possibilities of patients to participate in their care. The usual routine in the emergency department is to provide medical care, though in recent years small steps have been taken toward placing more focus on the nursing care and the patients’ perceptions of ED care. Quality indicators should be developed to suit the ED setting. A greater focus on emergency nursing care could increase RNs’ use of evidence-based care [40].

Overall and specific aims

The overall aim of the present thesis was to emphasize the general patients in the emergency department to enhance the knowledge on how they perceive the quality of care and how the ED care could be improved through collaboration with the healthcare professionals.

Study I

The aim of study I was to identify patient's perceptions of quality of care at an emergency department and areas for quality improvement.

Study II

The aim of study II was to investigate possible differences in the perception of quality of care at an emergency department, based on a) gender, b) age group, c) level of education (elementary school, upper secondary or university), d) main symptoms, e) category of ailment/symptoms (internal medicine, general surgery or orthopedic surgery), and f) whether the patient was admitted to a ward or was discharged after treatment.

Study III

The aim of the study was to investigate physicians' and nurses' perspective and prerequisites for quality improvement in the emergency department based on the results from the patient survey.

Study IV

The aim of the study was to investigate the outcome of nursing assessment and nurse-initiated IV opioid analgesic, compared to standard procedure for patients seeking emergency care for abdominal pain. Outcome measures were: a) pain intensity, b) frequency of received analgesic, c) time to analgesic, d) transit time in the emergency department, and e) patients' perceptions of the quality of care in pain management.

Methods

Design

This thesis consists of four studies (I – IV) with different study designs to comprise different aspects of research methods and to investigate the topic under study from different angles (Figure 3). The four studies were intended to cohere and to be dependent on each other like the processes in the Model for Improvement: first, doing some background research, setting goals and planning for a change; then, testing an improvement in the clinical setting and evaluating the study results; and last, but not least, reflecting on what can be changed and how to make further improvements and to prepare for the implementation of changes in the ED setting.

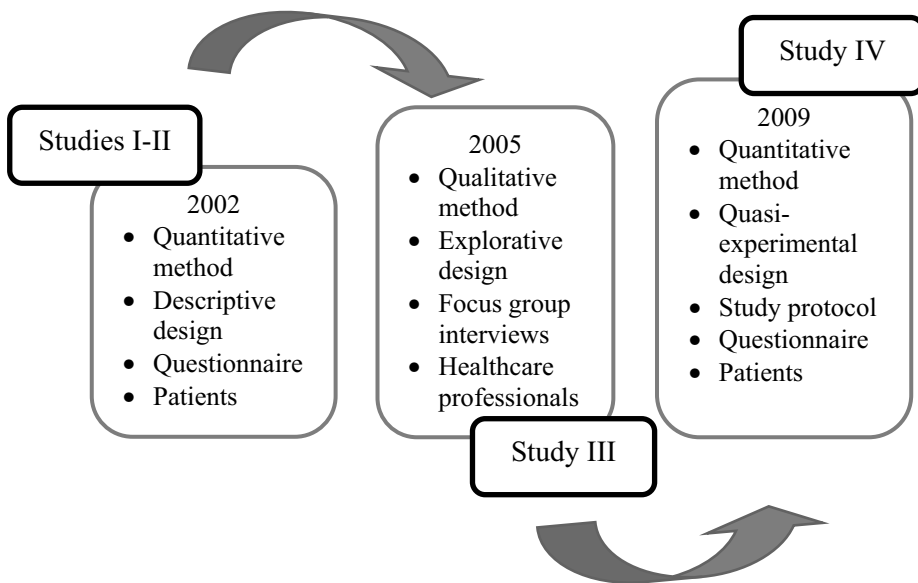


Figure 3. *The study designs used for Studies I-IV.*

Studies I and II had a descriptive design and proceeded from the same data collection, and Study III had an explorative design. Study IV had a quasi-experimental design with ABA phases, where the initial A was the baseline, B was the intervention and the second A was return to baseline [93]. The emergency department could be seen as a “case”.

Setting

The setting for Studies I-IV was the main emergency department at Uppsala University Hospital, Sweden. In 2002, the emergency department served about 46,000 patients per year (M=54 years; 50% men, 50% women). The department was divided in three medical specialties: internal medicine, general surgery and orthopedic surgery. In 2003, the emergency department moved to a new building at the hospital. Some work routines were changed and due to this, the staffing was increased. Patient visits increased to about 50,000 in 2005 and to 50,511 in 2008 (M= 55 years; 49% men, 51% women).

Over the time of Studies I-IV, the care process in the emergency department changed (Figure 4). The most central reforms were the change of the registration process and the introduction of a triage team. In 2002, registration was usually conducted by a receptionist or an LPN. However, in 2003, this changed and registration was carried out by an LPN. The triage team consists of an RN and an LPN who together check the patient's vital signs once registration is complete. The triage team could also take blood samples, electrocardiograms and insert an intravenous cannula. The Manchester Triage System (MTS) is used [94]. The new changes led to fewer steps in the ED care process.

The physicians on call in the emergency department were employed in one of three medical specialties (internal medicine, general surgery and orthopedic surgery), while the nurses (RNs and LPN) were employed at the emergency department. Usually, there are 1-2 physicians on call on every shift in the three respective specialties. The nurses were regularly scheduled for the three medical specialties. The work shifts were divided into day, evening and night shifts. In 2009, a total number of about 50 RNs and about 50 LPNs were employed at the emergency department.

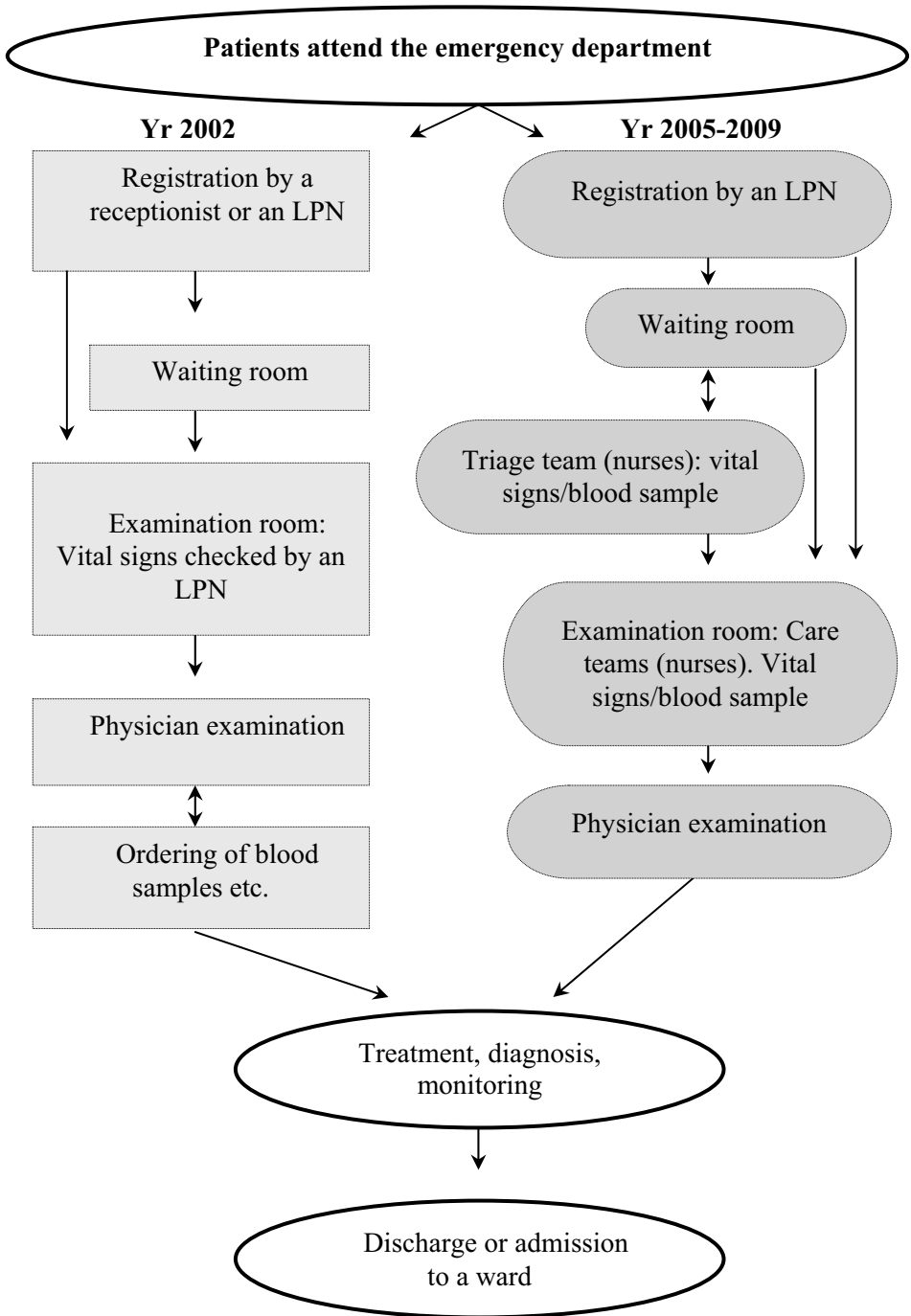


Figure 4. Differences in the care process at the emergency department during the study period: 2002 (Study I-II) to 2005 (Study III) and 2009 (Study IV).

Subjects

Studies I and II

The participants of Study I were patients seeking care in the emergency department. The subjects in Studies I and II were the same. The intention was to include 200 patients, which was seen as adequate in order to perform statistical analysis [95]. On 10 occasions in May 2002, patients were consecutively asked to participate in the study until 200 patients were included (Figure 5). The patients were approached at the ED, days/evenings/nights, both weekdays and weekends, during these 10 occasions.

In total, 101 men and 99 women with an average age of 51 years (range 18-91 years; SD 20) were included in the study. The background information about the patients is listed in Table 1.

Eighteen percent of the eligible patients (24 women and 20 men) were not included in the final numbers. The included patients were younger (M=51 years; SD=20) than those who were not included (M=60 years; SD=22; $p=0.008$).

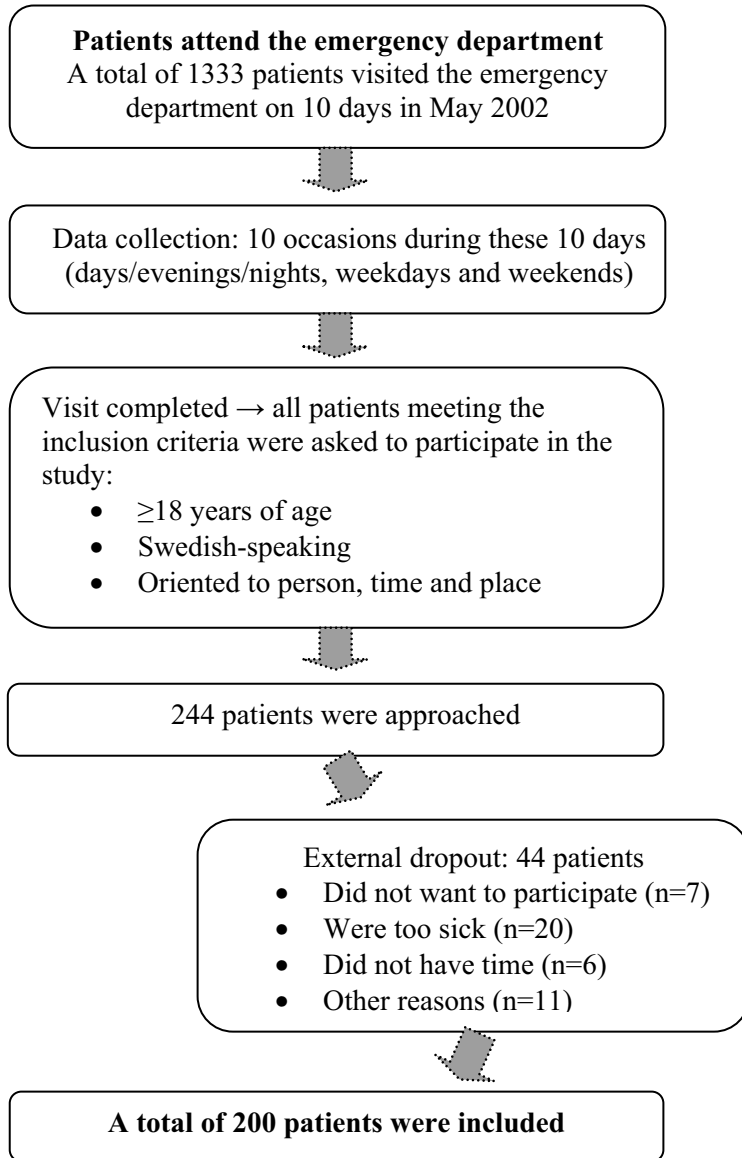


Figure 5. *Data collection process for Studies I and II.*

Table 1. *Characteristics of the included patients (Studies I and II).*

Respondents	n=200	
	n	(%)
Gender		
Men	101	50.5
Women	99	49.5
Nationality		
Swedish	186	93.0
Other	9	4.5
Education level		
Elementary school	52	26.0
Upper secondary school	71	35.5
University	72	36.0
Occupation		
Working	106	53.0
Studying	18	9.0
Other	71	35.5
Medical outcome		
Admitted to a ward	82	41.0
Discharge	118	59.0

Where numbers in a category do not add up to n or 100%, there is internal dropout.

Study III

Study III was conducted in 2005. Healthcare professionals (physicians, RNs and LPNs) working in the emergency department were invited to participate in focus group interviews. The intension was to include participants with different professions and from different specialties. A convenience sample was used.

There were 22 participants in total, 7 men and 15 women, divided into five focus groups (general surgeons, orthopedic physicians, internal medical physicians, RNs and LPNs). The number of participants ranged from 2 to 6 per group. The respondents included had an average age of 41 years. Work experience in the profession was on average 13 years (range 6-21 years; SD=10). The RNs had the least number of years experience at this emergency department, compared to the physicians and the LPNs (Table 2).

Table 2. *Healthcare professionals' background (gender, age and work experience) (Study III).*

	Healthcare profession		
	Physicians	Registered Nurses	Licensed Practical Nurses
Gender			
Men (n)	6	1	0
Women (n)	6	4	5
Age			
years (mean)	42.6	33.4	44.2
Experience in profession			
years (mean)	11.7	8.4	20.8
Experience in the ED field			
years (mean)	4.8	1.7	11.0

Study IV

Study IV was conducted in 2009. The participants were patients seeking care for ongoing abdominal pain, lasting no more than 2 days. Other inclusion criteria were: patient had to be 18 years of age or older and oriented to person, place and time. Exclusion criteria were as follows: abdominal pain due to trauma, in need of immediate care or pain intensity of 9-10 on a numerical rating scale (NRS).

A power calculation was made ($p < 0.05$, 80% power) to calculate the appropriate number of participants to detect a one-point decrease according to NRS and an improvement in questionnaire scores as described below. A one-point decrease in NRS is recommended to obtain clinical significance [96, 97]. The number of patients included for the three phases was set to: 50 (Phase A1), 100 (Phase B), and 50 (Phase A2). In total, 81 (40.5%) men and 119 (59.5%) women were included in Study IV and the mean age was 41 years (range 18-85; SD=17). The characteristics of the included patients are further described in Table 3.

Table 3. *Characteristics of patients (Study IV).*

Respondents	n=200	
	n	(%)
Gender		
Men	81	40.5
Women	119	59.5
Nationality		
Swedish	176	88.0
Other	18	9.0
Education level		
Elementary school	32	16.0
Upper secondary school	88	44.0
University	73	36.5
Occupation		
Working	120	60.0
Studying	26	13.0
Retired	27	13.5
Sick leave	8	4.0
Unemployed	12	6.0
Outcome		
Discharge	120	60.0
Admission to a ward	80	40.0

Where numbers in a category do not add up to n or 100%, there is internal dropout.

Of the total number of patients who were approached, there were a number of dropouts (n=78) (Figure 6). There were no significant differences in gender and age between the included and excluded patients in the different phases. The main reasons for not being included in the final number were incomplete questionnaire (n=28) (i.e. more than half of SCQIPP items unanswered) or inclusion failure (n=17).

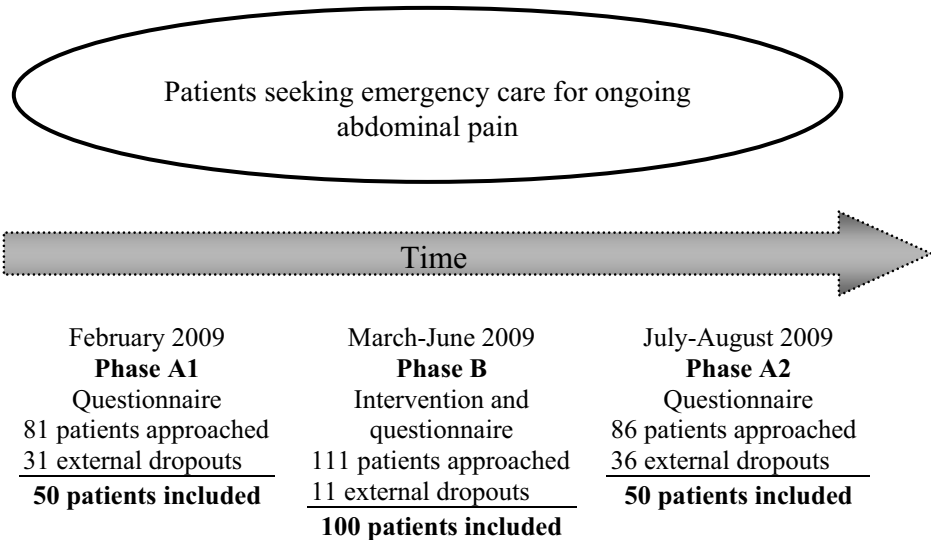


Figure 6. Data collection process for Study IV.

Measurements

Studies I and II

The Swedish research-based questionnaire “Quality from the Patient’s Perspective – QPP”, ED version, was used [98]. The QPP was developed through a grounded theory approach. The questionnaire consists of a number of questions, which measure 22 factors divided into four themes. The four themes represent interdependent dimensions, which together can be seen as a whole - a model of patients’ perceptions of the quality of care. Patients’ perceptions of the quality of care are shaped by their encounter with the existing context of the care, as well as their values, expectations and experiences. The questionnaire is unique in that it measures the patient’s perception of the quality of care in two ways. The questions evaluate both the patient’s perception of the quality of care (A) and its subjective importance (B). The QPP also contains questions about the patient’s background, state of health, advice and directions, and two open-ended questions where the patients are able to report satisfaction with the care and suggestions for improvement. The guiding principles of the QPP used stated that quality improvements should be made if 6-10% or more of the resulting scores for questions, fac-

tors or dimensions indicate inadequate quality. For QI work at the ward level, the results of the specific questions should be addressed [98].

Study III

The focus group interview as a method has been successfully used in different healthcare environments. This method is recommended when there is an unexplored topic where interaction between the participants could stimulate new ideas and views on the topic. A moderator conducts the interview and an interview guide is usually used. Typically, focus groups consist of 4-12 participants. [99, 100]

Five focus group interviews were conducted with healthcare professionals. The interview guide followed the three key questions of the Model for Improvement (*What are we trying to accomplish?*, *How will we know that a change is an improvement?* and *What change can we make that will result in improvement?*).

Study IV

Study IV was an intervention study. Patients in Phases A1 and A2 received standard care procedures. The standard procedure involved examination of vital signs and an unstructured assessment of the patient with abdominal pain, which could vary depending on the individual RN. Patients were not able to receive any analgesic before being examined by a physician.

Intervention

Patients in Phase B received the intervention. The intervention was divided into two parts: 1) educational session, and 2) nursing assessment and nurse-initiated intravenous opioid analgesic. RNs received an educational session, lasting about 1.5 hours. The session was on abdominal pain in the emergency department, i.e. symptoms, duration, intensity and character of pain, medical treatment, patient cases and examination of the abdomen. At the end of the session, the RNs received information about the intervention and an “NRS ruler”. To obtain permission to give nurse-initiated intravenous opioid analgesic (range order for analgesic), the RNs had to attend the session.

A study protocol developed for this study was used to make the nursing assessment more structured. The structure of the study protocol was developed based on the literature, clinical experience and the care process in the emergency department. To evaluate relevance and clinical applicability, the protocol was discussed with specialists in general surgery, physicians and RNs working in the emergency department.

The study protocol followed the usual care procedure, which started with an assessment of vital signs. The study protocol highlighted that pain intensity should be measured and documented. An examination of the abdomen then followed, and a triage level was decided. The RNs had to document their opinion about the patient's need for analgesic. If the patient rated his/her pain intensity as NRS 4-8, the patient was offered analgesic. To begin with, patients were given a bolus dose of 2 mg morphine, following which the dose could be titrated up to a maximum of 10 mg. There were criteria for receiving analgesic: NRS 4-8 and normal vital signs. After the injection, the patient's vital signs and NRS were measured every 30 minutes up to 2 hours or until the patient was seen by the physician. The pain intensity should be assessed at four times during the ED visit: on arrival, before analgesic, after analgesic and at discharge. In addition, before the visit to the emergency department concluded, an assessment of the vital signs should be performed.

Pain intensity

Pain intensity was measured by using NRS with the endpoints: 0 = "no pain" and 10 = "worst pain possible". NRS is easy and reliable when measuring pain in the emergency setting [96]. It can also be used in quality improvement studies of pain management [101]. Frequency of analgesic and information about time intervals during the care process were registered in the electronic health record and/or on the study protocol.

Patient questionnaire

The patients' perceptions of the quality of care relating to pain management were measured in all three phases. The Strategic and Clinical Quality Indicators in Postoperative Pain Management (SCQIPP) questionnaire was used [102]. SCQIPP is a questionnaire developed in Sweden to evaluate how patients perceive the quality of care in postoperative pain management. The questionnaire was developed based on studies with the aim developing strategic and clinical quality indicators in postoperative pain management. The questionnaire consists of 14 items in 4 subscales (communication, action, trust and environment) and five complementary questions about pain intensity and overall pain relief satisfaction. SCQIPP has been validated [103, 104].

For Study IV, however, the questionnaire was modified to better suit the emergency setting. Ten of the 14 items were used, whereof 6 were identical to the original SCQIPP items and the other 4 were slightly modified. The modifications consisted mainly of removal of the word "daily". Four of the five complementary questions were identical with those in SCQIPP. In total, four of the items and one of the complementary questions were not used because they addressed in-patient situations. Nine questions relating to the

patient's background and his/her pain before arrival to the emergency department were added in this study. In total, the final ED version for Study IV consisted of 23 items/questions. It took about 10 minutes to complete the questionnaire.

The used version of the SCQIPP questionnaire also had a 5-point rating scale for the items, with the endpoints: 1 = "totally disagree" and 5 = "totally agree", as in the updated version of the SCQIPP questionnaire [105]. For the three complementary questions, however, the 11-point rating scale of the original SCQIPP questionnaire was used, with the endpoints: 0 = "no pain" and 10 = "worst pain possible". The complementary question about overall pain relief satisfaction used the endpoints: 0 = "very dissatisfied" and 10 = "very satisfied" [102].

The recommendation for SCQIPP is that a mean score that exceeds 4.5 is a desirable goal for high quality in pain management. If scores do not exceed this goal, the quality of care should be studied and quality improvements be suggested. Scores below 4.0 should be seen as areas for improvement. According to Idvall [103], these high levels for quality of pain management were set because the items relate to important aspects of care.

Electronic health record

Information on the time intervals was obtained from electronic patient health records. Time from registration to discharge/admission to a ward was calculated as the patient's transit time.

Procedures

Studies I and II

On ten occasions, during two weeks in May 2002, patients attending the emergency department were asked to participate in a study. The patients were approached right after the visit to the emergency department was completed to avoid outside influences. They received written and oral information about the study and could withdraw at any time without explanation. The questionnaire took about 15-20 minutes to fill in. Two nurses, dressed in private clothes, were responsible for the data collection. They offered assistance to some of the patients who needed help to mark their answers on the questionnaire. The patients were informed that all of the information in the questionnaire would be handled in a confidential manner. The questionnaires were labeled with a code so that the data could be linked to the patient's health record.

Study III

Based on the previous patient survey, Study III was planned to gain the healthcare professionals' perspective on the areas for improvement identified.

Physicians and nurses were informed about the study and asked to participate, by the author and their respective supervisors. Days and times for the interviews were decided in advance. On five different occasions, together with colleagues from the same working category and the same medical specialty, the participants met in a small conference room outside the emergency department. The focus group interviews were led by a moderator (the author of this thesis) and an assistant moderator, and the interviews were tape-recorded. The participants received feedback from the patient questionnaire and the following areas for improvement were introduced to them: "information, respect and empathy", "pain relief, "nutrition", "waiting time" and "general atmosphere" (Study I). The next step, for the participants, was to determine which of these topics was most important to improve. The areas assigned the highest priority were then discussed according to the three key questions of the Model for Improvement (Figure 1).

Study IV

Once Studies I-III had been conducted, the plans for Study IV were drawn up. The leaders at the emergency department were approached to discuss different topics for an intervention study. At the time, there was some ongoing QI work related to information. The leaders wanted to improve pain management, but previous attempts had failed. They also thought that it was important to develop and test any changes in a scientific manner. Thus, it was decided that pain management would be the topic for the intervention study.

Study IV was conducted in three phases: A1, B and A2. Where Phase A1 (baseline) contained a questionnaire and Phase B followed with the intervention. After one month of withdrawal of the intervention, a second Phase A (A2) was conducted.

All healthcare professionals were informed about the study design; however, the intervention was not described in detail. The questionnaire was distributed to patients seeking care at the emergency department for ongoing abdominal pain, until 50 patients were included. The RNs then received more information about the study and an educational session on the topic acute abdominal pain was conducted. The session consisted of information on how to assess abdominal pain and the need for analgesic in a structured way, according to the study protocol. Participation in the educational session was required to obtain the range order for morphine. Besides the study protocol,

the same questionnaire as was used in Phase A1 was distributed to the included patients. Finally, Phase A2 was conducted as described above.

All included patients received information orally and in writing from an RN, and had to sign an informed consent form. They were also informed that they could withdraw at any time without explanation, and that all data would be handled in a confidential manner. Those who did not want to take part were treated in the standard procedure. The questionnaires were coded to link to data from the electronic health record. Quality assurance was performed by an external person (A-K G) with a diploma in clinical trial monitoring (i.e. “a monitor”), who reviewed the study with respect to design, data collection and intervention.

Data analyses

The SPSS 12.0 and 16.0 (SPSS Inc) were used for the statistical analysis. For Study I, the computer-based KUPPIT program (ImproveIT) was also used. To minimize type-I error, the Bonferroni post hoc test was chosen in the one-way ANOVA analyses (Studies II and IV). Level for p -value was set to $p \leq 0.05$.

Studies I and II

The data analysis process for Study I was based on the QPP index calculations for inadequate quality (IQ), balance low (BL), balance high (BH) and excess quality (EQ) [98]. The data was analyzed at the levels of dimension, factor and question.

For Study II, substitution of the mean was used for missing values. Responses marked “Not applicable” were excluded from the analyses. Student’s t -test (gender and medical outcome) and one-way ANOVA (age group, education, main symptoms and medical specialty) were used to compare differences between subgroups of patients. The Mann-Whitney U -test (gender and medical outcome) and Kruskal-Wallis test (age group, education, main symptoms and medical specialty) were used to analyze data in the dimension of physical–technical conditions. Variance analyses were also carried out to investigate whether group differences could be explained by interactions (gender, age and outcome vs. medical specialty), but none were detected.

Study III

The data analysis process followed a content analysis approach [100, 106]. All interviews were transcribed verbatim, read and re-read by the moderator. In addition, the assistant moderator and the co-workers of Paper III read the transcriptions and the latter also took part in the analysis process.

Firstly, meaning units related to the three key questions of the Model for Improvement were identified in the text. During the reading and re-reading of the text, other aspects were identified. These aspects had to do with barriers to the implementation of QI. The meaning units were then condensed and sorted into categories. The final step was to formulate themes to link together the underlying meaning of the categories.

Study IV

Descriptive analyses were conducted on background information and time intervals. To compare differences between the three study phases, one-way ANOVA (time to analgesic) and χ^2 (frequency of received analgesia) were used. In addition, the Kruskal-Wallis test followed by the Mann-Whitney *U* test were used (perceived quality of care with respect to pain management, pain intensity) to compare differences between the three study phases. Student's *t*-test was used to analyze gender differences.

Ethical considerations

The leaders of the department of emergency care supported and approved the studies. Approval was also obtained from the Regional Ethical Review Board in Uppsala for Studies I+II and Study IV (no. 02-218 and no. 2008/386, respectively). According to Swedish law and applicable guidelines at the time, no formal approval was needed for Study III. Nevertheless, the study was performed in accordance with accepted research practice. In addition, the principles set out in the Declaration of Helsinki and national and local ethical guidelines for research were followed [107, 108, 109].

All participants received both written and oral information about the study. Participation was voluntary and the participants were guaranteed confidentiality. They were also informed that they could withdraw at any time without explanation. The results were presented at group level so no individual person could be identified. In accordance with the Personal Data Act [110], the participants were informed that information from the study would be collected in a registry set up for the study. All questionnaires (QPP and SCQIPP) and the study protocol were coded to link participants to other data

in their electronic health record. The encoding protocols and questionnaires were stored separately in locked boxes.

Results

Study I

The patient questionnaire showed overall satisfaction with the ED care. However, when studying more specific items, several areas for improvement were identified. QI was needed in all four dimensions and more than half of the factors (12 out of 22) required QI according to the guiding principles for QPP. On question level, the results showed a need for improvement in five questions that could be related to the area of nursing (Table 4).

Table 4. *Identified areas for improvement related to nursing.*

DIMENSIONS, FACTORS AND QUESTIONS	n=200	Inadequate quality (%)	QI required if inadequate quality is...
	n		
Medical–technical competence			10% or more
<i>Medical care</i>			
I received effective pain relief	85	20	
Physical–technical conditions			6% or more
<i>Nutrition</i>			
I had access to something to drink	117	17	
Identity-oriented approach			10% or more
<i>Participation</i>			
My own perception of my health problems was taken into consideration	168	13	
<i>Commitment (nurses* and assistant nurses†)</i>			
The nurses and assistant nurses showed interest in my life situation	114	26	
<i>Empathic and Personal (nurses* and assistant nurses†)</i>			
The nurses and assistant nurses showed empathy when I felt bad, e.g. when I was worried or in pain	146	17	

*nurses= registered nurses, according to the English version of the questionnaire

†assistant nurses = licensed practical nurses

Where numbers in a category do not add up to n or 100%, there is internal dropout.

The results from the patient questionnaire also showed that total transit time at the emergency department varied between 0.4 hours and 15.2 hours (M=3.7 hours). About one third of the patients reported that they did not know why they had to wait during their visit to the emergency department.

The following five areas for improvement were identified: “information, respect and empathy”, “pain relief”, “nutrition”, “waiting time” and “general atmosphere”.

Study II

The results showed that there were differences in the patients’ perceptions of the quality of care at the emergency department according to background- and visit characteristics. Significant differences were seen in three out of the four dimensions (physical–technical conditions, identity-oriented approach, and socio-cultural atmosphere). There were no significant differences between men’s and women’s perceptions of the quality of care. Younger patients (18-30 yrs) scored significantly lower on factors such as information, respect, empathy, general atmosphere and routines than did older patients (>65 yrs) did ($p<0.05$). This study demonstrated that patients with higher education were more critical to the quality of care at the emergency department. Patients with gastrointestinal symptoms, general surgery patients and patients admitted to a ward gave significantly lower scores for several factors, including respect, empathy, commitment; general atmosphere; routines: care-room characteristics and nutrition. There were no significant differences between patients in the different medical specialties with respect to the perceived quality of care related to pain relief. However, the scores for 20% of the patients who answered the question about pain relief ($n=85$) indicated inadequate quality.

Study III

The healthcare professionals were asked to decide which of the five identified areas for improvement should be given the highest priority. Four focus groups prioritized “information, respect and empathy”. Two groups of physicians and the groups with nurses chose this topic because they perceived it as the most important area to improve. One focus group (orthopedic physicians) decided to discuss “waiting time” first because they felt that this was the biggest problem and could, through a chain reaction, improve other parts of the ED care.

The participants discussed several goals for the topic “information, respect and empathy”. For example, information could be more user-friendly, i.e. more directed to the patients. The nurses mentioned the importance of the nursing care, which they felt should be enhanced. The physicians, on the other hand, declared that high quality medical care was the most important goal of the care in the emergency department. The RNs stated that all patients should receive equal treatment and care, independent of other factors, for example, culture diversity.

Strong opinions about “waiting time” and how it affected the ED care were mentioned in all focus groups during the interviews. Some of the participants declared that reduced waiting time could improve other factors in the ED care. Changes in information, work routines and organization were suggested by the participants.

The focus group with RNs was the only group who also chose to discuss the topic of “pain relief”. The opinions about the need for improved “pain relief” were divided. The physicians did not think it was a problem that should be emphasized in the quality improvement work, while the RNs were of the opinion that pain management was poor.

Pain relief is not part of-, I’m looking for the patient’s problem, or diagnosis, and to treat that. Pain relief isn’t an important part of that to me. It’s not really a part of the diagnosis and treatment.... (Physician)

On the other hand (pause) if we look at it from a medical perspective, then naturally it’s the pain relief that must be improved right away [i.e. the highest priority of the chosen topics]. (RN)

The nurses suggested, for example, more education and physician access to improve the patients’ perceptions of pain management in the emergency department.

Barriers

Besides the questions in the interview guide, several barriers to quality improvements were apparent. These barriers seemed to influence the healthcare professionals’ view of the QI work, and were therefore described.

The barriers were formulated as the following three themes: “the patient is looked upon as an object or a problem,” “the physicians and the nurses belong to different organizational cultures,” and “the hospital’s organization hinders the optimal flow of patients and improvements to quality.” These themes were seen at different levels in the health care (Figure 7).

Quotation	Theme	Level
...there is no point in taking a wrist and letting it sit in an examination room when there's no doctor [available]. (LPN)	<i>The patient is looked upon as an object or a problem.</i>	<i>Patient</i>
They have to listen to us, because we are working here all the time and they are not... They have to listen to the reality ... Many surgeons they do not care [about waiting patients] because they think that the patients are not really critical ill [and so they can wait]. (RN)	<i>The physicians and nurses belong to different organizational cultures.</i>	<i>Healthcare professionals</i>
The more I work [in the emergency department], the more I mess things up for the hospital and for everyone else. (Physician)	<i>The hospital's organization hinders the optimal flow of patients and improvements to quality.</i>	<i>Organizational system</i>

LPN=licensed practical nurse
RN=registered nurse

Figure 7. *Barriers to quality improvement identified during focus group interviews with healthcare professionals.*

Study IV

The outcome of the intervention showed a higher frequency of patients receiving analgesic and a reduction in time to analgesic. Furthermore, the patients perceived lower pain intensity and their perception of the quality of pain management at the emergency department increased.

Pain intensity levels were similar for the three study phases (Figure 8). However, patients in the intervention phase (B) estimated significant lower "Pain:least" compared to patients in baseline (A1) ($p=0.04$). There were no significant differences in estimated intensity for worst pain or current pain between the three study phases.

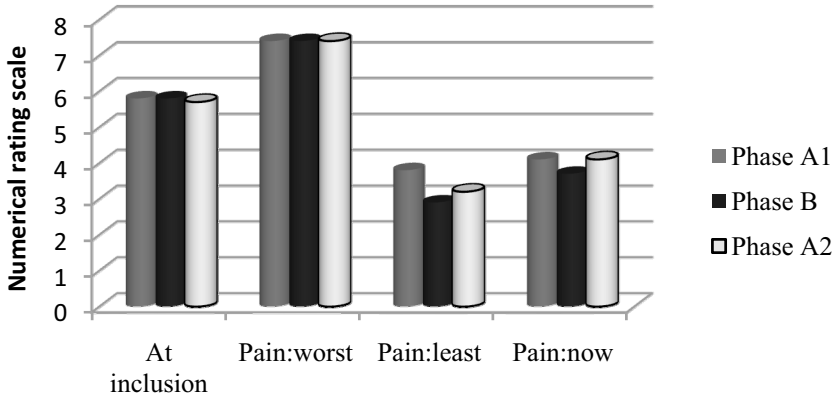


Figure 8. Patients' estimated pain intensity during their visit to the emergency department.

A total of 65 patients (65%) received analgesic in Phase B, compared to 23 patients (46%; $\chi^2=16.6$; $p=0.002$) in Phases A1 and A2. Out of these 65 patients, 53 (82%) received morphine according to the range order for analgesic. The other 12 patients (18%) received analgesic prescribed by the physician on call. Figure 9 shows mean time to analgesic in Phase B (M=1.3 hours; SD=1.1), which was decreased compared to both Phase A1 (M=2.5 hours; SD = 1.7; $p=0.001$) and Phase A2 (M=2.1 hours; SD=1.3). No significant differences in transit time between the three study phases were detected (Figure 9). Mean transit times for the three study phases were 5.2 hours, 5.5 hours and 5.7 hours, respectively. In total, the transit time varied from 1.4 hours to 17.4 hours.

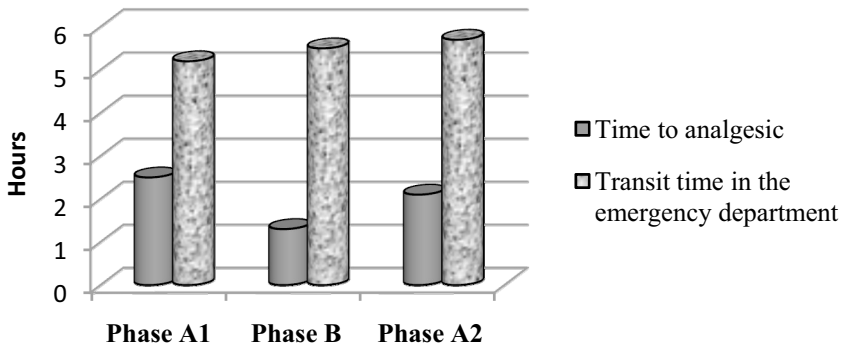


Figure 9. Differences in time to analgesic and transit time in the emergency department between the three study phases.

In Phase B, five out of ten items in the SCQIPP questionnaire reached a score of higher than 4.0 (Table 5). In Phase A1, all items were below the 4.0 quality level, which indicates areas that are recommended for improvement. After withdrawal of the intervention (Phase A2), one of the items reached a score of 4.0.

Table 5. *SCQIPP items that reached the 4.0/4.5 quality level in the intervention phase (B)*

Item	Phase A1 (n=50)		Phase B (n=100)		Phase A2 (n=50)	
	n	Mean (SD)	n	Mean (SD)	n	Mean (SD)
I was given an opportunity to influence how I wanted my pain to be treated	49	2.8 (1.5)	77	4.2* (1.0)	46	2.5 (1.5)
To determine my level of pain, several times during my visit at the emergency department, a member of staff asked me to pick a number between 0 and 10	49	2.7 (1.7)	81	4.3* (1.0)	50	3.2 (1.6)
The staff were knowledgeable about how to relieve my pain	46	3.2 (1.6)	72	4.3* (1.0)	41	3.3 (1.4)
The staff believed me when I told them about my pain	48	3.7 (1.4)	76	4.6* (0.7)	49	4.0 (1.1)
The staff cooperated well in treating my pain	45	3.3 (1.5)	70	4.3* (0.9)	42	3.5 (1.5)

* $p < 0.05$

Staff = registered nurses and licensed practical nurses, according to the English version of the questionnaire.

Where numbers in a category do not add up to n or 100%, there is internal dropout.

The results also showed that, compared to patients in Phases A1 and A2, Phase B patients more often assigned scores of 4 (“agree”) and 5 (“totally agree”) and more seldom scores of 1 (“totally disagree”) and 2 (“disagree”) on individual SCQIPP items (Figure 10 and 11).

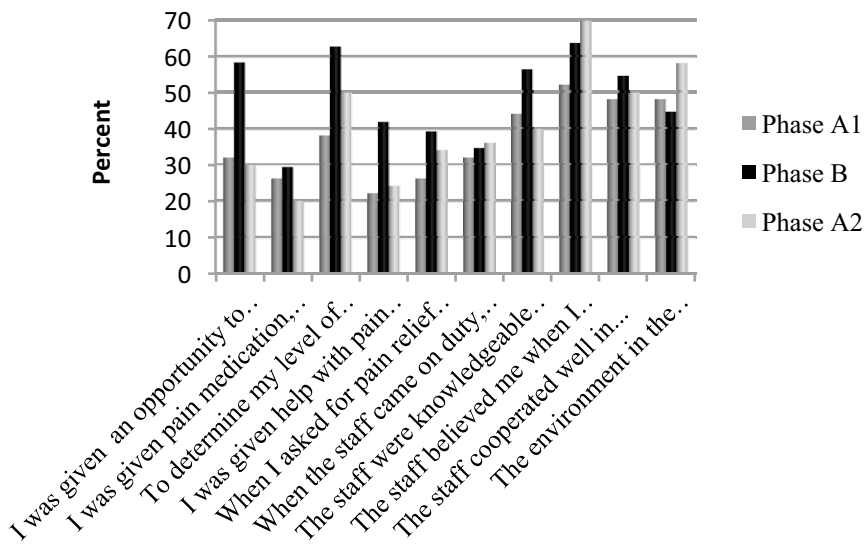


Figure 10. Percentage of patients who scored 4 ("agree") and 5 ("totally agree") on individual items in the SCQIPP questionnaire.

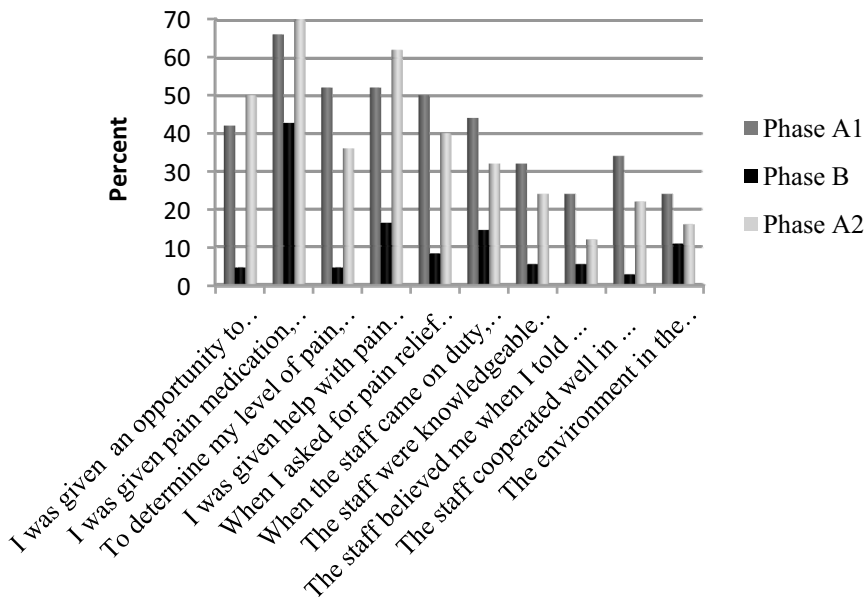


Figure 11. Percentage of patients who scored 1 ("totally disagree") and 2 ("disagree") on individual items in the SCQIPP questionnaire.

Discussion

The results presented in this thesis show that quality of care from the patients' perspective could be improved through collaboration with the health-care professionals in the emergency department.

Quality improvements in the emergency department

If patient health outcomes are central to quality health care, there has to be more focus on the patient's view of the quality of care. Quality health care has to be defined by the patients [111]. Systematically identifying areas for improvement is the first step for further improvement of ED care from the patient's perspective. This thesis draws attention to the need for equal care in the emergency department, independent of patient group, and the importance of individual patient care even in a busy ED setting. Identifying areas for improvement can also emphasize the importance of patient safety in ED care. This might be taken into consideration because studies have shown that patient safety influences patient satisfaction [112,113].

Study IV shows that improving quality of care does not have to mean big organizational changes or staff-consuming changes that affect the hospital's economic situation in a negative way. At the time of Study IV, the ability to study time intervals in the ED care process in detail was limited because of the computer system. However, the study showed that even small changes can have an impact on evidence-based care, effective care processes and improvement in patients' perceptions of the quality of care. Developing clinical practice guidelines and quality indicators could improve QI work and the quality of care, and also prevent known dangers at different levels in the organization [114]. The studies in this thesis identified potential areas for clinical practice guidelines (nutrition, acute abdominal pain) and showed how QPP items, nursing documentation, regular measurement of pain intensity and SCQIPP items could be used as quality indicators. These suggestions for clinical practice guidelines and quality indicators could easily be transferred to the clinical care in emergency departments and to the electronic health record system. This might also be a step toward increased use of structured CQI work.

A recently published government report [115] draws attention to the unmet demands related to the Swedish Health and Medical Service Act [8]. Health care continues to focus more on the organization and the healthcare professionals' perspective rather than the patients' perspective. Patients' participation in their care and treatment is limited [115]. As observed in Study III, healthcare professionals want to give the best possible quality of care but are hindered by factors related to their view of the patients, their different employment conditions, and the organization in itself. There is a distinct gap between healthcare professionals' ideals and the reality of emergency care. The barriers to QI could be reduced by improving team spirit, and developing leadership capacity, external support and a stronger ED organization. As a first step, these barriers to change should be addressed by leaders at all levels of the organization.

Cost-effective ways of thinking are apparent across all levels of the organization. Several cost-effectiveness models are in use, most of which focus on the care process. The goal is to increase effectiveness and improve the quality of care, for example, through improvements to healthcare professionals' competence and patient access, reducing wait times, changing work routines, or process improvements. However, the integration between quality of care from the patient's perspective and these cost-effectiveness models is not clear and is a sparse topic in the literature [116, 117]. Another worry with this thinking is that such an approach could increase common attitudes that value moving the ED patient through the system as quickly as possible [40]. Cost-effectiveness models should be introduced cautiously to prevent an assembly line effect in ED care, which could further jeopardize patients' perceptions of the quality of care.

Due to the economic constraints in health care today, the possibilities for a successful implementation of new methods and treatments could be limited. There should be more focus on the implementation process and ensuring that accurate evaluations are carried out. As far as possible, intervention studies to improve and clarify the clinical relevance of interventions should be carried out by the healthcare professionals themselves. Involving the healthcare professionals in the whole process improves the clinical relevance of QI [118]. Real life barriers in the clinical setting then become more obvious and interventions can be adjusted to the environment. Another way of improving the quality of care is to compare healthcare systems. However, a not uncommon approach to analyze or explain the results of general comparisons in Swedish health care has been to compare oneself with others to show that we are not as bad as "X". This should change and the health care should look instead to how it can use quality improvement and evidence-based care to demonstrate that their health care is good or better than others, or even the best. Public health care would perhaps benefit from taking another look at the area of entrepreneurship to learn this way of thinking. Benchmarking and

regional comparisons are developing across the nation, however, and this might lead to effective improvements, although the said comparisons are targeted more at medical care than nursing care.

Patients' perceptions of the quality of care

A patient's perception of the quality of care is reliant on that person's expectations, beliefs and experiences of the care [119, 120]. This should be thoroughly investigated. At a quick glance, as in Study I, the overall care may be perceived as of good quality. However, it must not stop there, but rather the results should be studied in detail. The differences in perceptions of quality of care related to patient background and visit characteristics at the emergency department indicate that QI is needed in a number of specific patient groups. To improve patients' perceptions of the quality of care, there should be a better balance between standardized care and individualized patient care in ED care. The fact that younger people and those who are well-educated are often more critical of the health care should not be explained as being of no importance [121, 122, 123, 124]. It is important to listen to the voices that are raised and constructively use this feedback in the QI work. Since the initial patient survey was conducted, there have been two internal surveys (in 2006 and in 2008, unpublished works) carried out in the emergency department with the same QPP questionnaire – although in a short form. The results of these surveys showed that most of the areas for improvement that was identified in 2002 still remained. Regarding time to analgesic, another internal survey [125] at this emergency department showed almost the same results as in Phases A1 and A2 in Study IV.

According to the results of Study III, a change in attitude toward the ED patient is required. This means that there should be more focus on the patients who actually visit the emergency department, and not merely a focus on how to eliminate the perceived inappropriate presentations by patients (i.e. cases for primary health care). Vukmir [126] suggests that modifying patient expectations could be the solution to achieving reasonable benchmarks in the encounter between the patient and healthcare professionals. Another way of changing attitudes and improving patient participation might be to look at the concept of viewing the patient as *a customer*, in the sense of emphasizing the need for a more service-minded approach toward the ED patient. According to Bergman and Klefsjö [3], customers are “the people or organizations that our field of work (activity and products) represents value for,” i.e. customers are “those who our organization will create value for.” Seeing it from this point of view, the patient could be more involved in the healthcare procedures in the emergency department. This definition could be perceived negatively by the healthcare professionals due to associations with

economics and production. However, seeing the patient as a customer does not mean that he/she does not need to be taken care of. The work to improve healthcare professionals' attitudes and behavior toward the patient should, in addition, be a multidisciplinary effort, with more focus on the group process.

A relationship formed between the healthcare professionals and the patient, can be valuable for the patient, for example, to reduce fears and anxiety during the ED visit [45]. As seen in Study IV, patients' perceptions of their possibilities to influence the pain treatment were increased during the intervention phase. This indicates that, even in the busy ED setting, patient participation could be improved by small changes. Swedish studies [127, 128] have shown that the level of patient participation can also have impact on patients' perception of satisfaction. On the other hand, the patients have different needs for participation, and this should be taken into consideration in the encounter with the patient [128]. Because of the nature of ED care, the relationship between the patient and the healthcare professional can also vary due to time limitations, patient outcomes and the priority given to physical needs [53].

Basic nursing care is sometimes forgotten, perhaps because of the heavy workload and high technology in the emergency department. This is confirmed by the results of the studies in this thesis, which reveal that several basic nursing aspects are in need of improvement. The quality of medical care may be difficult for the patients to judge and may be seen as a given. However, patients in the emergency department are in a vulnerable situation and the nursing care should thus be better clarified and receive more emphasis. Inadequate information is a common factor associated with patient dissatisfaction in the emergency department, as shown in Studies I, II and III. This area should be further evaluated and improved, which is confirmed by other studies [32, 68, 70, 129, 130]. A policy for communication and training in communication skills might improve this area. On the other hand, nursing care is not only about the "soft aspects" of ED care. Neglecting aspects such as nutrition and pain management may also challenge patient safety.

Dissatisfaction with the quality of pain management, both from the patients' perspective and the RNs' perspective, has been shown in this thesis. Study IV demonstrated how an uncomplicated intervention could result in improvements. From the patient viewpoint, both statistical and possible clinical differences were shown. Another important point is that the patients perceived an increase in the quality of care relating to pain management, irrespective of whether they received early medical treatment or not. This indicates the importance of a structured nursing assessment. The intervention might also have effects on the healthcare professionals' work, which will be further discussed in the following section. Although the intervention led to improvements, it also raised new questions. Is a wait time of one and a half

hours for analgesic reasonable for a patient seeking care for acute abdominal pain in the emergency department? The symptom of abdominal pain is a complex situation. A rather frequent explanation to why analgesic is not given or only low-dose medication given is that the patient is “not in that much pain” [131]. Nevertheless, if analgesic is not the suitable treatment for the patients, healthcare professionals must develop new strategies to care for these patients and do so within an appropriate time period. Such strategies might, for example, include improved information, an initial structured nursing assessment and advice regarding self-treatment. In addition, the results from Study IV showed that there were several patients who did not receive analgesic at all during the ED visit. Were they satisfied with that? This should be further studied. With the exception of “pain: low”, between Phases A1 and B, no significant differences were detected in estimated pain intensity between the three study phases. This should lead to further investigation. Were the questions in the questionnaire unspecific? Or was the dose of analgesic offered ineffective? The organizational process and the limited number of RNs could be an explanation for the long waits for analgesic in this emergency department. However, an Australian study [132] showed no relationship between workload and time to analgesic in an emergency department with well-established policies for pain management.

Regarding total time patients spend in the emergency department, transit times appeared to be longer in Study IV than in Study I. In Study IV, however, only one specific category of patients was included and the total number of patients seeking care in the emergency department had increased. Nevertheless, it is worthwhile to bear this in mind when introducing new directives regarding time goals for patients in the emergency department. This would be an interesting relation to study in more detail, and might also be valuable in the work to find effective care process models aimed at decreasing patient wait times in the emergency department.

The results of the studies in this thesis indicated a need for quality improvements, especially for patients with gastrointestinal symptoms and those seeking care for general surgery complaints in the emergency department. There is a call for more evidence-based care and a focus on CQI work in this area.

Healthcare professionals’ perceptions of the quality of care

Seeing the patient from a different point of view might change the healthcare professionals’ view of themselves and their work. They should not see themselves as “bouncers”, moving people along as quickly as possible, instead

they should be proud of providing high quality of emergency care in their everyday work.

As could be seen in Study III, the healthcare professionals expressed barriers to QI at three different levels (patient, healthcare professionals and organizational system). Some of these barriers were perceived by the healthcare professionals as beyond their control. The fact that the physicians in this emergency department were employed in their department of specialty and not in the emergency department might negatively influence their work in the emergency department. Working toward the same goals might improve the teamwork and the quality of care given [17]. In addition, strong leadership with high competence might improve the team's performance [133]. The introduction of emergency physicians might facilitate this teamwork. However, the organizational system barriers seem to be the biggest challenge and the most important task to address.

In Study III, some of the healthcare professionals did not think pain management was an area that needed to be prioritized. However, others thought it was important to improve this area. The differences in the healthcare professionals' opinions and the results from the patient survey were strong reasons for improving the pain management in the emergency department. Pain management was obviously more problematic for the RNs, probably because they must handle the patient's pain and the relatives' concern for longer periods of time and felt powerless to solve the situation. Physicians, on the other hand, need "only" decide whether or not the patient is in need of analgesic, as they noted in the focus group interviews.

In Study IV, most of the RNs were interested in the study and used the study protocol. One point of concern, however, is that even though the intervention was what several RNs had requested, some of them claimed that the assessment took too long to carry out and that the examinations were non-essential. This draws attention to a need for education in pain and pain management and, foremost perhaps, a need to emphasize emergency nursing care. Using the study protocol could clarify the RN's work. The RNs' comments might also be a sign of an ED attitude where moving the patient through the system as quickly as possible is the first priority [40]. However, low priority is not the only explanation. Increasing the number of RNs for every work shift might also adjust the workload and increase the RNs' bedside time.

The value of "doing" was obvious in this emergency department. But ED care should not only comprise moving patients through the system. Placing value on the "doing" could limit RNs' time to reflect upon their work [40]. This discussion confirms the results from other studies, which have concluded that nursing care is not a highly valued area in Swedish emergency

departments [60, 72, 73, 74]. This is an important aspect for the leaders to address. Hence, effective leadership that supports clear roles, effective teamwork and effective organizational structures also has an impact on the implementation of changes [134]. A transformational leadership, which focuses on change, might be valuable for the ED context. This kind of leadership consists of inspirational motivation, intellectual stimulation, individualized consideration, and a strive for influence [135]. However, this requires support from the organization.

Implementation of quality improvements in the emergency department

Emergency care needs to be more evidence-based and patient-centered. The use of research-based instruments makes valuable information for quality improvement in clinical practice available. But when studying changes in the clinical setting it is also important to be aware of the impact changes can have on the practice. A change supported by statistical significance may not necessarily mean much for the actual care. The importance of clinical significance should therefore be addressed more frequently by researchers. Clinical research is important and a prerequisite for evidence-based practice in health care. Such designs may be costly, time- and energy-consuming, and sensitive to organizational changes. More financial support, both on the national level and the local level is required [115, 136].

To structure the work of implementing the suggested improvements in the emergency department, the PARIHS framework might be fruitful. Together with enthusiasm and support, this could lead to success [137]. In order to succeed with QI, the “evidence” should contain high quality research, evidence-based care and patient participation. The “context” itself should contain well-defined physical/social/cultural/structural systems, transformational leadership, effective teamwork and feedback. Appropriate facilitation implies that the role of the facilitator be suited to the situation [23, 24, 25, 26, 27]. There is also a need for increased time for the healthcare professionals to reflect on their work [39, 40]. But more time in the sense of more minutes or hours of care on the ED floor is not the only solution needed to address the limited research utilization. A focus on barriers such as time to reflect, energy and a culture of “busyness” should also be addressed in the QI work [41].

During the years 2002-2009, the emergency department studied has undergone substantial changes related to staffing and work routines. The staffing has changed several times and the patient volume continues to rise. Of course, all these changes influence the healthcare professionals and the way they perform their work. Organizational changes are sometimes needed, but

it is important to recognize the value of having support of the healthcare professionals in these decisions in order to succeed with the changes. Implementation of changes has to be well-planned and introduced with sensitivity to the healthcare professionals' reactions and actions. Successful implementation also requires that there are resources in the clinical setting to support the change [136, 138, 139]. In the intervention study (Study IV), the healthcare professionals received daily information and support during the study period from the first author, the head nurse and the unit managers, which was appreciated.

This thesis emphasizes the importance of the relationship between the patient, the healthcare professionals and the context, to increase evidence-based practice and gain lasting improvements in the emergency care.

Methodological considerations

This thesis comprises both quantitative and qualitative studies, which is preferable when investigating different perspectives of phenomena. The quantitative studies capture measurable factors and statistical significances while the qualitative perspective deepens the understanding of the phenomena studied. When summarizing a thesis, the questions of credibility and reliability should be addressed. The question of whether the results can be generalized to other emergency departments or other countries is also worth asking.

There were some strengths and weaknesses in the individual studies that should also be further discussed. Both questionnaires that were used (QPP and SCQIPP) had been tested for validity and reliability. In addition, they were developed in the Swedish context. A general limitation with using a questionnaire (Studies I, II and IV) is that it often limits the study to patients who understand Swedish. Having the questionnaires in different languages might have generated additional valuable information. However, this was not possible due to economic and practical considerations.

Studies I and II

The intention of Studies I and II was not only to see how patients perceived the quality of care. The purpose was also to identify areas of the care that could be improved. The strength of the QPP questionnaire is that it measures the quality of care in two ways. Besides the patients' perceptions, it also takes into consideration the patients' expectations of the care. The QPP questionnaire has been tested for content validity and internal consistency (>0.70). Areas for improvement (Studies I and II) could, after some modification, be seen as quality indicators.

There were some limitations in the studies. The length of the questionnaire could be debated, when used in the ED setting. Having patients stay for an additional 15-20 minutes after their ED visit was finished was unfortunate but crucial. Nevertheless, the rate of response was 80%, which should be seen as fairly good. Some of the included patients were also satisfied with the opportunity to evaluate the care received. Noteworthy with the QPP questionnaire was that patients could answer “not applicable” for the questions, which affects the dropout rate for some questions. This likely affected the internal validity. If only a few patients have answered the question, this should raise questions regarding the validity of the results. However, for these studies, it was important to consider all areas rated by the patients to determine how to adjust the level of improvement and the urgency of an improvement for the quality of care in the emergency department. On the other hand, marking a question “not applicable” could indicate that the patient has considered the question and not just missed or skipped it. The results from Study I did not differ from other studies on the topic conducted in Sweden or abroad.

Study III

Conducting interviews with all of the categories of healthcare professionals in the emergency department was valuable in showing that there were expected and unexpected similarities and differences in their perceptions and the prerequisites for quality improvement in the emergency department. The differences in the participants’ gender, age and years of work experience strengthen the results. Credibility was substantiated through the use of quotations from the interviews and the results were confirmed by other studies.

One of the focus groups in Study III consisted of only 2 persons. Usually 4-12 is the recommended number of people for a focus group, but on the other hand groups as small as 3 participants have been reported as optimal. It depends on the demands of the topic area [99]. There is, however, a risk with small groups because the group dynamics could be limited. In our study, this was not an issue as no one in the smallest group dominated the discussion and the results did not deviate from those of the other interview groups. However, the results need to be verified by more studies, performed in the ED setting.

Study IV

The strength of Study IV was the ability to use the quasi-experimental design as intended and that the study could be conducted by the healthcare professionals themselves. This strengthens the possibilities of implementing

the changes in the clinical setting. For the most part, similar pain intervention studies have been carried out – completely or in part – with the help of external research staff [140, 141, 142]. Although, we were not able to carry out a randomized controlled trial, the use of an external monitor assured the quality of the study. In addition, Phase A2, with the return of the results toward the original baseline, suggests that the outcomes of the intervention are clear [93].

The characteristics of the participants vary, with a wide variety of patients seeking care for abdominal pain in the emergency department. This could strengthen the results.

The final examination of the vital signs according to the study protocol was the part where most internal dropout occurred. There were three study protocols where the measurement of pain intensity was the only variable that was missing from the final examination. This is probably due to the low priority of the topic, a point that should be emphasized in the implementation process.

The SCQIPP questionnaire seemed to be an appropriate instrument to use in the ED setting, because it was easy to use and there were an appropriate number of items to answer. The questionnaire has been tested for convergent validity and internal consistency (0.84). The modification of the SCQIPP questionnaire that was done for this study could be questioned. Cronbach's alpha was therefore calculated for the 10 items used (0.88). This was considered as satisfactory. A Cronbach's alpha of over 0.7 is considered adequate, though for group-level comparisons coefficients of 0.80 or higher are preferable [36]. The choice to use the 11-point rating scale as in the original SCQIPP version was made to enable comparison of pain intensity as measured in the study protocol. There were a number of patients who thought that they did not need/want any analgesic and therefore could not find an answer on the questionnaire that applied to them. This meant that there were a number of missing values, especially in Phase B. This was unexpected and was not detected until later on in the data collection process.

Results similar to those found in Study IV have been seen in two Australian studies. [143,144]

Conclusions

This thesis demonstrates how to identify and improve quality of care at an emergency department through collaboration between patients and health-care professionals. The conclusions are:

- To identify important areas for improvement, the ED patients' perspective of the quality of care has to be emphasized (Study I).
- To facilitate CQI work in emergency care, the use of clinical practice guidelines for different patient groups and quality indicators can be valuable. An improved balance between standardized and individualized patient care is required (Study II).
- To ensure patient safety and quality of care, barriers to change in the hospital culture and organization should be addressed (Study III).
- To improve the quality of care for ED patients, the nursing intervention related to pain management should be further developed and then implemented (Study IV).

Clinical implications and future research

The story in the Preface might be perceived as extreme. Nevertheless the same thing or something very similar could happen again. The patient was correctly treated with respect to the medical care provided. But the nursing care was obviously omitted. In ED care, life-saving interventions are usually of high quality and receive another level of attention. It is naturally important to provide fast and safe life-saving measures and trauma care. However, in most emergency departments, there are and will remain also patients who do not require life-saving efforts but who are nevertheless in need of care. Thus, there is a need for further research that focuses on how to improve the quality of care for these general patients in emergency departments. The explanation that they belong at another level of care, for example, primary health care, and not in the emergency department, is not an excuse for not taking care of them and not providing them high quality of care.

The results in this thesis have answered some of my questions. However, more new questions and speculations were generated, which could lead to further research. There is a shortage of evidence-based principles and practice in the area of emergency medicine [126]. An increase in both quantitative and qualitative studies is preferable, and will deepen the understanding for different perspectives in ED care. Performing randomized intervention studies of high quality in the emergency setting presents a challenge. However, the numbers of such studies should and could be increased.

To increase the patients' participation in health care, there should be CQI work and a focus on evidence-based practice through collaboration between the patients and the healthcare professionals. Repeated patient surveys with the purpose of studying the quality of care from the patients' perspective are a step forward. However, it is important to use validated measurements adjusted to the ED setting. These should be further developed and improved. The results from Study IV demonstrate cause to further investigate patients' perceptions of pain and analgesic in the emergency department, to see whether there is any difference and/or relation between obtaining analgesic and the perception of being relieved of pain. Using an uncomplicated nursing assessment protocol as computerized decision support together with the SCQIPP items and regular measurement of pain intensity as quality indicators could be the first step to CQI of pain management in the emergency

department. If these quality indicators are to be used, they should be carefully implemented in the ED setting and regularly evaluated.

This thesis has also extended the knowledge about ED healthcare professionals' perceptions and the prerequisites for QI work. Organizational changes influence healthcare professionals and how they perform their work. It would therefore be meaningful to study healthcare professionals' empowerment at the emergency department. RN attitudes and work in the emergency department have been explored, but descriptions of physician attitudes and work in the emergency department is sparse in the literature. To improve the quality of care and the interaction between patient and professional, this area must be explored further. And to further improve the teamwork, there should be more studies of team interactions. Study III showed that healthcare professionals' perspectives are of importance in improving the quality of care. More focus should therefore be placed on healthcare professionals' attitudes and also their behaviors toward the ED patient. Studying healthcare professionals' communication skills could be valuable to improve the encounter with the ED patient. In addition, as mentioned in the Introduction and in the Discussion above, leadership is important for a successful CQI work. Thus, the next step would be to deepen the understanding of leaders' perceptions of QI work, to find out how to support them and how to handle the barriers to QI. It would be interesting to further develop this idea and test an intervention, for example, a support program or mentorship. The literature has also noted a need for flexibility in the leadership style in the emergency department. Studies on the characteristics of best practice leadership styles at different levels in the organization are needed [135, 145].

Finally, research in this area should be compared with other similar contexts. Sweden is a relatively small country, however, and, regardless of country, the field emergency medicine/nursing itself is still under development. It is therefore important to broaden the perspectives and increase collaboration with colleagues in different disciplines within and across nations. This is essential if we are to step up the pace, increase evidence-based practice and make effective quality improvements for patients in emergency departments.

Svensk sammanfattning (Swedish summary)

Det pågår ett intensivt arbete med forskning och kvalitetsförbättring för att förbättra vårdkvalitet och öka användandet av evidens-baserad vård inom hälso- och sjukvården, både nationellt och internationellt sett. Dock är inte alla områden lika välstuderade och utvecklade. Verksamheten på akutmottagning är ett sådant område. I Sverige finns det ännu inte så mycket forskat kring detta område. Det som mest har studerats är specifika delar som till exempel triage, trauma, äldre patienter och mångbesökare. Emellertid är den största andelen patienter som söker på akutmottagningen inte i behov av livsuppehållande åtgärder. Det övergripande syftet med avhandlingen var att fokusera på denna typ av patienter på akutmottagning för att öka kunskapen om deras upplevelser av vårdkvalitet och hur vården ska kunna förbättras i samarbete med vårdpersonalen.

Denna avhandlings fyra delstudier består av forskning utförd vid akutmottagningen vid Akademiska sjukhuset i Uppsala, mellan åren 2002-2009. Delstudie I hade en deskriptiv design och innefattade en patientundersökning för att ta reda på patienternas upplevelser av vårdens kvalitet. Syftet var också att identifiera förbättringsområden. Två hundra patienter besvarade enkäten KUPP (Kvalitet Ur Patientens Perspektiv). Resultatet visade att generellt sett var patienterna ganska nöjda men vid en närmare granskning sågs att det fanns behov av att förbättra vårdens kvalitet. Fem förbättringsområden identifierades: ”information, respekt och empati”, ”smärtlindring”, ”nutrition”, ”väntetid”, och ”generell atmosfär”.

Delstudie II utgick från samma datainsamling som i delstudie 1. Syftet var att undersöka möjliga skillnader i upplevelse av vårdkvalitet på en akutmottagning, relaterat till bakgrund och besökskaraktistika. Resultatet visade att det fanns signifikanta skillnader och att patienter som sökte för gastrointestinala besvär, patienter som sökte på kirurgsektionen, patienter som lades in på vårdavdelning, yngre patienter och välutbildade patienter var mindre nöjda med vårdens kvalitet.

För att kunna förbättra vårdens kvalitet är också vårdpersonalens perspektiv viktiga. Delstudie III hade en kvalitativ ansats med syftet att undersöka vårdpersonalens (läkare, sjuksköterskor och undersköterskor) perspektiv och för-

utsättningar för kvalitetsförbättring på akutmottagningen, med resultatet av patientenkäten som utgångspunkt. Fem fokusgruppintervjuer utfördes med sjuksköterskor och undersköterskor från akutmottagningen och läkare från de tre olika specialiteterna medicin, kirurgi och ortopedi. Intervjuguiden utgjordes av de tre huvudfrågorna i Förbättringsmodellen (*Vad vill vi åstadkomma?, Hur vet vi att en förändring är en förbättring?, Vilka förändringar kan leda till en förbättring?*). Resultatet visade att vårdpersonalen tyckte att ”information, respekt och empati”, ”väntetid” och ”smärtlindring” var de viktigaste förbättringsområdena att arbeta vidare med. Mål och konkreta förslag till förändringar kom fram. I tillägg framkom ett antal hinder för att lyckas med förändringarna, som var påtagligt i alla fem fokusgrupper. Hindren visade sig finnas på tre olika nivåer inom sjukvården och följande tre teman formulerades: ”vårdpersonalens patientsyn”, ”läkarnas och övrig vårdpersonals tillhörighet till olika organisationskulturer” och ”sjukhusets organisation hindrar optimalt patientflöde och kvalitetsförbättringar”.

Delstudie IV var en interventionsstudie med utgångspunkt från resultaten från de tidigare studierna på akutmottagningen. Ett antal förslag på interventioner presenterades för cheferna för akutmottagningen. Några av områdena var redan under utveckling. Däremot ansågs smärtbehandling vara ett område i behov av förbättring. Genom att interventionen ingick i en forskningsstudie skulle möjligheterna för att åstadkomma förbättring kunna underlättas. En kvasi-experimentell design med ABA fasar användes för denna studie. Fas A1 utgjordes av en baslinje, fas B var interventionen och fas A2 perioden efter avslutad intervention. Syftet var att undersöka utfallet av en strukturerad sjuksköterskebedömning och en sjuksköterskeinitierad generell ordination på analgetika jämfört med standardproceduren för patienter som söker för buksmärta på akutmottagningen. Standardproceduren innebär en mer ostrukturerad sjuksköterskebedömning, beroende på vilken sjuksköterska som utfört den, och att patienterna inte kan få analgetika innan en läkarbedömning är utförd. Utfallsmått var: smärtgrad, antal patienter som fått analgetika, tid till analgetika, total tid på akutmottagningen och patienternas upplevelse av smärtbehandlingens kvalitet. Urvalet bestod av patienter med pågående buksmärta och 50 + 100 + 50 patienter ingick för de tre respektive faserna. Data samlades in med ett studiespecifikt protokoll, patientjournalen (tidsintervall och analgetika) och en patientenkät. Patientenkäten som användes var en för denna studie modifierad version av Strategic and Clinical Quality Indicators in Postoperative Pain Management (SCQIPP). Resultatet visade på signifikanta förbättringar under interventionsfasen, vad gäller antal patienter som fick analgetika, tid till analgetika och patienternas upplevelse av smärtbehandlingens kvalitet. Dessutom skattade patienterna i interventionsfasen signifikant lägre lägsta nivå för smärta jämfört med patienterna i fas A1.

Sammanfattningsvis bör förbättringsområden identifieras utifrån patienternas och vårdpersonalens perspektiv. Kliniska riktlinjer för olika patientgrupper och kvalitetsindikatorer kan underlätta förbättringsarbetet. Hinder för förbättringsarbete, på alla nivåer inom hälso- och sjukvården, bör beaktas. För att förbättra vårdprocessen, smärtbehandlingen och patienternas upplevelse av vårdens kvalitet på akutmottagning, bör den studerade sjuksköterskeinterventionen rörande smärtbehandling vidareutvecklas och därefter implementeras.

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