Interprofessional Teamwork in the Emergency Department

Communicating for Patient Safety

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Abstract

Interprofessional teams may improve patient safety through successful communication and effective teamwork. However, ineffective teamwork occurs despite the implementation of various strategies and can compromise patient safety by causing adverse events. In addition, patients and healthcare professionals may perceive the communication and teamwork in the interprofessional team differently. Therefore, the *overall aim* of this thesis was to explore and describe the interprofessional communication processes and teamwork used during team assessment of the patient in the emergency department, with the focus on patient safety from the perspectives of healthcare professionals and patients. Multiple *methods* were used in the four studies of this thesis. A cross-sectional study (Study I) and a structured observational study (Study II) evaluated the effects after an organizational change to the emergency department interprofessional teamwork environment. Interviews were conducted with healthcare professionals (Study III) and patients (Study IV). The *findings* show that organizational changes contribute to changes in communication, teamwork strategies, and safety attitudes within the interprofessional team. The interprofessional team and patients expressed a desire for a better-structured flow of information in the emergency department, and indicated a need for increased psychological safety. The main *conclusion of* this thesis is that interprofessional teamwork in the emergency department is complex and demanding, yet important for the psychological safety of both healthcare professionals and patients in the emergency department. The request for structured delivery of information, despite years of knowledge about communication and information demand, remains as an essential factor for increasing the enablers of interprofessional teamwork in the emergency department. A crucial addition to the general knowledge of interprofessional care and a reminder of the important work of the organization and healthcare professionals in clinical care is the voice of the patient. The patient is an important part of the interprofessional teamwork to enhance quality and safe care. If healthcare professionals listen to the receiver of the healthcare service then the outcome can be tailored to foster and support safe delivery of quality care.

Keywords: interprofessional teamwork; emergency department; communication; patient safety

Sammanfattning på svenska

Interprofessionellt teamarbete på akutmottagning är komplext genom sina många dimensioner och med höga medicinska krav. Komplexiteten består av många olika faktorer och kompetenser men är i grunden baserad på att sammanlänka alla dessa genom god kommunikation. Kommunikation är alltså en viktig faktor för att trygga en god patientsäkerhet. Tidigare forskning har visat att patienter och patientsäkerhet är gynnade av ett välfungerande interprofessionellt teamarbete och utgör en högre grad av patientsäkerhet. Akutmottagningens arbetsmiljö har dock utmaningar i form av flera komponenter, så som trängsel 'crowding', teknisk och medicinsk högrisk-miljö, hög personalomsättning och den mänskliga faktorn. Patienter med olika sökorsaker skall alla ha möjlighet att besöka akutmottagningen under dygnets alla timmar och bli behandlade med vidare vård eller kunna återgå till hemmet. Patientsäkerheten utmanas av en sådan miljö men kan också påverkas av det interprofessionella teamarbetets kommunikation. Att arbeta tillsammans snarare än individuellt beskrivs som en styrka där två eller flera i ett teamarbete kan påminna varandra om stress, vara mer flexibla, möjlighet att ta sig an en större arbetsbörda samt vara mer uppmärksam på säkerhet. Akutmottagningen som ligger till grund för datainsamlingen i denna studie genomförde under 2013 en riskbehovsanalys som identifierade ett behov av att förbättra interprofessionellt teamarbete. En naturlig implementering av olika organisationsförändringar genomfördes under 2016–2019. Vidare fanns ett behov av att utvärdera dessa åtgärder med avseende på det generella arbetsklimatet och den interprofessionella kommunikationen på akutmottagningen. För att kunna förbättra interprofessionellt teamarbete på akutmottagningen krävdes en större förståelse för hinder och möjligheter så som de upplevs av professionen närmast patienten och av patienten själv. Det övergripande syftet med avhandlingen var därför att beskriva och undersöka den interprofessionella kommunikations-processen och teamarbetet på akutmottagningen med fokus på patientsäkerhet, från personalens och patientens perspektiv. Alla delstudier har etiskt godkännande från Etikprövningsmyndigheten (studie I–III: D.nr. 363-15; och studie IV: D.nr. 2020-05247).

Avhandlingen bygger på fyra delstudier där de två första utvärderar de organisationsförändringar som planerades och genomfördes av ledningen och personalen på den aktuella akutmottagningen, med syftet att förbättra

interprofessionellt teamarbete. Dessa förändringar har sammanställts och benämns som en 'multifasetterad intervention' och genomfördes mellan år 2016 och 2019. Den multifasetterade interventionen innebar i korthet en förändring inom: 1) interprofessionellt teamarbete som uppmuntrade personalen att arbeta mer interprofessionellt med exempelvis en utarbetad teambedömning; 2) teamträning med simuleringsövningar; 3) värdegrundsarbete som innefattade etiska frågeställningar, likabehandling och uppförandekod; 4) fysisk arbetsmiljö där strukturella förändringar genomfördes; 5) strukturellt utvärderingsarbete i team som var baserat på ökat antal omhändertagande (interprofessionella) team efter triage; 6) team-triage som införde en interprofessionell teambaserad struktur.

Avhandlingens *första delstudie* utgjordes av en tvärsnittsstudie genomförd via en enkät, Safety Attitude Questionnaire (SAQ). Delstudien syftade till att utvärdera effekten av en multifasetterad intervention på interprofessionellt teamarbete genom personalens uppfattning av teamarbete och säkerhetsattityder på akutmottagning. Två mättillfällen jämfördes, före ($n=112$) och efter ($n=121$) implementerade förändringar. Resultatet visade att viktiga skillnader i attityder kunde identifieras. Efter förändringen visade personalen en mer positiv uppfattning av säkerhetsklimatet och en högre medvetenhet om stress. Samtidigt påvisades att attityden kring arbetsförhållanden hade försämrats vilket kunde tyda på ett missnöje över de förändringar som skett. I avhandlingens *andra delstudie* genomfördes observationer av personal före ($n=192$) och efter ($n=200$) den multifasetterade interventionen. Syftet var att beskriva interprofessionellt teamarbete och utvärdera faktorer som kunde påverka kommunikationen före och efter implementeringen av en multifasetterad intervention på akutmottagning. Interprofessionellt teamarbete och kommunikation observerades i relation till miljöfaktorer under arbetstid där koordinering av vård och direkt patientvård utfördes. Resultatet visade en minskning av avbrott i arbetet runt patienten efter interventionen samtidigt som den interprofessionella delaktigheten i bedömningar och den interprofessionella kommunikations-processen observerades att öka. I avhandlingens *tredje delstudie* intervjuades sju läkare, tolv sjuksköterskor, sju undersköterskor och två administratörer. Syftet var att beskriva personalens yrkesspecifika uppfattning av kritiska incidenter kopplade till möjligheter och hinder för interprofessionellt teamarbete på akutmottagning. Intervjuerna genomfördes med hjälp av metoden critical incident technique (CIT) som identifierade 108 kritiska incidenter. En analys av materialet

påvisade faktorer som både kunde underlätta och försvåra interprofessionellt teamarbetet i kritiska situationer, exempelvis, mycket eller lite professionell erfarenhet och akutmottagningsspecifik kommunikation. Utöver dessa identifierades organisatoriska förutsättningar, professionsspecifik kompetens och icke tekniska färdigheter som viktiga faktorer för interprofessionellt teamarbete. I avhandlingens *fjärde delstudie* intervjuades 17 patienter som hade besökt och behandlats på akutmottagningen cirka två veckor före intervjun. Syftet var att utvärdera erfarenheter av vård, kommunikation och teamarbete från patientens perspektiv. För detta ändamål användes semistrukturerade intervjuer. Patienterna upplevde en känsla av trygghet när de blev bemötta med ett empatiskt förhållningssätt från personalen. För att kunna handskas med en ängslan och en stressfull miljö var det viktigt att bli sedd som en människa och inte bli reducerad till ett objekt. Vidare lyfte patienterna vikten av, eller avsaknaden av, ett specifikt informationsutbyte mellan personal och patient.

Alla delstudiers resultat har sammanfattats i ramberättelsen via en syntes utifrån en systemteoretisk modell, Systems Engineering Initiative for Patient Safety (SEIPS). Modellen bygger på en matris där olika segment används för att utvärdera strukturer, processer och utfall i ett arbetssystem. Analysen visar att interprofessionellt teamarbete upplevs komplext och ingår i ett system av olika processer där patienten är central. Angående strukturen så kunde en tydlig påverkan på upplevt och observerat interprofessionellt teamarbete ses efter organisatoriska förändringar. Avbrott i vården av patienter minskade, den interprofessionella närvaron ökade och säkerhetsklimatet höjdes där tilltron till organisationens engagemang för säkerhet blev starkare. Informationsdistribution på makro-, meso-, och mikronivå (från organisation till individ) blev en framträdande faktor för att det interprofessionella teamet skall ha en förutsättning att kunna utföra sitt arbete. Vidare så upplevdes arbetsmiljön och organisationens kapacitet utgöra ett strukturellt hinder för att personalen skulle kunna hantera stress och utföra sitt arbete på ett betryggande sätt. Vid analysen av arbetssystemets processer så identifierades icke-tekniska färdigheter som avgörande för att kunna utföra ett interprofessionellt teamarbete i partnerskap med patienten. Exempel på dessa identifierade färdigheter var teamarbete, ledarskap, hantering av stress och kommunikation. Det interprofessionella teamarbetet påverkades av processer så som avbrott i arbetet och en bristande kommunikation med både ledning och patient. Patienten påverkades av faktorer

i den strukturella organisationen och kände sig bortglömd men samtidigt visade sig ha hög tilltro till vården och personalen. Vidare påverkades personalen av interpersonella intressen och ibland ett respektlöst bemötande för att kunna arbeta interprofessionellt. Slutligen, visade utfallet i modellen att organisatoriska förändringar påverkar interprofessionellt teamarbete och är en förutsättning för att olika professioner skall kunna arbeta tillsammans och möjliggöra en god och säker vård för patienten. Strukturerad kommunikation i ett tillåtande säkerhetsklimat är en viktig faktor i sammanhanget och för patienten avgörande för att känna sig som en del i detta sammanhang.

Avhandlingens resultat bekräftar att interprofessionellt teamarbete på akutmottagningen har stor komplexitet, inte minst vad gäller kommunikation och säkerhetsfrågor. Avhandlingens studier lyfter också identifierade möjligheter och hinder som kan bidra med att skapa gynnsammare förutsättningar för ett interprofessionellt teamarbete. Därmed kan en mer effektiv kommunikation och bättre patientsäkerhet sannolikt möjliggöras på akutmottagningen. Vidare tycks organisationsförändringar kunna bidra till en förändring i arbetsmönster och säkerhetsattityder hos personal. Avhandlingen lyfter även fram patientens röst och betydelsefulla roll i relation till det interprofessionella teamet, för att främja en trygg och säker vård.

List of papers

This thesis is based on the following studies, referred to in the text by their Roman numerals.

I.   **Milton, J.,** Chaboyer, W., Åberg, N. D., Erichsen Andersson, A., Oxelmark, L. Safety attitudes and working climate after organizational change in a major emergency department in Sweden.
International Emergency Nursing 2020;53:100830.
doi: 10.1016/j.ienj.2020.100830.

II.   **Milton. J.,** Gillespie, B. M., Åberg, N. D., Erichsen Andersson, A., Oxelmark, L. Interprofessional teamwork before and after organizational change in a tertiary emergency department: an observational study.
Journal of Interprofessional Care. [In press].
doi: 10.1080/13561820.2022.2065250

III. **Milton. J.,** Erichsen Andersson, A., Åberg, N. D., Gillespie, B. M., Oxelmark, L. Perceptions of interprofessional teamwork in the emergency department; qualitative assessments of critical incidents.
Submitted.

IV.   **Milton. J.,** Åberg, N. D., Erichsen Andersson, A., Gillespie, B. M., Oxelmark, L. The art of information exchange in an emergency department – a patient perspective.
Submitted.

Contents

APPENDIX

STUDY I–IV

Abbreviations

ABCDE	Airways Breathing Circulation Disability Exposure
CIT	Critical Incident Technique
COREQ	Consolidated Criteria for Reporting Qualitative Research
ED	Emergency Department
HCP	Healthcare Professional
NTS	Non-Technical Skills
RETTS	Rapid Emergency Triage Treatment System
SAQ	Safety Attitude Questionnaire
SBAR	Situation Background Assessment Recommendations
SEIPS	Systems Engineering Initiative for Patient Safety
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization

Introduction

Interprofessional teamwork is a concept that has been increasingly attracted attention over the past 35 years, with the emphasis on how collaboration, professional relationships, and quality of care can be improved (1). While interprofessional teamwork has been present in healthcare systems, it has not necessarily been applied formally to provide coordinated and integrated patient care. The World Health Organization (WHO) declared in a framework document in 2010 that interprofessional teams are needed for future global health systems, to optimize skills for improved health outcomes and to ensure safe patient care (2). In the Swedish healthcare system, the concept of interprofessional teams was formally adopted in the mid 1970's, to create one of the first home-care teams in the country. Patients in need of care were met by different professionals, who worked together to deliver an integrated quality of care (3). Subsequently, the concept found its way into anesthesiology and surgical procedures, and thereafter into almost all the major medical disciplines (1, 4).

Within the emergency department (ED), interprofessional teamwork has a strong focus on effective communication to ensure patient safety. The interprofessional working environment is complex (5) and particularly demanding in an often busy and unpredictable ED environment. The team is faced with rapid changes in pace, variations of workflow processes, and assessing patients with acute injuries and conditions (6).

A report from the American National Academies of Sciences, Engineering, and Medicine suggests that adverse events causing patient harm are leading causes of death and disability worldwide (7). While several factors contribute to such adverse events, communication and teamwork failures are recognized as contributing to patient harm, both internationally and nationally (2, 8, 9). The Joint Commission on Accreditation of Health Care Organizations in the US claims that patient falls are among the most frequently observed sentinel events, with inadequate assessment and communication failures as the foremost contributing factors (10). Research have shown than 70 % of all adverse events can be related to human factors (4, 11). Furthermore, the WHO reported an estimation of that one in ten patients might meet an adverse event whilst receiving hospital care in high-income countries. An action plan is, thus, formed to limit

such avoidable adverse events in healthcare, where interprofessional teamwork is a priority (12).

The healthcare system is complex, and healthcare professionals (HCPs) often work with processes and healthcare structures that limit their ability to carry out their work using effective communication practices in a consistent manner. HCPs are working in environments that are not constructed for flexible and close collaborative connections, and a consequence of this is an increased risk of adverse events. The healthcare system needs to be constructed such that HCPs can be supported and patient harm can be minimized (7, 13). Improvements are needed to the work environment and to the work processes that HCPs use in the ED. Furthermore, HCPs often experience a stress-related environment in which frequent interruptions, conflicts, and overcrowding are everyday challenges (14, 15). These factors in combination increase the imperative for effective interprofessional collaboration among ED teams.

Background

Patient safety

While patient safety is a broad concept, it has been defined as a reliable system that delivers safe care and limits the potential for adverse events (16). Over the years, there has been increasing interest in the critical role that interprofessional teamwork plays in reducing risks and maintaining patient safety (16, 17). An adverse event can be described as a direct cause of something that leads to failures in medical management and contributes to longer hospital stays (18). One poignant example is the story of the young American girl who suffered severe burns in an accident in 2001. Due to a series of miscommunications and failed teamwork, the little girl died. She was subjected to HCPs that would see past symptoms and deviate from standard communication and teamwork routines. HCPs would not listen to the patient or to family members who expressed concerns about the health status of the patient and possible misunderstandings. The girl presented to the ED with severe burns and two days prior to her planned return home, she died (19).

Today's concept of patient safety in relation to teamwork is analogous to the development of aviation safety era in the latter part of 20th Century (20). A sequence of serious aviation accidents led to a thorough aviation safety analysis, which indicated that technical skills were not sufficient to ensure safety. Implementing safety improvements, in terms of teamwork and communication, in the high-risk context of aviation required a better understanding of the consequences of behavior within the healthcare industry (20). This has led to studies of the individual HCP roles in combination with the cause of error in relation to workplace routines (21). Furthermore, research has highlighted the different understandings of the patient safety discourse among HCPs. Identified nuances of the concept between professions creates a gap in interprofessional teamwork that strives towards effective patient safety (22). Consequently, interprofessional teams need to work cohesively together, and this becomes the target for combining the individual perspectives into a system context in which errors occur even in a perfect organization. Patient safety demands HCPs to have the right tools and competence to carry out their task. Therefore, the work system must consider factors that focus on such prerequisites to ensure safe care (23).

The role of human factors

The role of human factors is a wide concept on how individuals appear physically and behave psychologically in particular work environments or systems (21). Apart from technical issues of safety, the human factor has a strong impact on patient safety (16). Furthermore, the concept can be attributed with two underlying areas: the environmental attention and principles of individual non-technical skills (NTS). The environmental attention to the human factor is defined further by: task management; noise and distraction; and ergonomics. The latter has given much attention through the context of reducing errors caused between humans and other elements of a system (i.e., checklists, room layout, safe access, workplace health and safety, the transport of equipment, etc.) (24) relevant to the ED (25). The NTS are a set of principles that are needed to create good teamwork, including effective communication. The concept will be further explained in the *Non-technical skills – including verbal and non-verbal communication* section.

In the context of patient safety, humans are prone to make errors either at the 'sharp end' or the 'blunt end' of healthcare (26). The difference is explained by Reason (21) who defines the sharp and the blunt ends of the spectrum of human errors as: (i) 'active failures' that happen near the patient and in direct contact with the patient (i.e., mistakes, fumbles, and slips); and (ii) 'latent conditions' that are distant from the patient and on the management level. The latter is related to errors that can be foreseen and mitigated through the application of a proactive standard by management and decision-makers. Errors related to active failures often have a reason back in time through the system and should ideally be limited to a reactive management, according to Reason (21). Thus, human errors are likely to be interwoven with both active failures and latent conditions. While errors can happen rapidly and accidentally near the patient, they are often generated already by weak conditions, such as time pressures, lack of HCPs, lack of experience, lack of the appropriate technology, insufficient working environment, etc. (21). A prerequisite for management to take actions on errors and adverse events is the reporting of incidents. Nevertheless, many factors that would facilitate such reporting among HCPs are dependent upon an understanding of patient safety (22), psychological safety, management support, role identity and thus enthusiasm for the act of reporting (27).

Moreover, Reason (21) has argued that humans (i.e., HCPs at the ED) are the last line of defense against adverse events in healthcare. The front-line professionals should be supported by macro-, meso- and micro-system frameworks that are constructed to prevent adverse events and ensure patient safety. Although the system is constantly made safer with technical advances, errors happen due to conditions related to the layers in the system. The approach has been transformed from blaming the individual to instead looking at the organizational factors of the system (28). Thus, the current safety approach adopted within high-risk organizations focuses on *why* an error occurred rather than *who* caused the error (21).

Historically, safety issues have been assessed in hindsight (29). This means that errors or reports of adverse events have typically been registered after the fact. The work of Eric Hollnagel (29) has challenged this paradigm by describing a theory in which the focus is shifted from errors that had happened to those that had not yet happened, thereby introducing the concept of *resilience engineering* . This manner of resilience in healthcare describes the contributions of human actions in situations that are prone to change and eventual failure due to system gaps (e.g., situations in a rapidly changing ED environment) (30). Furthermore, if a system can adjust its response to events, such as disturbances, unplanned changes and opportunities, in close connection to the event (before, during, or after) then it qualifies as a part of a resilient organization (31).

Still, current healthcare organizations measure patient safety in the traditional hindsight way, although the above mentioned systems approach of *resilience engineering* steps away from the 'shame and blame' perspective and promotes resilience thinking (28, 29). Furthermore, this approach also applies to the 'workaround' concept (32) that can be connected to the resilient reactive safety (i.e., miscommunication, technical corrections, simulation-based training and education about patient safety) meanwhile a resilient proactive safety is the advocated way forward to enhance patient safety (29).

Healthcare professionals and patients in patient safety

Registered nurses creating patient safety

HCPs' provide an important role in the continuous work of patient safety. As part of the licensed HCP team, the registered nurse provide 24/7 bed-side nursing

care. They are often closest to the patient, coordinate and plan procedures for the patient. Besides this, registered nurses have an academic lens, like many other licensed HCPs, through which they can evaluate potential hazards to the patient and they practice clinical assessment in combination with theoretical standpoints (33). Interprofessional teamwork is highly dependent upon registered nurses who can monitor and make qualified clinical decisions, so as to ensure high-quality care. A recent study has addressed the broad variations in the ratio of patients to registered nurses in the ED (34). This highlights the need for different types of expertise and new collaborations among the HCP team, to ensure that the team and the registered nurse can deliver a safe care to the patient. Another aspect of the work of the registered nurse is that this professional often works closest to the patient. Therefore, the work of nurses in a special sense involves also the communication and listening to the patient's voice and will. This is essential for safety issues in the team and thus influence the quality of healthcare. Moreover, HCPs work in an environment where hierarchies are present, which may influence patient safety (20).

The patient's role in the interprofessional team

Patient involvement in their own healthcare has been shown to increase the safety aspect of care (35). Therefore, it is vital to identify the patient's role in the interprofessional team. Researchers have claimed that the patient is key to identifying the safety aspect of the care, and is thus an important part of the planning and assessment of care. HCPs must not presume that they understand and acknowledge all the information regarding the patient, since the patient is the one who was involved from the very beginning (35, 36). Furthermore, patients are suggested to be capable of evaluating the safety of their care. Research suggests that patients often connect decisive interactions regarding their care with levels of safety and harm. (35). The criteria that patients apply may differ from those used by the competent decision-makers within the clinical and research settings (35, 37).

HCPs must identify the patient as a source of valuable knowledge and inputs to enhance patient safety (36). However, in many cases, patients still encounter and inadequate reception from HCPs in the ED and the need for care is often overlooked. The individual experiences and perceptions of patients are highly valuable in the sense of what the assessment in the ED entails and how it is

delivered. Communication and teamwork can tailor the work of HCPs to raise awareness of each individual patients need for care (38).

Patients are, thus, game-changers for redesigning healthcare (39). This is especially important to acknowledge in the context of person-centered care (40). HCPs and management, including the patients themselves, must step away from the traditional view of patients as passive recipients of care and instead create space and opportunity to influence the redesigning of healthcare (39). The patient must be seen as the subjective individual person (i.e., person-centeredness) behind an objectified medical condition or statistical number in the healthcare process (40). Patients' preferences should influence the design of safe care with unique experiences from healthcare, and not only be described by numbers (39). There has been an increasing international movement towards reducing adverse events for patients and engaging patients and their support persons (i.e., family member or friend) to partner with HCPs, management and policymakers. The purpose of this is to make healthcare safer and to provide a more-integrated quality of care (12).

Safety culture

Safety culture is a broad concept for measuring and explaining, for example, safety and teamwork in the perspectives of ethically based principles, behaviors, and capability linked to experience (41). The concept of interprofessional teamwork can be studied through the academic lens of safety culture, especially in an era of rapid evolving new technical advances. In a fast moving era of technical solutions and effective assessment tools there is a need to not compromise on the human factor ergonomics (25), in relation to the safety culture.

The phenomenon of interprofessional teamwork touches on an important concept, namely the culture in which the interprofessional team functions. Helmreich and Merritt (20) defines the culture in medicine and aviation as *"a complex framework of national, organizational and professional attitudes and values within which groups and individuals function"* (20, p.1). In particular, working in such high-risk operations requires advanced levels of communication, teamwork, and tasks coordination, and the dominating culture is, therefore, essential. This fact is, however, often overlooked because it also represents *"the way we do things here"* and is strongly connected to established norms and values (20, p.1). Thus, the term

'culture' is used when explaining the context in which the term 'climate' is part of the detailed existing culture amongst the HCPs (41). The more-appropriate terms to use are therefore, climate, safety climate and teamwork climate, to describe the factors that have impacts on safety in a healthcare environment (41, 42).

Team communication must be tailored to various situations within the existing culture in the ED, to ensure effective communication within an interprofessional team (15). The ED environment is challenging because it is an unpredictable, high-paced arena with continuous waves of visiting patients (i.e., crowding) (14, 15), and an existential hierarchy among the HCPs. This contributes to partitioning between groups (43) with impacts on team communication and safety climate. Moreover, the work environment is part of the safety climate and is identified as an area in which HCPs are exposed to safety risk incidents (e.g., physical or psychological violence or injuries) (44). For example, HCPs that work shifts in a hospital (45) and, specifically, registered nurses in the ED (44, 46) are reported to be subjected increasingly to acts of violence and work-related injuries. A recent US study has highlighted how exposed the ED staff are to shooting incidents, and how this has led to development of a program of shooting education as a plan of safety action (47).

The reporting of incidents and events has been identified as a problem in the ED. A Danish study conducted in 2018 highlighted the low frequency of reporting of work injuries (44). The reporting of such injuries was perceived by ED staff as tedious, and many incidents were described as being 'part of the job'. Such attitudes hinder the safety climate, as they can affect the reporting of errors. Ultimately, this has negative impacts on safety culture (41).

The concept of 'groupthink' (as opposed to individual thinking) (48) has been described in relation to hierarchy and safety culture in healthcare. The creation of a facilitative working environment in which HCPs are supported and have an open attitude towards all levels of the hierarchy is dependent upon the organization itself (49). The organization must ensure an open attitude towards exchanges of criticism on all levels and must continuously discuss the quality of care. The alternative is to risk 'groupthink', whereby the delivery of safe care and comfort is endangered by a lack of open discussion around the different views and concerns regarding the quality of the provided healthcare (49). The concept of 'groupthink' will be further explained in the *Team development theory* section.

Furthermore, the interprofessional team needs to have a clear vision of its purpose and the direction that it wants to take. Person-centered care is suggested to be a way to direct the focus to benefit the safety of the patient. To do so, the team needs to show respect to all the team members, including the patients and their support persons (i.e., family members) (50). An open attitude towards the different roles of responsibility and sources of information, and the confidence to combine these elements will create an enabling working climate for the interprofessional team (50).

The interprofessional team

A wide variety of terms is used to describe interactions between HCPs in a clinical environment. The concept of 'team' has often been placed or replaced in combination with 'professional' and 'discipline' , together with various prefixes (such as multi-, inter-, and trans-). The term multi-/inter-professional is used in a narrower sense than the term multi-/inter-disciplinary. Thus, the term 'professional' refers to a specific profession, and 'discipline' refers to an area of expertise and includes all the members of a team, both non-professionals and professionals. Multi-, inter-, and trans- refer to the levels of interaction between team members (51). Teams have also been characterized in terms of somatic context-specific areas (i.e., acute, rehab) or conditions (i.e., diabetic, spinal, etc.), to present a specific area of expertise, and this may include different professions (5).

Moreover, there are various descriptions of the degrees, to which, HCPs work together and define their roles and functions. These labels include different typologies and use a spectrum that ranges from 'informal flat teams' (teams that do not work in an organized way and interact irregularly) to the 'formal functional teams' (teams that work in an organized way and interact regularly) (Figure 1).
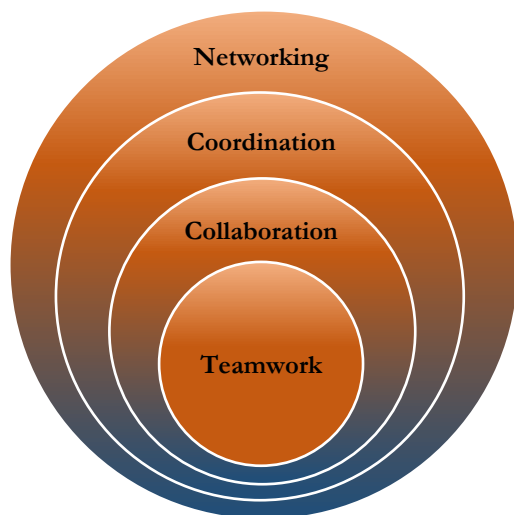
Figure 1. Different types of interprofessional teamwork. The concept of 'teamwork' constitutes the most-focused form of interprofessional teamwork, defined with the highest levels of interdependency, shared goals, and interaction (e.g., trauma care and intensive care). The typologies in the advancing outer edge are defined with decreased interaction, fewer spoken common goals, and interchangeable dependency (e.g., digital work performed at a distance via telephone or e-mail, and work that is less acute and can be carried out in different work environments). Adapted with permission of John Wiley & Sons, from Reeves et al. (1); permisson conveyed through Copyright Clearance Center, Inc.

A well-functioning interprofessional team is crucial to deliver patient care that is safe and of quality. Reeves et al. (1) have described an optimal, effective interprofessional team as a group of members who carry out their own roles in skillful, collaborative, and creative ways. Simultaneously, team members must be aware of the actions and responsibilities of all the other roles in the team, in combination with the personalities and the nuances that accompany the different roles (1). Thus, all teams face challenges and may not function optimally, such that the teamwork becomes an illusion (52). Such constellations of teams, which are referred to as 'pseudo-teams', are the result of unclear roles, undefined goals, internal conflicts, and a lack of time for reflection for the HCPs. Lyubovnikova et al. (53) have identified the positive outcomes of being part of a well-functioning 'authentic team' in the acute healthcare context. These positive outcomes included the HCPs being less likely to leave the organization, having fewer reported adverse events, experiencing fewer work-related injuries, and taking fewer days of sick leave, along with reduced numbers of reports of harassment

and violence (53). Conversely, the consequences of pseudo-teams and the ways in which they operate can comprise patient safety and have been shown to increase patient mortality rates (53, 54).

It has been claimed that the positive and negative effects of teamwork in organizations have impacts on the frequencies of adverse events (55). Authentic teams can ultimately function as their own organic unit if the criterions of real teams are fulfilled (i.e., shared common goal, closely and interdependent work, reflexivity for effectiveness) (53). If so, team members can respond and predict actions and coordination in a self-sufficient manner, such that leaders only need to provide guidance and support (55). In the ED context, there is a diversity of HCPs, all of whom have specific professional roles. Nevertheless, they share the common goals of conducting an efficient assessment and achieving a good outcome for the patient. When team members from different professional disciplines and with different specialized roles meet for collaboration (e.g., HCPs from emergency, anesthesiology, surgery and radiology), disagreements can arise regarding the healthcare priorities for the patient (4). Thus, interprofessional teamwork is complex and places demands on the members who are a part of the team.

Many HCPs collaborate around the patient in the ED, and there is a shared responsibility to deliver safe care to the patient. For example, the physician and the registered nurse both represent a licensed profession with shared core clinical competencies, which are underpinned by teamwork behaviors. The different professional disciplines complement each other, ensuring safe care for the patients. It is important to delineate each of the closely connected health professions responsibilities and competencies in relation to working in well-functioning, effective teams (56). The registered nurse, with possessed expertise in caring science and nursing, has an obvious role in the interprofessional team. As part of a professional healthcare team, the registered nurse fosters and focuses on the caring relationship between the patient and HCP. The WHO has stated that the different roles of HCPs need to be studied, using a theoretical lens alongside clinical training, both before and after graduation to become a licensed professional. Thus, such knowledge contribute to optimal healthcare outcomes (2). Furthermore, knowledge of the roles, functions and responsibilities of HCPs has been highlighted as an important factor in ensuring the best results for

patients in Sweden (57). The hindering and enabling aspects of interprofessional teamwork have been studied, revealing that the essential components of teamwork are defined by the situation in which the work is carried out, the interactions between HCPs, and the types of team members involved (58). The team that forms the focus of this thesis is the interprofessional team involved in collaboration and teamwork.

Non-technical skills – including verbal and non-verbal communication

In high-risk industries such as aviation, nuclear power plants and, more recently, in healthcare, the skills needed to create good teamwork, including effective communication, are the principles of NTS. (26). Cognitive and social skills (e.g., communication and interactions) are crucial components of teamwork within high-risk environments (20, 26, 59). Persons who work in high-risk industries need skills related to managing both technical- and non-technical tasks. For the latter, the skills include situational awareness, stress management, decision-making, leadership, coping with fatigue, communication, and teamwork (26). Thus, it is just as important to be able to manage NTS as technical skills (i.e., knowledge about technical procedures and interventions), so to know who is doing what and when (59). This is of special significance in an acute situation, such as when the condition of the patient is rapidly deteriorating in the ED. One of the most-common strategies for teamwork in acute settings is to enact NTS through the crew resource management (CRM) principals (26, 60). These principles originate from the aviation safety research and were formed after a series of accidents in the latter part of the 20th Century (11, 20). It was found that accidents were not entirely the result of technical issues, and this changed the prevailing view on structured training and communication, not only in the aviation industry but also in healthcare (20). The CRM principles guide teams through unrehearsed situations, as well as in situations where team members are unfamiliar with each other's skills or roles (i.e., interprofessional ad hoc teams) (60). The team members may have to organize themselves quickly and communicate effectively, all of which is beneficial in terms of ensuring patient safety. Furthermore, simulation-based training has been encouraged to use the CRM principles as a method in communication training, to enhance patient safety (61).

Verbal and non-verbal communication skills

Since patients arrive in the ED with varying levels of acuity, thus HCPs must demonstrate effective communication within the interprofessional team. With the communication occurring via various verbal- and non-verbal channels, the challenge is to communicate in an effective way (1). Effective team communication is, thus, important for optimizing the care (24, 61, 62). For instance, a trauma patient's condition must be managed in a timely and efficient manner to ensure survival. Conversely, a patient who presents with a less-acute condition will necessarily have to wait longer to be treated. In both scenarios, it is crucial to communicate with the patient about interventions and the assessment plan. Additionally, HCPs need to use in an effective fashion the standardized communication processes, such as tools and checklists, to perform equally safe care for the patients. This will involve the handing over of Structure Background Assessment Recommendations (SBAR) (63), the assessment of Airways Breathing Circulation Disability Exposure (ABCDE) (64), and the use of relevant CRM principles such as 'speaking up' and 'closed loops' (65). Apart from verbal communication, non-verbal communication may be more-predominant in situations entailing teamwork. Non-verbal communication refers to facial expressions, gestures and written notes (15).

However, the practical use of structured communicating strategies in acute care settings varies, and this may result in communication failures, thereby increasing the patient's risk of an adverse event (66). One way of compensating for absent or inadequate use of communication strategies, in acute care settings, is to recognize the informal communication. This includes the bedside assessment, together with a member of the patient's family, opportunistic interactions between team members or chance encounters with colleagues, all of which support the patient care and fill the system gaps (i.e., waiting time) (67). Thus, it is important for the management systems to acknowledge the importance of collaborative communication and to promote opportunities for improvement (43, 67).

Debriefing is a verbal feedback technique that can be used by members of a team to reflect on a scenario that they have shared (68). The purpose of verbal feedback is to share experiences and reflect upon behaviors and work processes, to encourage new ideas and work improvements. Regular debriefing within a team

can improve effectiveness by up to 25%, for both individual and team performances (69). It is important to understand how the team undertakes their internal work process to achieve a high-level of performance, the 'how-focus'. Many teams, however, look beyond this process itself and instead settle on the finished product of team performance, the so-called 'what-focus' (70).

Simulation-based training has long been recognized as a valuable way to optimize communication between members of a team (61). Simulation-based training in an environment, in which solutions to errors can be identified, may increase levels of awareness among HCPs regarding the human factor impact on patient safety (61, 71). Unfortunately, simulation-based training is not an activity in which all HCPs can participate regularly. This is due to structural factors, such as scheduling, heavy workloads, the prioritization of professionals, and the lack of interprofessional simulation opportunities (60, 61). Simulation-based training is not only applicable to clinically active HCPs. Nevertheless, such training during undergraduate education has been reported to increase confidence and awareness. The effect comprises both one's own practice and that of the other professions, if the student is exposed to an interprofessional teamwork structure and communication (72). Interprofessional education is necessary for preparing HCPs to respond to local health needs (2).

Team development theory

There are notable differences between groups and teams, although historically the distinction has not been entirely clear. The processes around the team and a group may, therefore, be interchangeable (73). The etymology of '*team*' dates back to the 16th Century, when it meant 'to harness', in reference to an aspiration to get horses to work together in the same direction (74). The etymology of '*group*' is, in contrast, related to the verb 'to crop' and refers to the gathering of harvested crops (75). Even if the research literature does not present such a clear distinction, the defining characteristic of a team is to have shared goals. A 'group' has more loosely organized set of members compared to a team (73, 76). Until the start of the present millennium, research in the field of understanding groups had been pursued enthusiastically in empirical laboratories, whereas research on understanding team behavior had been limited (77) but has grown rapidly in the past two decades (78). This may explain why the terms 'groups' and 'teams' are

used interchangeably by researchers studying team performance (77, 79). In addition, there are several team development theories that strive to explain the processes, barriers and enabling factors of team dynamics. Thus, developing an understanding of the different stages of teamwork is important (62). Some models and factors relevant to interprofessional teamwork are discussed below.

Psychological health has been shown to have a potent impact on interprofessional teamwork. Sandberg (76) has investigated the psychological health aspect of each individual in a team and has highlighted this as a distinct criterion for a team, although not for a group. Furthermore, teamwork has been shown to have a clear impact on the wellbeing of team members and to reflect the outcome of the individuals' performed teamwork (76). Psychological health is recognized as being important in enabling engagement in teamwork and in providing safe care for patients. This means that HCPs feel safe when speaking up to ensure safe situations or improve work processes, reflecting the concept of psychological safety (77, 80, 81).

Teamwork is part of social psychology, and important to understand from different perspectives and fields. Fifty years ago Janis (48) introduced the psychological notion of 'groupthink', which challenges the content of quality teamwork. Groupthink refers to a scenario in which the participants in a group *or a team* uncritically agree with decisions without having to question their own arguments (48). By distancing themselves from individual thinking (as opposed to group thinking), the members of a team tend to avoid ethical and moral dilemmas and sidestep the communication of doubts and disagreements. Historically, there are several examples of how this phenomenon generated catastrophic results in teams with strong team cohesion (82).

Moreover, the 'groupthink' concept is described as part of group decision-making and has a place in healthcare, with direct connections to interprofessional teamwork and patient safety (49). Besides groupthink, there are three other concepts that are important for the team dynamic of group decision-making to ensure patient safety: (i) 'social loafing'; (ii) 'group polarization'; and (iii) 'escalation of commitment' (49). Social loafing reflects the situation when larger groups cooperate and coordinate with each other. In this concept, the team members tend to limit their inputs in line with the increased number of team members, and the structure assigned to the team starts to fail (49, 55). Group

polarization occurs when individuals in a group are willing to agree on more-extreme decisions than originally intended (for instance, avoiding an intervention due to a lack of group confidence or when a group becomes over-confident and takes risky decisions) (49). Escalation of commitment refers to irrational actions in directing resources to a project that is heading towards failure. Instead of rational quality assessment, the commitment is escalated and leads to a failure that should have been foreseen (49). Notably, group decision-making processes that occur at different levels of the healthcare industry. As mentioned above, these levels are macro (national policy level), meso (organizational level), and micro (local level), where interprofessional teamwork is a prominent indicator of patient safety (49).

When teams work they progress through different stages and there are processes that can be applied in many contexts of team performance, including healthcare. Tuckman (83) has explained the different developmental stages of a group, and these are relevant to understanding the current trends in team performance and development in general. Tuckman has identified the factors determining the successful use of collaboration in team performance, which includes four layers (*forming*, *storming*, *norming* and *performing*) that are applicable to all teams (83). First, *forming* describes the initial phase during which a team gathers and the members are trying to orientate themselves and establish a relationship with the framework factors around the team (i.e., leaders, other team members and standards). Second, *storming* describes the phase of emotions and space for conflicts, wherein the team members are trying to find their roles and a hierarchy may develop. Conflicts and stressed emotions must be resolved in this stage before the team can enter the next phase. This is why conflicts are regarded as a development tool for teams (1, 84) Third, *norming* represents the phase in which the team members adapt to their new roles and sense cohesiveness. In this stage, opinions can be expressed confidently in a personal way. Fourth, *performing* happens when all the earlier phases are resolved, and the team can focus on its task. Here, the function and role of the individual become flexible and the team can perform in an optimal way (83). Knowledge of team development stages can help teams move forward to reach the best level of potential.

Interprofessional teamwork

Interprofessional teamwork involves a collective of professionals who work together to provide coordinated and integrated patient care. When forming healthcare teams, there are two important considerations: (i) who is on the team?; and (ii) how does the team members work together? (1). Researchers have reported that a lack of interprofessional skills contributes to adverse events in healthcare, whereas effective teamwork is strongly associated with positive treatment outcomes (15, 17, 85).

The difference between individual work and teamwork is most-evident when a team manages a heavier workload because it has a greater capacity for support, surveillance of work and identification of errors, as well as greater operational flexibility (86). Team training and interprofessional work underpin the essence of teamwork, which can be defined as: *'interrelated individuals that are tasked to accomplish a common goal'* (87, p.1003). Furthermore, the WHO has stated that interprofessional teamwork can deliver the best quality of care with HCPs from diverse disciplines in collaboration with all parties involved (i.e., family, carers, community, patient) (2). The interprofessional team is viewed as a whole entity that is larger than the sum of its individual parts. The outcome can be benefitted from the different professional expertise amongst team members (1). Notably, to succeed, the team must function effectively and have the appropriate skills to succeed.

Emergency department and adverse events

An acutely ill patient often encounters the healthcare system and HCPs via the ED. The ED setting can vary from country to country and nationally, and even between hospitals in the same city. The conditions and prerequisites are different for each individual ED, emphasizing the complex nature of the ED. The ED context is described below.

Patients usually present at the ED without a prior appointment, and the ED is often the place to seek care when no other provider is found. For acute conditions, the healthcare may start already outside the hospital, in the ambulance service or via referrals from health stations before the patient enters the ED. Historically, EDs are found in or close to a hospital.

Most hospital EDs are open 24 hours a day and welcome all patients who have an unplanned need for care. Specializations based on age (i.e., pediatric ED) or medical condition (i.e., orthopedic or trauma casualties) are often available in urban areas. The ED must, however, provide treatment for a wide spectrum of illnesses and injuries, which is reflected in the knowledge demands on HCPs. Some patients may need immediate assistance and some patients may need a longer investigation of their problem. Since the unplanned need for patient care contributes to an unpredictable flow of patients, the staffing and skill mix of HCPs may vary.

The structure of an ED is often based on the prioritization of presenting patients according to an algorithm, which differentiates those who are severely ill and in acute need of care from those with a less-urgent need for initial care. This working routine is called *triage*. ED triage rapidly assesses the condition of the patient and evaluates the type of medical care to be provided, with categorization of the patient according to the main complaint (i.e., chest pain, infection, dyspnea, head trauma, etc.). There are many different triage scales and their implementation varies widely across the world (88). Most patients go through the procedure of triage after presenting to the ED via ambulance or walk-in, and they continue to another area of the ED depending on the character of the main complaint. The most-severely ill or injured patients go directly to the resuscitation area, called the trauma unit, where life-threatening conditions are treated by a range of HCP specialists depending on the nature of the trauma.

In Sweden, close to 90% of all EDs use the triage scale (89) known as the Rapid Emergency Triage and treatment Scale (RETTS) (90). The nursing staff in the ED generally consist of registered nurses and nurse assistants. HCPs work shifts (day, evening and night shifts) during all weekdays, including holidays. Registered nurses have a Bachelor's degree from a university and nurse assistants can obtain a professional title based on a 2-year upper secondary school education or similar program. Administrators usually assist with registration, distribution of laboratory tests, and the logistics around the visiting patient. The administrators may also be involved in the triage of the patient. The physicians in the ED represent a wide range of specializations, and they usually have their main employment at a site other than the ED. However, the emergency medicine specialist physicians are employed at the ED, just like the nursing staff, and are expected to treat all of the

various conditions presenting at the ED. The emergency specialist education programs for physicians and registered nurses are still in their infancy in Sweden, as compared to other areas of specialization. In recent years, nurse assistants have also had the opportunity to undertake a formal focus in emergency care. Usually, all of the HCPs have regular in-service training, depending on the availability of staff and the environment. For example, in the studied ED, simulation-based teamwork training and lectures were cancelled during the Covid-19 pandemic in 2020–2021.

Due to the unpredictable flow of presenting patients and the encountered types of acute illnesses and injuries, ranging from life-threatening to less-severe conditions, the ED can be a stressful environment for both patients (36) and HCPs (15, 91). A recent Australian study identified the three top stressors for ED HCPs as: violence at work; an intense workload; and sexual abuse or death of a child (92). Initiatives have been taken to reduce the waiting time for patients, who now have to be assessed and discharged or transferred within 4 hours of presenting at the ED (93). This target is being adopted worldwide, even though it was introduced already two decades ago in Australia (94).

Adverse events in the emergency department

The ED is considered a high-risk environment in which interprofessional healthcare teams work together (14). As previously mentioned, this is comparable to the aviation and nuclear industry that are examples of other high-risk operations in which the consequences can be damages to humans, equipment, and the environment (11).

Adverse events in the ED have been reported in connection with several contextual factors. First, crowding, or overcrowding, of patients awaiting care is stated to be a common patient safety risk in the ED (95-98). The definition of crowding or overcrowding differ between countries and are used interchangeably. However, the essence of crowding is described as *'a situation in which the identified need for emergency services outstrips available resources in the ED'* (99). Furthermore, crowding is defined as a mismatch between the available resources and the number of patient presentations in the ED and, when the waiting times becomes unacceptable (96). This is strongly connected to the inadequate hospital structure for the flow of patients (14, 100). Second, high workloads and staff

communication skills are identified as a combination of factors that increases errors (14, 20, 101, 102). Interruptions are, therefore, likely to happen in such environments (103, 104). Third, triage routines fail when routines are not fully implemented (105) and there is a failure to make timely decisions (102). Fourth, the challenge of ensuring sufficient availability of technical equipment contributes to errors when unexpected events occur (102). Hence, a strained in-hospital bed capacity creates similar problems and contribute to crowding (14, 106). Furthermore, it has been reported that most adverse events in the ED are attributable to human error (102).

Analytical perspective

This thesis focuses on interprofessional teamwork in relation to communication and patient safety. Models have been developed to define the interacting factors and reasons for adverse events in healthcare (1, 107). One of the best-known models is based on the research of J. Reason about human errors (21). Additional models have been inspired by the work of A. Donabedian on the Structure-Process-Outcome evaluation of quality of care (108). One such framework is the Systems Engineering Initiative for Patient Safety (SEIPS) model (109), which is widely used for theorizing the structure around organizations and human factors. This model was, thus, chosen as a suitable conceptual model for the work of this thesis. Through continuous development, the SEIPS model has evolved since the original version was presented in 2006 (i.e., SEIPS 2.0, SEIPS 3.0, and SEIPS 101) (109-112). The most-recent model version (SEIPS 101) was considered the most-suitable one for this thesis project, given that this version is recommended to be used especially to illustrate a whole system design in a complex context (112), such as the ED. The idea of the SEIPS model can be used to; (i) describe the *work systems* in which care is delivered and; (ii) explain the relationship to clinical *work processes*; so as to (iii) yield the *work outcomes* for patients, employees and organizations (Figure 2).
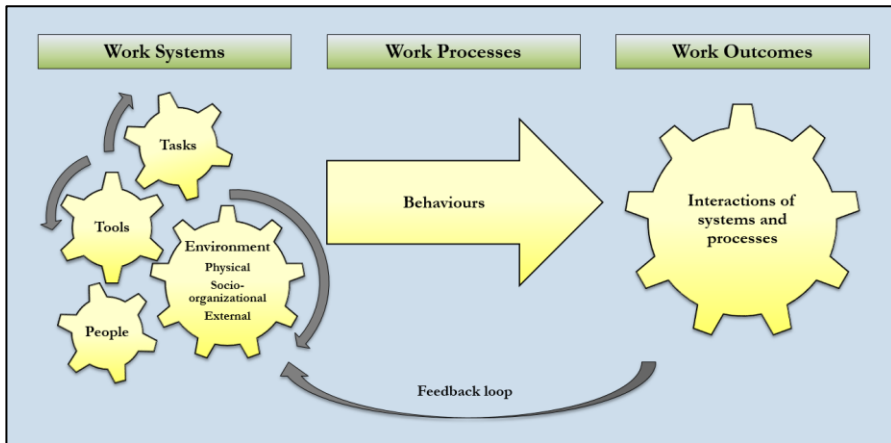
Figure 2. Schematic of the Systems Engineering Initiative for Patient Safety model (version SEIPS 101). Adapted from Holden and Carayon (112) with permission from BMJ Publishing Group Ltd.

The *work systems* comprise four different areas that together generate performance. The first area, *people*, represents the work systems context and the characteristic aspects relevant to the eventual interaction. The second area, *environment*, consists of physical-, socio-organizational-, and external environmental factors which define physical layout, structure, organizational culture, responsibilities, and relationships. The third and fourth areas are combined into *tools* and *tasks*, which are defined as the tool (or technology) that a person uses to carry out a specific task. Furthermore, in the work systems, the four areas are evaluated for eventual interactions between *people, environments, tools* and *tasks* (112).

The *work processes* defines how the work processes are carried out over time and how the work processes can change over time. These processes can further be explained in terms of the physical and behavioral/civil patterns that are necessary when forming new systems (111, 112). The processes are then defined by peoples' interactions with the tools and tasks and the environment. Furthermore, a definition of the activities and the relations between the active parts in the work processes (i.e., the HCP and the patient) are described in the SEIPS 2.0 model. The differentiating factor of the work activities is who is actively engaged in performing the activities related to healthcare. These activities are influenced by the work systems' factors, where the engaged part is named *agent* and the passive or indirect parts are named *co-agents* (110).

The *work outcomes* gather information and influential aspects from the work systems and processes in the model. The outcome includes the patients, HCPs and organizational factors, which have important influences on patient safety. Moreover, the model is structured to loop back to the start of the model, to use the produced information to create a new design, if necessary (112).

Rationale

Interprofessional teamwork is based on communication and is vital to ensure effective teamwork, and ultimately, to reduce the risk of adverse events during patient care. Ineffective teamwork occurs despite various implemented strategies and can compromise patient safety. The studied ED acknowledged an imperative to improve interprofessional teamwork and reduce the risk of adverse events. Therefore, an organizational change initiative was implemented using several different interventions designed to enable improved interprofessional team cohesion. The need to improve teamwork highlighted the importance of studying the impacts of these changes and the general communication climate. Therefore, we sought to study team dynamics and attitudes, to evaluate further the effects of organizational change on communication and better understand the barriers to and enablers of interprofessional teamwork, as experienced by the HCPs and patients in the ED.

Aim

The overall aim of this thesis was to explore and describe the interprofessional communication processes and teamwork used during team assessment of the patient in the ED, with the focus on patient safety from the perspectives of HCPs and patients.

Specific aims

Study I	To evaluate the effect of organizational changes to interprofessional team assessment processes on staff perception of teamwork and safety attitudes in the ED.
Study II	To describe interprofessional teamwork and evaluate factors that influenced interprofessional communication before and after implementation of a department-wide multifaceted intervention in the ED.
Study III	To describe HCPs profession-specific perceptions of critical incidents linked to barriers to and enablers of interprofessional teamwork in the ED.
Study IV	To evaluate experiences of care, communication, and teamwork from the perspectives of patients in the ED.

Methods

A multimethod approach was used to undertake the research of this thesis. Several methods were used to collect data, which entailed questionnaire, observations, and interviews. These methods allowed a triangulation of the research material and investigated the phenomenon under study (i.e., interprofessional teamwork) from different angles (113). Furthermore, the methods were tailored to the objectives of the individual studies, and thus, selected to help capture complex contextual factors in an interprofessional team. Lantz (114) has claimed that there are methodological advantages associated with the subjective aspects of individual projects (e.g. the interviews and the observed patterns of behavior). While some behavioral patterns can be observed, most feelings and thoughts cannot be measured and it is therefore, beneficial to investigate them using interviews and questionnaires (115).

Moreover, the methods used in the present thesis were chosen to study the phenomenon of interprofessional teamwork in a combined way. Such a strategy maximizes the impact of combining quantitative and qualitative methods within the same project (116). Therefore, this thesis is based on both quantitative methods (i.e., questionnaire and structured observations) and qualitative methods (i.e., critical incident technique and semi-structured interviews).

Preconception of the studied phenomenon

The researcher always has a preconception regarding a specific phenomenon. Therefore, a reflexive understanding of the impact of this preconception is important (115). Depending on whether the understanding of the context and phenomenon is poor or rich, the impact can lead the researcher in directions where data can either be neglected or given too much focus. If the researcher is unaware of this impact, the consequence could be bias and important findings could be misinterpreted.

The author of this thesis carried out most of the data collection in the studied ED and had to reflect carefully on the understanding of the context and phenomenon. The author has a solid background in the intensive care context, from working as an intensive care nurse, which partially formed the preconception. Her previous

interactions with the ED staff were, therefore, infrequent and she possessed little knowledge about the working routines and structure of the patient assessments. Moreover, she had little knowledge regarding the prevailing climate and attitudes amongst the ED HCPs, even though a pre-perception of a hectic ED environment existed. Previous interactions with patients who had presented to the ED had occurred only in the context of the patients' need for subsequent intensive care, representing a selection of the most severely injured and diseased patients. However, those presented patients were seldom awake and talkative. Since clinical knowledge of the ED was limited, the perceptions of the contextual nuances of the ED environs were drawn from the literature. To provide the texts from the literature with a visualization, several field visits and meetings in the studied ED were arranged. For example, meetings with management and leaders were scheduled to acquire a sense of the ED context and to explain the designs of planned research studies. In addition, the intention was to plan the logistics of data collection and to limit the impact on HCPs' daily work and patient assessment (i.e., there was an opportunity to inform the HCPs about the research project and to arrange optimal space and timing for the interviews). The experiences and reflections collected during the data collection, analysis, and interpretation phases based on qualitative analyses were solidly discussed with the senior researchers in the research group. Collection of data could elicit sensitive memories from interviewees, and observations could capture extreme assessments of acutely ill or injured patients. These reflective conversations gave the author an outlet for emotions but also promoted thoughts, which were necessary to process and interpret the research findings. Besides the reflective conversations, comprehensive notes were collected in a personal diary. Together, these actions were intended to increase the level of awareness of the present preconception and were taken to calibrate the scientific level of the chosen methods. Thus, securing the reliability of the material allowed the analysis to be performed in a trustworthy way for the qualitative research (117), and to assure validity for the quantitative research (115). This will be discussed in detail in the *Methodological considerations* section.

Overview of the studies

This thesis is a compilation of four explorative studies, of which the designs and analyses are listed in Table 1. Studies I and II were designed to collect quantitative data before and after the implemented intervention and additional field notes for Study II. Studies III and IV collected the qualitative data from HCPs who were clinically active in the studied ED (Study III), and from patients who had been assessed and treated in the same ED. The interviews conducted with the HCPs and patients were carried out during different time periods.

Table 1. Overview of the studies

Study	Design	Data collection	Participants	Data analysis
I	Cross-sectional design	Survey using Safety Attitudes Questionnaire	Time-point 1: n=112 Time-point 2: n=121 Physicians, registered nurses and nurse assistants	Descriptive and inferential statistics
II	Observational study design	Structured non-participant observations with field notes	Time point 1: n=192 Time point 2: n=200 Single observations with observed physicians, registered nurses and nurse assistants	Descriptive and inferential statistics Qualitative content analysis
III	Qualitative explorative design	Semi-structured interviews using critical incident technique	11 registered nurses 9 nurse assistants 6 physicians 2 administrators	Qualitative content analysis
IV	Qualitative explorative design	Semi-structured interviews	17 patients	Thematic analysis

Study context and methods

The setting for all four studies included in this thesis was an ED at a tertiary university hospital in the south-west of Sweden. The department has a total catchment area of approximately two million residents for specialist referrals and is one of the most-visited EDs in Sweden. The ED is a center for the treatment of trauma and casualty cases in the region, and all adult patients (over 16 years of age) with various medical and surgical conditions are admitted.

As previously described, the ED is considered a high-risk environment (20) in which many different professions work together to deliver patient care. The patients' first encounter with healthcare professionals in a hospital is often initiated via the ED, which is regarded as the 'face of the hospital'. The setting for the four studies in this thesis was considered to serve this function.

The participants in Studies I–III were physicians, registered nurses, nurse assistants, and administrative staff. Physiotherapists, Red Cross aid service, management staff and hospital porters were also working side-by-side in the ED. However, this project was only concerned with those HCPs who had direct contact with the patients in the ED and who were crucial for the patients' journey through the ED. Nursing staff, such as registered nurses and nurse assistants, were employed at the department, whereas most of the physicians had their main employment elsewhere. Amongst the specific areas of expertise represented in the ED, emergency medicine for physicians was still a young specialty and having been recently introduced in Sweden, as compared to other specialties. Most of the physicians rotated between other hospital departments and the ED, whilst the emergency medicine physicians were based in the ED and were competent to treat all types of acute conditions. In line with the emergency medicine specialized education for the physicians, registered nurses were also offered an emergency care specialty education, although only a few had completed this academic education. The majority of the nurse assistants had no specialist education apart from their formal 2-year education.

During the period of data collection for this thesis (2016–2021), between 56,000–58,000 patients presented annually at the studied ED. The patients (Study IV) either entered the ED themselves or were transported there via ambulance. The HCPs in the ED triaged patients according to different given categories that

matched the severity of symptoms. Severely ill or injured patients who had been subjected to a trauma were directly assessed in a trauma team pod. The ED department was further arranged into two surgical teams and three medical teams. The patients were transferred from the initial triage according to their need of further assessment, as defined by the specific emergency level. The ED setting used the triage tool RETTS (90), and had accordingly developed a plan around organizing the patient's journey through the department.

Risk assessment and implemented intervention

This thesis project was conceived after a risk assessment was conducted in the studied ED in 2013 (118). The evaluation found multiple aspects of patient safety that were in need of improvement. Examples included handoffs from ED to hospital wards that were not always sufficient and, inadequate verbal handoffs within the wards. The handoffs and rounds were performed elsewhere, away from the patients. As consequences, there was a loss of information, the patients could not participate in their own care, hospital stays were prolonged, and the quality of care suffered. Moreover, the HCPs did not work closely together, and not all the involved HCPs were participating in the decision-making process. The risk of adverse events was increased due to a doubling of the workload, misinformation and disruptive information gathering (118). Discussions among ED management and HCPs culminated in a decision being taken in 2015 to develop and implement team-based strategies to improve communication among HCPs and patients at the ED. This initiative needed to be evaluated after its implementation, which was the driving force for this thesis project. The assignment was given to one of the senior researchers (LO) who held a joint position as a lecturer at the studied ED. The researchers involved in this thesis project were, however, not involved in the implementation process of the interventions. Hence, the researchers did not exert any control over how, when or who implemented the ED interventions.

The organizational changes, which were department-wide and implemented between the years of 2016 and 2019, were referred to as 'multifaceted intervention'. The intervention aimed to improve interprofessional teamwork, and it was designed following the management-led risk assessment in 2013 (118). Figure 3 presents the different areas of intervention, and Figure 4 presents the timeline for data collections and the implemented intervention. A triage

assessment intervention was implemented after the second collection of surveys in Study I and before the second data collection of Study II (Figure 3). The fully implemented multifaceted intervention is described in detail in Studies I and II. Briefly, it entailed the following actions:

1) *Interprofessional teamwork*, which encouraged HCPs to assess patients together and to use a structured interprofessional care plan ('standard') based on patient assessment for any journey through the ED.

2) *Team training*, which included simulation-based teamwork practice (119), in preparation for the interventions, along with seminars and time for reflection.

3) *Ethical principles and code of conduct*, based on the communication on ethical topics regarding values at work, equality, an introduction program for HCPs and professional behavior at work in relation to both patients and colleagues.

4) *Working environment*, which entailed structural changes to the physical environment to benefit collaborative teamwork. Noise reduction was implemented together with encouraging a more direct mode of communication between HCPs.

5) *Team assessment structure*, which was based on increasing the number of assessment teams after triage assessment. The aspiration for each team was to be interprofessional (i.e., to comprise all the professions with strongest relevance to the patient: physicians, registered nurses, nurse assistants and administrators).

6) *Triage assessment*, which included a naturalistic development change that evolved from a previous triage assessment performed by registered nurses and nurse assistants to an altered approach that implemented interprofessional teamwork (i.e., in 2018), whereby physicians were included and participated in the triage team.
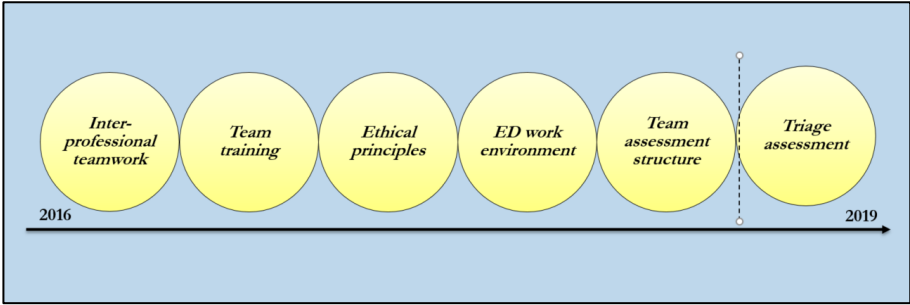
Figure 3. Areas of team-based implemented interventions, the intervention phase. The action sought to improve communication among health professionals and patients at the studied ED. The figure shows no internal chronological order for the first five interventions, except for the triage assessment, which was implemented after 2018.

The implemented multifaceted interventions extended over 24 months (Study I) and 34 months (Study II), between data collection periods (Figure 4). These department-wide changes were naturalistically planned and executed by the ED management between the different time-points of data collection (without interference or control being exerted on the researchers).
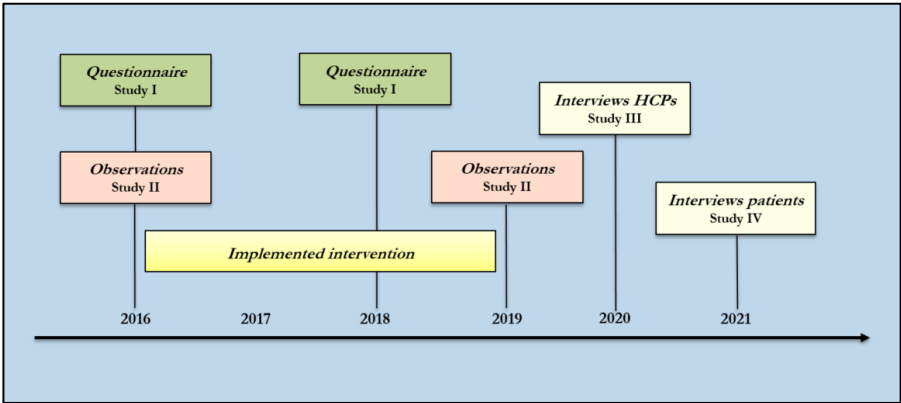
Figure 4. Data collection chart for Studies I–IV. The interventions were naturalistically implemented between the two time-points of data collection for Study I (24 months) and there was a similar identification of implemented interventions for Study II (34 months).

Questionnaire (Study I)

The aims of Study I were: (i) to evaluate the overall perceptions of teamwork and safety attitudes using the Safety Attitude Questionnaire (SAQ) (42) among ED HCPs; and (ii) to study differences in baseline perceptions and post-intervention changes in perceptions, with consideration of different professional groups in the team.

This cross-sectional study comprised a survey adapted to the ED context (Supplementary file) from its original SAQ form (42) with permission from the authors who validated the Swedish version (120). The SAQ is intended to measure HCPs attitudes related to safety and it can capture the effectiveness of interventions aimed at improving safety attitudes (i.e., implemented intervention by management in the studied ED) (42). The validated instrument originates from the Flight Management Attitudes Questionnaire (20), which was created after a series of accidents related to crew performance and NTS (26). The present SAQ survey measures safety climate attitudes and comprises six domains: safety climate, teamwork climate, job satisfaction, working conditions, stress recognition, and perceptions of management before and after the implemented intervention (Figure 3). The present study aimed to evaluate HCPs perceptions of teamwork and safety attitudes in relation to the multifaceted intervention implemented within the clinical working environment, with the ultimate goal of improving interprofessional teamwork. The responses were measured suing a five-point Likert scale, where the higher scores (maximum of 5) referred to more-positive attitudes and a the lower scores (minimum of 1) referred to less-positive attitudes. The Likert scale was used as a categorical variable, added together in converted domains (scores 75-100), showing normal distributions. Also, the Likert domain scores were dichotomized into above and below 75%. For statistical analysis, see next section.

Data collection and analysis (Study I)

Baseline perceptions were captured from a data collection made in 2016. This was followed by a department-wide implemented intervention (24 months) that were designed to improve interprofessional teamwork (Figure 3). A follow-up data collection was then carried out in 2018 (Figure 4). Each data collection period lasted 3 months. The HCPs who clinically worked in the closest proximity to the

patient (i.e., physicians, registered nurses and nurse assistants) were invited to participate in the study. However, to meet the inclusion criteria, participants had to have worked for at least one month (both part-time and full-time) prior to the administration of the data collection. Importantly, study participants had to be familiar with the working environment (i.e., either be influenced by or significantly influence the environment), regardless of whether or not the ED was their main working environment (121). The exclusion criterion for participation was, therefore, new employment as a HCP or visiting HCP. Participants were asked to complete paper-based surveys, although web-based surveys were also offered to physicians in the second data collection period, post-intervention. The physicians were approached to respond digitally for two reasons: management recommendations, and the fact that most of the physicians had their main employment somewhere other than the ED. Thus, the administration of surveys included hand delivery, mailing in-house, e-mailing, and distribution during personal meetings. One research assistant was employed at the time for the pre-intervention data collection and another researcher (the author) administered the surveys during the post-intervention period. Only the researchers involved in the study administered the collected data material.

Analysis of the data was carried out using the Statistical Package for Social Sciences (SPSS) for Windows® ver. 25.0 software (IBM Corp., Armonk, NY). The datasets from the pre-intervention and post-intervention periods were considered independent of each other, after investigation of the number of overlapping participants from the first and second data collection periods (13%). Descriptive and inferential statistics were used to analyze the datasets. A p-value of $< .05$ was considered statistically significant. Two-sided t-tests were used for independent groups with continuous and normally distributed data. Fisher's exact test was used to identify any significant changes in positive responses (score of ≥ 75 according to the transformed Likert scales as described in SAQ guidelines) for the SAQ domains (121). Fisher's exact test is a variant of the Chi-squared test, designed for smaller samples. Furthermore, the internal consistency index of the SAQ domains was measured to assess the same composition and view in a test. The Cronbach's alpha-value was used for this purpose and ranged from 0 to 1 (122). Cronbach's alpha assessed the internal consistency of the Likert scales of the questionnaires. It describes the degree to which the same type of related items mathematically agrees. For example, three related questions in a domain that

address the same topic should have a high Cronbach's alpha (acceptable values are 0.70–0.90). A low Cronbach alpha for related questions normally indicates ambiguous wording of a question, or heterogeneous respondents. However, an unexpected high Cronbach alpha could be used to explore consistencies between questions that were believed to be unrelated, but actually having a true relation (122).

Non-participant observations (Study II)

The aims of Study II were to: (i) provide a comprehensive description of interprofessional teamwork in the ED; and (ii) evaluate the factors that influenced interprofessional communication during the coordination of patient care, before and after the implementation of a department-wide intervention.

Structured observations and field notes were compiled to address the research questions related to: (i) the participation in the interprofessional team; (ii) the communication processes in the interprofessional team; (iii) interruptions during patient assessment; and, (iv) the sources of potential interruptions. The method allowed structured single observations and field notes to be obtained at two time-points, before and after the management-implemented interventions (Figure 3). Therefore, the study included three phases. First, a baseline observation period (pre-intervention phase) was performed. Second, department-wide strategies were implemented (implemented intervention phase), and finally, a follow-up observation period (post-intervention phase) was performed.

A structured observation protocol was adapted to the ED context (Supplementary file in Study II), originating from a previously developed protocol that was formulated according to extensive research on patient safety, communication, and teamwork in another acute care environment, the operating room (123). Furthermore, the original protocol was pilot-tested before widespread adoption (123). Four different domains comprised the observation protocol (Table 2). Complementary space for field notes was included without predefined categories, all of which were obtained during the observation sessions.

Table 2. Interprofessional communication domains in the observation protocol used pre- and post-intervention.

Domain	Areas of interprofessional communication	Observable factors
1	Initiated communication	Observations of the HCP who initiated communication with the patient, regarding the reason for the visit and care
2	Staff contribution to patient assessment	Observations of the interprofessional teamwork assessment input
3	Communication processes	Observations of the use of communication tools
4	Team interruptions	Observations of the number of team interruptions per observation and definition of the primary sources of these interruptions

Furthermore, in observational research studies, it is important to define what is intended to be studied and to understand the importance of not studying anything other than what was intended (124). Therefore, we created a codebook with glossaries of all the observable factors in the structured protocol, based on the relevant literature (123). The intention behind the codebook was to inform the observer about the topic area and the context of the ED.

Data collection and analysis (Study II)

The first data collection was conducted in 2015–16 and the second data collection took place during 2019, both collections occurring over a period of four months (Figure 4). The interprofessional teamwork was observed during the assessment and coordination of patient care in the different ED team pods throughout the ED (i.e., triage, medical, surgical, and trauma team pods). All the assessment and coordinating situations of care in these team pods were included in the study. There were, however, three situations (n=3) that had to be excluded from the observational study due to: one HCP who declined to give consent; one patient

who expressed discomfort; and a deteriorated trauma situation linked to ethical issues.

Observations were conducted in the ED during the morning and afternoon shifts, on weekdays and weekend days. The observations lasted between 2 and 60 minutes, with a cumulative time of 153 hours (85 hours pre-intervention and 68 hours post-intervention). One research assistant, who was unfamiliar to the HCPs in the ED, conducted all observations pre-intervention. Another researcher (the author) carried out all the observations post-intervention. Both observers were given observational, study-specific in-house training by a senior researcher involved in the study, to ensure the reliability of the data collection. In addition, to ensure consistency regarding the stability, quality, and understanding of the data collection, the observation protocol was consecutively piloted (n=5) by the senior researcher and the observer, both pre-intervention and post-intervention. Moreover, the observer wore a nametag labeled 'researcher', and wore scrubs to match the other HCPs in the ED. Importantly, the non-participant observer did not interact with the patients and HCPs during observations and was placed at a distance so as not to interfere with the assessment or coordination of care. This was important to avoid disrupting or influencing the outcomes of behaviors and interactions (124).

Analysis of the data was based on categorical data from dichotomous coding (0 = no, 1 = yes), and the data were analyzed in the SPSS for Windows® ver. 25.0 software. Group comparisons were made using Fisher's exact test for dichotomic categorical variables and the Mantel-Haenszel test for numbered categorical variables. A p-value of < .05 was considered statistically significant. The sample size was chosen to ensure that a range of patient assessment situations and variations in team composition that could be captured, as well as to enable the identification of patterns in the descriptive data. After the quantitative analysis, the field notes were examined using a directed content analysis (125). The predefined categories from the quantitative results guided the analysis of the textual data. This allowed a deductively performed search for the same codes of interprofessional communication in the field notes. The findings corresponded to the codes and confirmed the statistical results with free text observations (e.g., contextual situations of communication).

Interviews with healthcare professionals (Study III)

The aim of Study III was to describe HCPs' profession-specific perceptions of critical incidents linked to enablers of and barriers to interprofessional teamwork in the ED setting.

Four research questions were linked to the aim and related to: (i) involvement in interprofessional teamwork; (ii) communication of clinical information; (iii) barriers to interprofessional teamwork; and (iv) enablers of interprofessional teamwork. It is important to understand the functions and roles of different professions and their levels of complexity in combination with other individual professions (126). Thus, interviews were conducted according to the critical incident technique (CIT) (127). This technique is intended to capture human behaviors in specific situations that are significant for the studied phenomenon (128). Furthermore, it explores the participants' perspectives on what is effective and what is ineffective in relation to a specific event (i.e., interprofessional teamwork in the ED). Importantly, the experience had to be real and described in detail towards actions of hindering, alternatively enabling, the consequences for teamwork with other professions (127). Participants were asked to remember and describe one positive and one negative experience related to interprofessional teamwork. Thus, the described memory could not be characterized by something that could have happened or it should not reflect a general perception. In this study, a critical incident was defined as a situation that significantly impacted the interprofessional teamwork in the ED, as described in detail from an experienced situation.

Data collection and analysis (Study III)

HCPs were approached in the ED and the participants were interviewed over five months during 2019–20. The interviewed professions invited to participate were HCPs who worked in proximity to the patients, i.e., registered nurses, nurse assistants, administrative staff, and physicians. Purposive sampling was sought for maximum variation to reflect a broad representation of the HCPs in the studied ED. The sampling was based on professional role, age, gender and years of experience. The exclusion criteria reflected a HCP who had recently been introduced to the ED (less than 4 weeks of full-time work). A battery of questions was prepared and retrieved with support from the literature (127, 128). The

interview guide was, however, piloted before the start of the data collection, with one out of five interviews being included in the final material. Questions about 'a specific event' were posed to the participants and follow-up questions were formulated to gather information on enablers of and barriers to the interprofessional teamwork. These questions were sent to the participants via e-mail two days prior to the interview, to give them time to contemplate and remember. The interviews were held face-to-face in a separate room and were conducted by the researcher (author), in the ED, with the exception of two interviews that were held over the telephone due to work-related time constraints. The interviews ranged in duration from 30 to 45 minutes. Saturation was sought during the conduction of interviews and was considered reached when no new data appeared (126, 129). All the interviews were recorded digitally and were transcribed verbatim subsequently. Individual notes on impressions and reflections were collected in a journal after each interview. The purpose of this was to address the atmosphere and specific reflections on comments or facial expressions and gestures that might not have been recorded. In addition, reflective discussions were held with the senior researchers connected to this thesis project, to ensure the reliability and trustworthiness of the study and results.

Analysis of the data was based on thorough reading and rereading of the textual data. The analysis and organization of textual data were carried out in NVivo Pro ver. 12 software (QSR International Pty Ltd., Melbourne, Australia). Critical incidents were searched according to the experiences associated with interprofessional teamwork and organized into groups. Textual data were thereafter organized using an inductive approach whereby an open coding was transformed into subcategories and categories according to a qualitative content analysis (130). The research group met regularly to discuss and renegotiate the defined categories, to ensure strong close connections to the participants' stories and experiences.

Interviews with patients (Study IV)

This aim of Study IV was to evaluate patients' experiences of care, communication, and teamwork during their visit to the ED. This explorative study was conducted through semi-structured interviews with patients who had been assessed and treated in the studied ED. The participants were either 'walk-

in' patients, patients who were brought to the ED by ambulance or patients who were referred from a primary care facility or another in-house hospital ward.

The interviews were carefully planned with guidance from the literature regarding semi-structured interviews and suitable questions (131). Participants were asked to describe their experiences related to the approach of the HCPs and their perceptions of the care provided in the ED. Thus, open-ended questions were posed to the participants that allowed them to share their narrative. For example, the participants were asked questions about factors influencing their care, the degree to which they were involved in their own care, and the experiences they had of the general approach from HCPs in the ED. Follow-up questions provided extended descriptions of experiences, relevant to the aim of the study.

Data collection and analysis (Study IV)

Interviews were conducted over four months in 2021. All patients who presented to the ED were considered for inclusion in the study, although certain criteria were defined. All visiting hours of the day and night were considered, along with other criteria for purposive sampling and maximum variation, such as cause of visit, gender, and age. It was important to reflect the broad variety of patients visiting to the ED. Thus, statistical data retrieved from the hospital management were used to guide the researcher on who to approach in the ED. The exclusion criteria were: unconscious trauma patients; patients who in one way or another had difficulty with communication in the Swedish language; and subjective cognitive dysfunction (e.g., accidental related confusion or severe dementia precluding memory of the visit or reasoning thereof).

The interviewed participants were all approached in the ED with assistance from an emergency care specialist nurse who did not participate either in the patients' individual care or in the conduct of the interviews. Instead, the researcher (the author) conducted all the interviews over the telephone, largely due to the Covid-19 pandemic restrictions. The interviewer contacted the participant two weeks after the initial approach was made in the ED, at which time the informed consent had been given. Reflective notes were taken during all the interviews, each of which lasted between 19-34 minutes. Three pilot interviews were conducted prior to the start of the data collection, none of which were included in the final material. The sampling was guided by the data and continued until redundancy

occurred, i.e., no new information appeared (115). All the interviews were recorded digitally and were transcribed verbatim subsequently. This interview setup was carefully planned due to the Covid-19 pandemic, which was ongoing at the time of this study. Safety regulations were adopted according to the hospital regulations in force at the time.

A thematic analysis was used for the analysis of the textual data (132) and carried out in NVivo Pro ver. 12 software (QSR International). The researchers met regularly to reach consensus regarding what the textual data presented in relation to the aim and research questions. Initially, the interviews were carefully read several times to reach an understanding of what the textual data entailed. Thereafter, the data drawn from the interviews were coded and abstracted into subthemes and themes. The labeled themes were further discussed in the research group to reach consensus and to decide how best to present the data to ensure trustworthiness.

Synthesizing the findings from Studies I–IV

In this thesis, the SEIPS model (112) will serve as a theoretical model to guide a deeper understanding of the findings retrieved from Studies I–IV. The idea is to synthesize the findings to acquire a deeper understanding of the essence of the individual study findings and use the result to inform further research, education and, practice.

To be able to understand the interprofessional communication processes and teamwork during the team assessment in the ED, with the focus on patient safety, the findings were grouped together and analyzed through the lens of the conceptual model. The analysis itself was driven by a theoretical thematic analysis and performed deductively (132). Since the conceptual model has predefined segments of work systems connected to human relations in processes that can affect healthcare (i.e., patient safety), the theory is applicable to the findings of this thesis. It is also a theory-driven approach (133). The multiple methods design of this thesis was considered to support such an analysis of the findings. Since both qualitative and quantitative methods were used, the findings can complement each other and elaborate upon the already existing findings. This means that the findings can overlap and inject nuances to create an understanding

of the phenomenon under study (116) (i.e., interprofessional teamwork in a strained context such as the ED).

The analysis started with a reading of the literature around the SEIPS model (109), to understand the conceptual model and the different segments (i.e., work systems, work processes, and work outcomes). It was important to understand how these could be applied to the findings drawn from the studies underpinning this thesis. Thus, to synthesize the findings, the analysis was based on the findings from Studies I–IV, which were read several times to gain an understanding and knowledge of the different components reflected in the conceptual model. The theory around the different components of the model (109, 112), together with the experience of the researcher (the author) and the theory-driven guidelines (133), generated research questions that were addressed to the material and, thereby, deductively analyzed. These questions opened up possibilities for novel findings that might not have been reported after the initial analysis of each study. The key questions posed in Studies I–IV for each of the three indicated segments were as follows:

Work structures: What influences the interprofessional teamwork structures in the ED?

Work processes: What influences the interprofessional teamwork processes in the ED?

Work outcomes: What are the outcomes resulting from the interprofessional teamwork processes?

Subsequently, the findings were mapped across model concepts and the analysis process continued with emerging themes in connection to the predefined conceptual segments in the model. These themes were reported after seeking meaning for the repeated patterns. The analysis was performed in the NVivo Pro ver. 12 software (QSR International).

Ethical considerations

The ethical principles of the World Medical Association's Declaration of Helsinki have been applied in all the studies of this thesis (134). The declaration embodies the principles to protect, respect and ensure the health and rights of human subjects who are involved in research. The research should contribute to improved health and prevent harm. Furthermore, it is the full responsibility of the researcher to protect confidentiality of personal information and ensure self-determination, even if patients have given informed consent, which is also one of the principles. The subject must be adequately informed about all parts of the research, including risks and any discomfort that it might entail. The right to refuse participation or to withdraw at any time without consequences must be transparently communicated. Finally, the researcher must ensure that there is an independent relationship with the subject, so that there is no undue influence to participate in the study. If a subject is incapable of giving informed consent, the researcher can seek informed consent from a legally legitimate support person (i.e., family member) or refrain from inclusion (134).

Since the ethical principles further recommend that a research project should receive ethical approval from an Ethics Review Committee, the present research project was evaluated and approved by the Ethical Review Board Committee (D.nr. 363-15). This approval covers all the investigations in Studies I–III. Study IV received specific approval for an additional investigation (D.nr. 2020-05247). All of the subjects were invited to participate on a voluntary basis and could withdraw at any time during the study without any consequences. Participants in Studies I–III were approached during HCP meetings and received information from the managerial staff and the researchers in the project through weekly newsletters. All data have been collated and presented on a group level. The materials were coded before analysis, to ensure the anonymity of the participants, and no identification of individuals can be made in the data material. Collected material are stored in a locked filing cabinet separated from the code lists, and only researchers involved in the research project have access to data.

Regarding Study I, the SAQ survey was presented as written and verbal research participant information, together with an informed consent document to be signed. For the web-based surveys, informed consent was considered as granted and signed at the time of filing the electronically completed survey.

For Study II, all the participants were informed by the observer, and consent was reconfirmed before each observation session. Patients gave their assent to the observation after information from the observer about the study and no patient data were recorded. When signs of discomfort were expressed by either the staff or patient, the observation was terminated and there was no inclusion of the data. It was, however, stressed to all the persons who presented at the ED that the observer was studying only the HCPs.

The interviewed participants in Study III were sent the research participant's information together with the main questions, via e-mail, at least two days prior to the interview. Verbal consent was obtained before the interview and the right to withdraw was clarified to ensure the voluntary nature of the participation.

For Study IV, the participants were approached by a dedicated specialist registered nurse in the ED and were given the research participant's information. Written informed consent was obtained at the time of approach. Nonetheless, participants could withdraw at any time without any negative consequences in terms of future care. The information was repeated at the time of the interview, to ensure complete understanding regarding the voluntary nature of the participation.

Findings

This section presents a summary of the findings from the individual studies, together with a description of the related study populations. At the end of the chapter, there is an additional summary of the synthesized findings according to the SEIPS model (109, 112) for all four studies.

In Study I, questionnaires were collected to evaluate the general perceptions of safety attitudes and teamwork with HCPs in the ED. Statistically significant changes were seen post-intervention for: the overall sample (n=112 pre-intervention and n=121 post-intervention); and for the domains of safety climate ($p = .011$); stress recognition ($p = .001$); and working conditions ($p = .045$). The latter showed a negative significant change, perhaps indicating disappointment with the work environment quality, as well as logistical frames with insufficient staffing. Despite a widely broadcast invitation to participate, only 13% of the participants were surveyed in both phases of data collection. The nursing staff (i.e., registered nurses and nurse assistants) and physicians presented contrasting baseline attitudes and contrasting responses to the intervention across the two time-points.

In Study II, a combined sample of 392 observations was used pre-intervention (n=192) and post-intervention (n=200), to describe and evaluate the interprofessional team and the factors that influenced communication in the ED, before and after a multifaceted intervention. Statistically significant changes were observed in communication practices across the interprofessional teams after implementation of the multifaceted intervention. Specific examples of findings were the decrease in interruptions ($p = .004$) and an increase in the contribution to the assessment of patients ($p = < .001$) post-intervention.

In Study III, 28 participants from the studied ED were interviewed regarding their experiences with interprofessional teamwork and critical incidents in the ED. The interviewees consisted of physicians (25%), registered nurses (43%), nurse assistants (25%), and administrators (7%). Nearly 70% were female and the median age was 31 years (range, 21–57 years). The overall length of experience in healthcare showed a median of 5.0 years (range, 0.92–32.0 years). Each interview lasted 30–45 minutes and was conducted either in person or via telephone.

Participants described a total of 108 critical incidents. Furthermore, the qualitative content analysis of the profession-specific perceptions of critical incidents linked to enablers of and barriers to interprofessional teamwork resulted in eight categories: Salience of reflection; Professional experience; Physical and psychosocial work environment; Balancing communication demands; Management support, structure, and planning; Tensions between professional role and responsibility; Individual perspective regarding interprofessional teamwork; and Confidence in interprofessional team members.

The participants in Study III also shared their general and summarizing visions *(unpublished findings)* about how their workplace could become more attractive and what things could be improved in the ED (Table 3). For example, a well-organized and functional work environment was described as being crucial for feeling comfortable and being given the opportunity to enable interprofessional teamwork. Implementation of debriefing routines and routines to follow up initiated workplace improvements was mentioned as something that should be launched by the management to facilitate interprofessional communication. To maintain an attractive workplace, the participants emphasized the importance of good and comfortable working conditions, including the provision of access for all professions to education and training, and teambuilding meetings. If the interprofessional team could practice together then the team would get to know routines and understand the different professional competencies better. Furthermore, the importance of a prestige-less culture was considered essential in getting participants' voices heard and to contributing to a welcoming and open atmosphere.

In Study IV, the study population consisted of 17 patients who were interviewed about their experiences of care, communication and teamwork in the ED. The median age was 58.2 years (range, 21.0–93.0) and nine of the interviewees were female (53%). The causes of the visits were represented by nine different entities, including both medical and surgical areas (e.g., acute abdominal pain (24%) and chest pain (18%), and more). From the thematic analysis, three themes emerged concerning patients' perceptions of interprofessional teamwork: The need for a caring approach by HCPs toward patients; The need for dialogue between patients and HCPs; and The need for information on ED environment constraints.

Table 3. Vision of an attractive workplace; complementary data from the qualitative content analysis

Category	Subcategories	Verbatim quotes
Vision of an attractive workplace	Work environment	*"[…] The flow of patients and number of physicians, it is not in sync or what you should say. [...] I still think that the teamwork becomes better if you have an even distribution between professions".* (# 25, registered nurse)
	Debriefing routines	*"It is probably the communication maybe in between, that one should have said and walked out and talked with the physician afterwards, that I felt fairly lonely, maybe. [...] That you had maybe been able to discuss it afterwards and the courage to bring it up".* (# 16, registered nurse)
	Improvement of implemented routines	*"Yes, talk about it every day (management and staff). At least I think that you should in a way work with that part and respect each other. And in the teams be able to say - Now I have to do this! I think, without that, it becomes a big thing in any way".* (# 5, registered nurse)
	Attractive workplace for the whole team	*"And it is so sad. It is such a loss when it happens. To educate people who then leave and say that they want to move on and this and that, but had the working place been attractive, pleasant, air into the system, time for reflection, good conditions, then it had been more fun".* (# 9, physician)
	Train together to work together	*"To try as much as possible to schedule but that is not so easy since we have different emergency duties. But it had also been good, I think, to continuously train together… You get to know your team".* (# 1, physician)
	Prestige-less culture	*"[…] that you dare to, raise your voice "it doesn't work for us, we have to get help". I think that is the most important [...]".* (# 16, registered nurse)

Synthesis of the findings from Studies I–IV

The findings of this thesis are synthesized informed by the SEIPS model, version 101(112). Guidance were, thus, retrieved from the conceptual model that describes the work systems, work processes, and the work outcomes related to interprofessional teamwork in the ED. The aim of this synthesis was to situate the human aspects (i.e., the interprofessional team and the patients) at the center of the model and scrutinize the existing system and processes around them. Thus, the abstraction of the findings relates to communication processes and teamwork during team assessment in the ED, focusing on patient safety. The synthesis is described relative to overarching themes, as presented in Table 4.

Table 4. Segments of the SEIPS[1] model applied to the findings from Studies I–IV.

Segments	Themes
Work systems	Prerequisites from management influence interprofessional teamwork
	Adequate information distribution necessary for transparency
	Physical and psychological work ergonomic challenges
Work Processes	Being in an information vacuum and uncaring environment
	Respect for the other person
Work Outcomes	Management impact on interprofessional teamwork
	Structured communication for increased information

[1]The Systems Engineering Initiative for Patient Safety model (109, 112). The Segments are retrieved from the SEIPS model, whereas the Themes are identified from Studies I–IV.

The work systems refer to the structural system and contextual factors with humans and the interactions between these parts, as described in the SEIPS model (109, 112). The work systems can provide a prerequisite for interprofessional teamwork that brings the structural characters (i.e., persons, environment, tools, and tasks) together to achieve safe performance. The factors, from Studies I–IV, that influenced the interprofessional teamwork and communication processes in the ED emerged in the following three themes: *Prerequisites from management influence interprofessional teamwork*; *Adequate information distribution necessary for transparency*; and *Physical and psychological work ergonomic challenges.*

The work systems - Prerequisites from management influence interprofessional teamwork

Management and leaders were described with setting prerequisites for the conditions under which the HCPs can carry out their tasks and the tools to be used. Furthermore, the management offer support, structure and perform logistical planning. This notion was supported by Study II, in which the HCPs' contributions to patient assessment increased post-intervention (i.e., the implementation of an interprofessional team-triage, together with promoting the role of the physician). Furthermore, in Study III, the HCP participants described experiences based on their perceptions of unsafe situations with excessive demands in terms of handling the imbalance of resources and capacities of the HCPs. For example, patients that were treated for far too long in the ED, in spite of evident need of in-house specialist care, and this was often due to a lack of hospital beds. The HCPs' workload and responsibilities were further described as directly affecting the interprofessional teamwork, as well as, the different views of teamwork and, how this affected interprofessional interactions. When no clear structure was provided for this type of teamwork, HCPs created their own routines and simply adjusted to the lack of structure. Despite a lack of resources and the challenging environment, the HCPs perceived the organization as being proactive and having a stable commitment to patient safety (Study I). This positive attitude towards a safety climate, that resulted from the organizational change, led the HCPs to conclude that they themselves would feel safe if they needed to be treated in the ED. In the same study, the HCPs increasingly acknowledged the importance of recognizing signs of stress, which shows that organizational prerequisites can exert positive impacts on interprofessional teamwork.

In Study III, participants described professional experience as something for which the individual was partially responsible, although this was highly dependent upon management expectations. For example, newly graduated registered nurses or physicians are licensed to carry out their eligible work but are not necessarily equipped to meet the demands of the work systems. Thus, an introduction program, individual and team reflections, and simulation-based training were mentioned as essential prerequisites. Conversely, experienced HCPs were described with having a strong mandate to either support or suppress colleagues in vulnerable situations (i.e., critical incidents). Participants in Study III also described their vision of an attractive workplace, which yielded attributes of an organization that would retain the professionals and would make them more-cohesive, to improve psychological safety. A well-organized and functional work environment (i.e., management-led debriefings, enough number of HCPs on the floor, opportunities for feeling adequate at work, and less focus on short-term solutions) was emphasized as being crucial to making HCPs feel comfortable at work and to be able to work interprofessionally.

The work systems – Adequate information distribution necessary for transparency

Patient participants in Study IV described a lack of structural information regarding the assessment routines and their journey through the ED for further assessment and care, if needed. A transparent mode of information distribution was suggested as a way to handle the anxiety caused by a stressful environment and the lack of information regarding how to cater for basic needs. Patient participants requested easily accessible information for all patients, and individually, in a system that would not absolve the HCPs of their duty to provide an immediate flow of information in a stressful environment. In Study III, the HCP participants confirmed the inevitable attachment to information distribution, and this was seen as hampering the work-flow. When information was delivered in an unsatisfactory manner by HCPs, the participants described work situations that were interrupted by questions from patients and, thus, were perceived as a hindrance to interprofessional teamwork. Furthermore, the findings in Study IV suggest that this behavior is a sign of unwillingness on the part of HCPs to respond to questions.

The work systems - Physical and psychological work ergonomic challenges

After the implemented intervention, the HCPs safety attitudes towards the working conditions were found to be significantly less-positive (Study I). The HCPs rated the quality of logistical support for the ED as lower and the work environment as less-attractive, even if structural changes had been made concerning the ergonomics of the work space. The importance of the physical work environment was further underlined in Study III, in which HCPs appreciated shorter communication pathways when positioned in close proximity to each other as part of the interprofessional team. At the same time, this could result in a noisy environment. A small space was perceived as a hindrance to the interprofessional teamwork, especially in situations where patients were clinically deteriorating. The stressful and challenging environment (i.e., experiencing contact with severely ill, injured, and violent patients) was further identified as a factor that affected the psychological environment. Moreover, the mutual support from colleagues was crucial for enhancing the interprofessional work and confirming the teamwork, especially in hectic situations. HCPs described the ED staff as being of a certain personality, having the ability to cope with the demands and challenges in the ED (Study III). Patient participants in Study IV described a similar stressful environment. To them, the ED was a confusing part of the hospital in terms of feeling safe. Several patient narratives described the ED as a world divorced from reality, and how they were confused as to when, where and how they were being assessed. Thus, according to patient participants, the environment needed to be structured in a more-informative way, to make it understandable for someone (particularly the patient) who was unfamiliar with the in-house technical language. For example, patients were often confused about the meaning of the term 'assessment team' and found it difficult to comprehend to which type of 'assessment team' they were assigned.

The work processes segment describes how the work is carried out and how it progresses according to the SEIPS model (109, 112). Processes are characterized by actions and activities performed by the agent and the co-agent (110). In this thesis, the perspectives of both the HCPs and the patients were investigated to describe the interaction process of interprofessional teamwork. In this phenomenon of interprofessional teamwork, it appears that the HCPs are the primary *agent* and the patient is the *co-agent*. However, when applying this lens to

work processes, the findings show that the patient and HCPs were not necessarily pleased with the role of the patient as a co-agent. Therefore, the synthesized findings point towards a preferred collaborative HCP-patient approach.

Despite some criticism of the mode of work of the HCPs, the patient participants in Study IV expressed a high level of trust in the competence levels of the HCPs and in the healthcare system in general. This distinguished the active agent and the co-agent in many situations where the HCPs had to make rapid decisions regarding the assessment and needed to communicate effectively only with the interprofessional team. Thus, to balance interaction with the interprofessional team was seen as being able to adapt to rapidly changing situations. The HCPs and patients were shifting in their engagement from active agents and co-agents to collaborative agents, depending on the situation. For example, a patient described the wonderful feeling of just letting go and being cared for by the HCPs. The HCPs managed the pain, and the patient was content to just be taken care of, without having to be asked questions and provide information. This contrasts with the testimony of another patient, who felt ignored in the waiting room and had to wait for several hours after the initial triage assessment without receiving any medical attention, despite suffering from a severe head trauma. This patient had to seek attention to ask questions about the time plan, care plan, bathroom, and pain relief, and identified a lack of safety. Thus, the patient felt forced to be an active agent although this patient did not want to have that role. A third example was a patient who was waiting for assessment and wanted to be in control of their care and tried to drive the healthcare forward. The active agent shifted from the HCP to the patient and a collaborative approach was created or alternatively the HCP became the co-agent.

In this thesis, the work processes was investigated through observations of the interprofessional team (Study II), as well as through the experiences of HCPs (Study III) and patients (Study IV). Factors that influenced the interprofessional team care processes in the ED emerged as two separate themes: *Being in an information vacuum and uncaring environment*; and *Respect for the other person*.

The work processes – Being in an information vacuum and uncaring environment

With respect to the demand for improved information flow in the ED, the findings show that patients feel left out and anxious about their stay in the ED

(Study IV). Patients expressed a lack of belonging and any sense of partaking in their own care. The patients felt reduced to an object when they were not met with an empathic approach and reassuring information about the reason for the care and stay in the ED. Furthermore, the empathic approach was referred to as a sign of safety and in that context the patients described a substantial difference in the experienced ED care. HCPs described psychological frustration with not having the time, competence, and physical space to meet the patient with an empathic approach, underlining the importance of structure as an enabling factor (Study III). In addition, HCPs referred to critical situations in the ED yielding the lack of interprofessional communication regarding information about the patient. Mostly, the HCPs who did not have their main employment in the ED were described as being less-transparent regarding information sharing, which might be related to not knowing the standards in the ED. However, this caused a problem in the flow of information to both the patient and the interprofessional team.

The work processes - Respect for the other person

In Study IV, the patients referred to a perceived feeling of increased safety when they were listened to and experienced empathy from the HCPs. Patients further characterized the empathetic care in terms of being treated with respect and being acknowledged as vulnerable. Similarly, patients requested information from HCPs that would help them to rationalize their symptoms and understand their own situation. In addition, the patients were seeking information about the environmental components of the assessment structure. This represents a transformation to becoming an active agent when the patient provides and demands information, allowing the HCPs to act as the co-agent. Furthermore, in this segment from Study III, the interprofessional teamwork processes was found to be influenced by gender roles and hierarchies. These, often negative, experiences yielded an imbalance in interpersonal conflicts that directly affected the ability of the HCPs to provide safe care. In addition, personal and professional interests could affect the interprofessional team composition. Favoritism and personal relationships were considered as beneficial for the team in terms of promoting psychological safety, although they could also represent disrespect and unutilized competence. Furthermore, fewer interruptions were observed (as a positive result) following the implemented intervention (Study II). Thus,

colleagues within and outside the team interrupted the interprofessional team less-frequently post-intervention. This influenced the interprofessional team process during communication processes and coordination of patient care. Finally, the interviewed HCP participants in Study III described the support received from the interprofessional team as important in creating a respectful interpersonal relationship, which was obvious in vulnerable situations. In contrast, a disrespect from unsupportive colleagues was regarded as unfavorable for both the interprofessional teamwork and the quality of the patient care.

The work outcomes segment in the SEIPS model (109, 112) defines the interprofessional teamwork processes in relation to the work systems. These processes can be manifested as states or conditions under which the management, interprofessional team and the patient are interacting parts. The work outcomes from the work structures and the interprofessional teamwork processes fell into two themes: *Management impact on interprofessional teamwork*; and *Structured communication for increased information.*

The work outcomes – Management impact on interprofessional teamwork

In Studies I and II, the analyses pointed to significant differences after the implemented intervention. While the effects of the specific interventions cannot be tracked, the overall results show that organizational changes affect the interprofessional teamwork. A more-positive attitude to acknowledging stress and a positive perspective towards the safety climate could contribute to an improved working environment. HCPs rated the possibility of acknowledging the impact of stress with colleagues or themselves to be higher post-intervention. As a result, this could imply as that the patient care became safer (Study I). This implication is further supported by the findings of decreased interruptions and improved interprofessional communication processes in Study II. Complementary findings in Study III indicate that the interprofessional team could benefit from organizational changes and attributes, thereby making the work environment more-attractive. Such attributes were described as promoting a psychological safety and maintaining a good mix of newly educated and experienced staff in the ED. Moreover, the patients expressed a high level of trust in the professional competence shown by HCPs and in the general healthcare system. Patients expressed an expectation of educated expertise and being professionally cared for in the ED. Even when the experience did not meet the expectations the trust was

still there, although there was disappointment in the quality of the care provided (Study IV).

The work outcomes - Structured communication for increased information

Another theme of the third segment was the requirement of the patients and the interprofessional team for a better-structured flow of information in the ED. Thus, patients, HCPs, and management communicated and delivered information in silos and placed different emphasis on the everyday tasks and tools. The analysis showed that management was prone to focus on numbers and statistics, thereby overlooking the subjective person behind the patient who might have overcrowded the ED (Study III). In line with this, the patients focused on recognizing the reason for the visit and the availability of care (Study IV), while the HCPs engaged with time and structural constraints. The latter were reported by HCPs as evidence of the ethical dilemma of not being able to carry out the work as intended (Study III).

Discussion

This thesis aimed to explore and describe the interprofessional communication processes and teamwork used during team assessment of the patient in the ED. To do so, we turned to the HCPs and patients being involved in the process to see their perspective in relation to safe care.

In the previous chapter, the findings of the studies that underpin this thesis, together with the synthesis thereof, were presented. In this chapter, these findings are discussed in relation to the outcome of the synthesis and how they can be explained and interpreted through the lens of patient safety. Thereafter, reflections on the findings of the SEIPS model (109, 112) are made, to elaborate on the contributions to the studied phenomenon and the concept of patient safety. Finally, at the end of this chapter, the implications for future and further research and clinical practice are addressed.

Reflection on the outcome of the synthesized findings

In this thesis, the findings showed that management support, communication skills, respect and trust, as well as information delivery affected the interprofessional teamwork in the ED. In the work processes, HCPs were busy with delivering professional healthcare, though the HCPs experienced constraints related to the work structure of the management and the organization prerequisites for patient care. Patients requested a more-transparent flow of information to be able to participate in their own care and to ensure that they were met as an individual with unique needs. Furthermore, stress was identified among HCPs as an essential consequence of the situation that affected the interprofessional teamwork. Such perceived stress was also a prominent aspect experienced by the patients, who were assessed in the studied ED.

Various ways have shown to be useful in terms of stress-coping mechanisms that demonstrate a personal approach towards dealing with stressful environment in the ED (92, 101, 135). In terms of reducing the impact of stress, the findings of this thesis point towards a positive impact from the organization, although a specific conclusion cannot be drawn from the implemented multifaceted intervention. However, the complexity of the ED contributes to stressors that

affect the caring situation in the ED (104, 135). Thus, HCPs have identified strategies to deal with these situations in either active or proactive ways (101). These strategies can be linked to the findings of this thesis, where the work system influences stress in interprofessional teamwork care on the macro-, meso- and micro-levels. The coping mechanism in recent presented research differed in how the HCPs perceived the working environment in previous studies (135); positive thinking meant, for example, a more positive view of the working environment. In contrast, this highlights the less-positive attitude, showed by HCPs in this thesis, towards the working condition post-intervention. However, it is not possible to identify the specific cause behind that result.

Furthermore, work strategies are important for dealing with care situations at an ED. The HCPs need to tailor their care to the individual needs of patients to enhance safe care. Stressors in the ED are identified in the literature (i.e., noise, crowding, violence, and an uneven flow of acute to moderately ill or injured patients) (104). This was similarly expressed in all of the Studies I–IV by HCPs and patients.

The findings of this thesis demonstrated that HCPs considered it important to respect their colleagues regarding their professional competence. In addition, patients expressed a wish to be treated with respect from HCPs, while having a strong fundamental confidence in the healthcare system and in the HCPs. This may be related to psychological safety for both HCPs and patients (77). The general principles for psychological safety are defined in accordance with different aspects of safety. It is strongly connected to the unique context and is based on: a respect of each other, learn and appropriate risk-taking, and comfortable sharing (136). In this thesis, psychological safety is shown to entail anxiety-reduction for the patient and the feeling of a peer-to-peer teamwork within the interprofessional HCP team. This means that the healthcare organization and management have a great responsibility is promoting psychological safety (80). Not only is the healthcare positioned as an authority figure and the patients often fall into a power-imbalance, but also the patients surrender themselves in the expectation of expertise and safe care.

Regarding the notions of respect and trust, the patient participants mentioned their family as an important source of support whilst waiting and being assessed in the ED. If family members were not present then they could, however, be

reached via a mobile phone and free internet access. This means that the physical presence of family members may not be underestimated, since they play important roles in observing, supporting and communicating with the patient and the HCPs in the ED. A recent study emphasized the importance of the family members' physical presence in terms of noticing and, if necessary, addressing the lack of communication and care. A frustration, which in some cases could lead to violent actions of frustration (i.e., verbal abuse and threatening words or actions). The family members described themselves as the contributing factor to violence-related events, however perceived as necessary, when there was a lack of communication (137). This highlights the immense importance of communication and the consequences of a lack of communication, especially in the perspective of safe care, delivered by functional interprofessional teams (53).

Findings through the lens of patient safety

The findings of this thesis emphasize communication as a way to distribute information to both the interprofessional team and the patients. Moreover, communicating for patient safety should be identified as a top priority for healthcare leaders. Insignificant differences were identified in the use of communication tools pre-interventions and post-intervention. This is discrepant with the interviewed HCP participants describing the communication tools as essential for the interprofessional teamwork, along with sound communication attitudes promoting a good climate of communication. In the perspective of literature on safe communication, helpful communication tools are needed to structure the teamwork and avoid unsafe patient care through interprofessional miscommunication and interruptions in an acute setting (104, 123).

Miscommunication in relation to task-switching has been studied in the ED, where clinicians seem to prioritize some tasks over others when faced with challenging situations in the ED (138). This can also be related to so called 'workarounds' in the acute healthcare context, which refer to HCPs who try to compensate for different hindrances or errors when something that is technical and non-technical related is about to go wrong. HCPs tend to create such 'workarounds' when the system fails to meet healthcare requirements and an imbalance occur to ensure safe care (32). This, however, may jeopardize the standard reporting of errors and if used frequently, the 'workarounds' may

become the new norm and fail the standard procedures to ensure safe care (139). The consequence can be fatal to patient safety. Taken together, this can be related back to the impacts of human factors and the last barrier between the system and the patient (21). Furthermore, in this situation, the 'workaround' can be connected to the resilient reactive safety whereas a proactive safety is the recommended way forward to enhance patient safety (29).

Researchers describe using voices (140) and speaking up (77) as interchangeably actions of communication suggestions to raise concerns about opinions, problems, and doubts. Sexton (141) has pointed out the danger of not speaking up in healthcare, since this can affect patient safety. Importantly, situations of interpersonal risk, such as patterns of hierarchy, may be the greatest barrier to effective communication. Such problems with hierarchy hinder speaking-up and pose a risk with regard to not addressing factors relevant to providing safe care of high quality (142). The existence of a hierarchy in interprofessional teamwork is supported by the findings in this thesis. The resolution of this problem requires the early provision of knowledge to other HCPs, already during their education. Interprofessional education and collaborative practice are advocated by WHO for HCPs, to increase knowledge about other professions and to ensure synergy in working together towards safe patient care (2). However, the level of knowledge of patient safety among HCPs varies, and the inclusion of patient safety curricula in education programs has been limited. Therefore, the WHO has made it a top priority to implement a 'Global patient safety action plan' up to year 2030. This plan aims to: lower the heavy costs of adverse events; increase awareness of a stronger and combined competence within HCP teams; increase the quality of care; raise awareness of the impacts of communication and teamwork on patient safety; and emphasize risk-reduction in healthcare (12). The need for interprofessional education is supported by further findings in this thesis. Interprofessional team reflection and simulation-based training was found to be essential for HCPs to feel motivated and engaged in their work. Thus, reflection and simulation-based training is claimed to both gain and support the perspective of psychological safety in the clinical care (143, 144).

The management in the studied ED implemented a department-wide intervention, which was designed to improve interprofessional teamwork. Although conclusions cannot be drawn as to what individual interventions

improved attitudes or changed behaviors in the interprofessional team, the findings are beneficial indicators for further research. To identify specific interventions that target specific domains of interprofessional teamwork in the ED, further research is needed. Other strategies to improve collaboration, communication and commitment have been implemented with models such as the Team Strategies and Tools to Enhance Performance and Patient Safety (TeamSTEPPS) training program, which is based on the theory underlying the five domains of effective teamwork (59). The training program has been used in the ED (145) and has also been successfully implemented in other areas of healthcare, such as the mental healthcare context (146). It has been recently validated for Swedish healthcare, partially in the acute medical context, showing promising results (147). Impacts on students' knowledge, skills, and attitudes towards interprofessional communication have been demonstrated with the TeamSTEPPS training program (148). Simulation-based interprofessional training for students has been shown to benefit patient safety (149). Thus, patients are likely to benefit from early team training for HCPs, and the findings of this thesis support such training. The HCPs in the studied ED were lacking sustainable simulation-based training and debriefing that would allow them to use adequate reflections and build on experience. However, there is a certain element of risk associated with relying exclusively on these team training programs to shape everyone in the same way in that differing opinions can sometimes be decisive in carrying the team forward (84). A shared mental model has been discussed in terms of discrepancy and reduction or increased 'groupthink' (73). It is, therefore, suggested that members of a team who are exposed to a shared mental model, and exclusively so, are more prone to groupthink and the consequences for patient safety (59).

Reflection on the analytical tool, the SEIPS model

The SEIPS model is a conceptual model that used to illustrate how work systems influence processes in healthcare and can ultimately be used to improve the quality of care and patient safety (109). This thesis used the SEIPS 101 model (112) to abstract the results from Studies I–IV and synthesize them into further findings. The aspiration was to acquire knowledge of the themes relevant to the aims of this thesis, which were to explore and describe the interprofessional communication processes and teamwork used during team assessment of the patient in the ED, with the focus on patient safety from the perspectives of the HCPs and patients. The findings highlight the importance of interprofessional teamwork, in work systems with work processes that demand flexibility, as well as structured behavior from the HCP team to enhance patient safety. The context is complex and it may be challenging to get an overall perspective of the major factors that influence the delivery of safe care. Thus, the SEIPS tools (109-112) can be used to guide researchers and human-centered system engineers towards designing and undertaking evaluations of healthcare systems (i.e., the ED). A recent review advocated development of the conceptual model to achieve broader use and make it more user-friendly, especially in complex contexts (150). The seven simple tools in SEIPS 101 (112) were accordingly developed to meet these criteria. Furthermore, the development of the SEIPS model family has particularly benefitted research studies and quality improvement work involving patients and family engagement (150).

However, limitations associated with the SEIPS model have been identified and must be addressed. The model is complex compared to other human factor-engineering frameworks and, therefore, challenging to adapt (150). Furthermore, the aspects of external human relations and informal connections were limited in the original model and, as a result, have been improved over the last 15 years as the SEIPS family has expanded (110, 111). Moreover, the literature regarding interventions tailored by the SEIPS model in relation to quality and safety is scarce (104, 150).

The author wish to highlight the benefits of using the SEIPS model in the form of an analytical perspective in complex environments, to understand more clearly the different segments and factors. The underlying factors inhibiting the delivery of safe care can be difficult to identify. However, the richness of the model leave

few details overlooked. Furthermore, the SEIPS model promotes enabling factors for safe care and should be recognized in relation to the concept of resilient reactive and proactive safety (21, 29). In light of synthesizing research around the interprofessional team and the finding that the patient may not have a clear role to play in such a team, this thesis highlights the imperative to foster person-centered care through a conceptual model. Given that the important role of the patient in the interprofessional HCP constellation has received limited research attention in the past (1, 151, 152) the model will serve as a valuable tool to include the patient in the same system as the interprofessional team.

Implications for future and further research and clinical practice

This thesis has generated a number of themes and experiences by HCPs and patients regarding interprofessional team communication, after implementation of a major multifaceted intervention, consisting of organizational changes. Some of the effects of the implementations were expected by management and linked to the intentions, while others wishes have emanated outside of the original intentions.

The specific methods used in this thesis may inspire others to explore enabling factors of and barriers to effective interprofessional communication and teamwork in their local setting. Specific suggestions, based on the findings of this thesis, are emphasized to found a basis for further interventions and quality assessments.

First, tailored and structured information to patients in the ED, perhaps according to a structured list of information to be given regarding the cause of visit, the perceived status, and planned assessments/interventions.

Second, tailored interventions regarding communication, especially on transparency for information distribution to improve interprofessional care and interprofessional teamwork, including simulation-based training and structured standards for interprofessional reflection.

Third, tailored interventions regarding ethical principles and code of conduct, especially applied onto the interprofessional team and respect for the other person (i.e., HCP and patient).

Fourth, improving more continuous presence and support from management.

Fifth, balance the demand of communication and information flow in the ED through the mentioned interventions above.

Sixth, including the patient into the interprofessional team to a larger extent.

Finally, to further investigate the validity of the SAQ instrument in the ED context.

Conclusion

This thesis confirms the notion that the ED interprofessional teamwork is complex. The present findings highlight that organizational changes may contribute to changes in communication, teamwork strategies, and safety attitudes among HCPs. Apart from expected changes in for example safety attitudes, the overall analysis of the thesis identified partly unexpected themes, in some cases common to HCPs and patients. For example, an important addition to the general knowledge of interprofessional care and a reminder of the important work of the organization and HCPs in clinical care is the voice of the patient. Altogether, this thesis suggests that some aspects of organizational changes may deserve a larger emphasis than previously thought. For example, inclusion of the patient into the interprofessional team, and practicing open and non-hierarchical communication may be at least as important as changing formal organization.

Methodological considerations

A multimethod approach was used to undertake the research of this thesis. Several methods were used to collect data, which entailed questionnaire, observations, and interviews. These methods allowed triangulation of the research material and investigations of the phenomenon in focus (i.e., interprofessional teamwork) from different angles (153). This chapter is divided into two sections for the purpose of further discussion of the results: *Validity and reliability in the quantitative research* and *Trustworthiness of the qualitative research.*

Validity and reliability in the quantitative research

As mentioned earlier, quantitative research investigates a phenomenon on a quantificational basis with precise measurements, typically with controlled and rigorous designs (115). In this type of research, validity is a criterion of quality. Furthermore, the validity assesses the level of the conclusion that can be drawn from the research and whether the undertaken research really assesses the intended target of the study (i.e., if a survey really measures what it is designed to measure). Reliability measures the accuracy of measurement in an instrument (i.e., approximately the same response should appear for every time a test is completed) (115, 154).

The instrument used in Study I, the SAQ, has been validated through psychometric testing and has been used in general acute medical contexts, including intensive care (42, 155) and operating room (120, 156). The instrument has not been validated for ED settings which was a disadvantage although the intended focus of the study was not to measure psychometric properties. An advantage of the SAQ instrument is that it is widely used and, as mentioned earlier, has been assessed previously for validity (42). The internal consistency of the SAQ ED version has, however, been measured using the Cronbach's alpha-value (157) and could be compared to other SAQ ED studies that showed similar levels of internal consistency (158). The evaluated low levels thus present a problem with reference to psychometric theory standards (122). Taken together, given that the internal consistency index was rather low, there are important implications for further research on this area in the ED setting.

Studies I and II evaluated the effects of the intervention that was implemented in the ED, regarding which the researchers had no interference and no ability to manipulate the changes made to the department. This allowed, in Study II, teamwork behaviors to be observed in situations that unfolded naturally, in what is referred to as a 'naturalistic field study'. Such studies have been undertaken in other acute contexts with interdisciplinary teams and have shown promising results (159). Had the research group been involved in the planning and implementing of the intervention, the outcome of the implemented intervention could possibly have been tailored. However, a naturalistic field study follows a natural environment for the subjects under observation, who can serve as their own controls.

The structured observations protocol was applied for the first time in an ED, although it has been used in other acute settings and has been piloted to ensure validity (123). Non-participant observations were undertaken. Reflections were made on the possibility of the participants knowing that they were being observed and thus altering their behaviors(124), in what is known as the 'Hawthorne effect' (160, 161). An observation method may itself influence work patterns, although previous studies have shown that nurses quickly became used to the presence of an observer and claim that the impact is minimal (162). Only one researcher was allowed to conduct all the observations on each occasion (respectively in the pre- and post-intervention periods). This act and was consciously planned to limit misinterpretation of the studied phenomenon. However, there may have been differences between the observers in relation to the interpretations of the observations. Instead of an inter-observer reliability measurement, the observers were calibrated and instructed by a senior researcher who was connected to the study. Prior to each phase, five consecutive pilots were conducted and assessed for potential misinterpretations. In addition, to strengthen the reliability, a codebook informed the observer of the measures in the structured observation protocol.

Only descriptive data were presented from the quantitative results. A causality or conformity analysis might have been useful but this was not the focus of these studies and would likely have required a larger cohort (115). Finally, the single-site, cross-sectional and observational studies contributed to a low generalizability of the findings to other settings. Nevertheless, the results (aspects on

communication and the interprofessional teamwork before and after organizational change) complement additional findings in this thesis (153).

Trustworthiness of the qualitative research

Qualitative research investigates a phenomenon in-depth. Typically, narrative material is sought about the perceived experience of a certain phenomenon (115). The trustworthiness of such research is essential to draw confident conclusions from the findings, for robust implications, and for utility in clinical practice. Trustworthiness is assessed through different criteria of authenticity, confirmability, dependability, credibility, and transferability (115). Authenticity is described as a guarantee of reality throughout the research process (i.e., data collection and analysis, and reporting of the data). Confirmability relates to the ability to be neutral with respect to the data and interpretations, to relate objectively and not subjectively. The criterion of dependability refers to the stability of the collected data if the collection process was to be reproduced. Credibility applies to the truth of the data (i.e., strives towards an in-depth data collection and detailed reporting of such data). Transferability refers to how transferable the findings are to other groups or settings (115).

The consolidated criteria for reporting qualitative research (COREQ) checklist was used for Studies III and IV, to ensure adequate trustworthiness and transparency (163). A further range of strategies was used to strengthen the trustworthiness. First, purposive sampling for maximum variation was intended to reflect, in the best way possible, the typical population in the ED to enhance authenticity and transferability (115). It was not possible to include the entire population, thus sampling was necessary. Second, it was crucial for the aims of Studies III and IV to capture participants with certain characteristics who could possibly assist the relevant research data (128, 164). Therefore, statistics from the studied ED were carefully investigated before each data collection, to create a general picture of the presumptive research participants (164). However, in Study III, the researcher (the author) had gotten familiar to the HCPs in the ED prior to conducting the HCP interviews. She had already completed two other data collections (i.e., questionnaire and observations) in the same setting. Thus, HCPs offered to be interviewed without being asked (i.e., convenience sampling)(115), however, this was rejected as a mode of sampling. Although there are advantages

to convenience sampling, such as accessible participants, time-saving reasons, and motivated participants, purposeful sampling for maximum variation was chosen instead (164). It was considered important to acknowledge the interpersonal interaction that occurs in an interview situation and the impact that it can have on the production of knowledge (131). Purposive sampling was considered to balance such impacts and to include a variety of participants who could contribute to relevant research data.

Research carried out through interviews involves a craftsmanship (131). It takes time and practice to create adequate questions that are tailored so that the participant can understand the interview question in a way that is valuable to the researcher and to addressing the overall research question. The researcher must, however, not guide the participant in shaping their answers to the questions. It can be challenging for the researcher to avoid preconceptions. By undertaking pilot interviews the battery of questions can be tailored to the research question and help the researcher forward(115, 131). Thus, pilot interviews were conducted before each of the interview studies (Studies III and IV), which guided the understanding of interview questions.

To establish greater credibility, the researcher (the author) maintained an open approach to the interview questions and sought to adopt an active listening disposition to the participants' narratives (115). An interview guide was used, which demonstrated a core of interview questions and room for follow-up questions, posed to all the participants. Data saturation was sought throughout the interview studies and was considered reached when no new information emerged (115). In Study III, the recommended collection of critical incidents was 50–100 (127) and this initially guided the presumptive number of participants. The result, with over a hundred identified critical incidents, entailed rich and informative textual data. This emphasized a close connection to the authentic data in the analysis (i.e., during coding and abstraction into categories). This awareness was important to avoid excessive abstraction of the data, which might cause the unique experiences of participants' to be obscured or lost (165). Moreover, in both Study III and Study IV, the findings were presented in categories and themes with a broad description of the textual data, including representative quotes from the participants. The goal was to present findings in a confident and transparent way to demonstrate the objectivity of the interpretation (i.e., confirmability) and

confidence in truthful data (i.e., credibility). In this context, in Study III, the research group examined the idea of organizing the experiences into categories and subcategories with consideration by profession. However, our impression was that although this might have some importance, profession per se was not a major factor. Nevertheless, assessing differences according to professions would have required a statistical analysis and considerably higher number of participants. Moreover, this was outside the scope of the aim of the project, which was to identify enablers of and barriers to interprofessional teamwork in the ED.

Furthermore, the interview participants were interviewed face-to-face or over the telephone. Although there might be disadvantages associated with not meeting face-to-face with participants (i.e., loss of gestures and facial expressions), telephone interviews can still be advantageous in terms of covering geographic distance and conferring time savings (166). Throughout the interviewing procedures and the collection of field notes, the researcher (the author) aimed for a reflexive approach to the data collection, analysis, and interpretation, to avoid any bias. Nevertheless, the researcher is never without personally held assumptions of the phenomenon (117). In addition, the imbalance of power that could occur between the interviewer and interviewee is of relevance and warrants reflection (131). Therefore, senior researchers, experienced in qualitative research and involved in this thesis project, engaged in talks and discussions regarding the interview process with respect to the participants' shared experiences. In addition, the reflections of the interviewer were written in a separate journal and digitally recorded in direct connection to the interviews (without any individual data linked to the participants). In this way, the criterion of confirmability was further sought.

Further, the CIT was used in Study III to identify specific situations involving critical incidents rather than to grasp general assumptions from the participants' experiences of the phenomenon (127). This was beneficial for the aim of the thesis, as it was important to turn to the members of the interprofessional team and identify experiences of specific situations with behaviors that affected interprofessional teamwork. It is noteworthy that the CIT research tool has been debated as to whether it is a methodology or a method for data collection and analysis (128, 167). Moreover, why is it important to make this distinction? The argument revolves around how best to use the CIT and, thus, the credibility of the research. If the research tool is used as a methodology, then the researchers

may be guided throughout the scientific design process of the intended study. If it is used as a method, then it would only guide the procedures and technical rules for data collection and analysis (167). Almost 70 years have passed since Flanagan first presented his article on the CIT, and the years have seen widespread use of the technique. Although this has made a valuable contribution to research, it has also allowed innovative modifications to its use and terminology (168). Flanagan described the research tool in terms of how to collect data and the concepts of procedure and technique, although he did not delve in detail into the analysis of the data (127). This may be one of the reasons for the discussion on how to be guided by the research tool (128). Researchers claim that the essential focus must lie in the main research question and the aim of the study, to rationalize the use of the CIT. In particular, if the CIT is used in healthcare research, the research question should include 'what helps or hinders' the phenomenon under study (i.e., the interprofessional teamwork) (168). Therefore, the explorative focus of Study III was especially helped by this research tool. Whether it is a methodology or a method will remain a topic of debate.

Finally, the transferability can be considered limited when the context is complex and participants are included from only one setting. However, a rich description of the context and setting was given to gain a clear understanding of the studied phenomena (169). A representative diversity of participants and a collection of rich research data are further considered to contribute to transferability and to complement the quantitative study findings (Studies I and II), as well as enabling triangulation of the findings (113).

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"We don't have to do all of it alone. We were never meant to."
Brené Brown

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Appendix

Safety Attitudes Questionnaire, Attityder till säkerhetsklimat (version akutmottagning).

Kod nr:_____

Var vänlig och svara på följande påståenden utifrån dina erfarenheter på akut- och olycksfallsmottagningen, AKOM. Sätt ett kryss i det fält som motsvarar din åsikt. Tänk på att svaren ska återspegla dina egna erfarenheter.

	Stämmer inte alls	Stämmer inte så bra	Varken eller	Stämmer ganska bra	Stämmer precis	Ej aktuellt
1. Hög arbetsbelastning är vanligt här på AKOM.						
2. Jag tycker om mitt jobb.						
3. Sjuksköterskors/undersköterskors synpunkter och förslag på patientvården tas väl emot på AKOM.						
4. Jag skulle känna mig trygg om jag blev behandlad här som patient.						
5. Avvikelser hanteras på ett lämpligt sätt här på AKOM.						
6. Inskolning av nya medarbetare genomförs väl på AKOM						
7. All nödvändig information finns tillgänglig innan bedömning.						
8. Att arbeta här på AKOM är som att vara del av en gemenskap.						
9. Klinikadministrationen gör ett bra arbete.						
10. Ledningen på AKOM stöder mitt dagliga arbete.						
11. Jag får konstruktiv återkoppling på min arbetsinsats.						
12. Här på AKOM är det svårt att diskutera avvikelser.						
13. En genomgång av RETTS är viktigt för patientsäkerheten.						
14. Det är vanligt med en genomgång av RETTS på AKOM.						
15. Detta sjukhus är en bra arbetsplats.						
16. Trötthet försämrar min arbetsinsats i akuta situationer.						
17. Verksamhetsledningen gör inte något avsiktligt som kan äventyra patientsäkerheten.						
18. Personaltätheten här på AKOM är tillräcklig för att hantera antalet patienter.						
19. Relevant personal är delaktig i beslut på AKOM.						
20. Jag uppmuntras av mina kolleger att ta upp alla funderingar jag har kring patientsäkerhet.						

Safety Attitudes Questionnaire, Attityder till säkerhetsklimat (version akutmottagning).

	Stämmer inte alls	Stämmer inte så bra	Varken eller	Stämmer ganska bra	Stämmer precis	Ej aktuellt
21. I den kultur som råder här på AKOM är det lätt att lära sig av andras fel och misstag.						
22. Verksamhetsledningen hanterar personal som kan utgöra en säkerhetsrisk på ett konstruktivt sätt.						
23. Vi har adekvat medicinskteknisk utrustning här på AKOM.						
24. Här på AKOM är det svårt att säga ifrån om jag upptäcker problem i patientvården.						
25. Min arbetsförmåga försämras när arbetsbelastningen ökar.						
26. Jag får i god tid tillräckligt med information om händelser på sjukhuset som kan påverka mitt arbete.						
27. Jag har sett andra göra misstag som hade kunnat skada patienter.						
28. Jag vet vart jag ska vända mig för att framföra frågor om patientsäkerhet här på AKOM.						
29. Jag är stolt över att arbeta här på AKOM.						
30. Här på AKOM löser vi meningsskiljaktigheter på ett lämpligt sätt (t.ex. genom att utgå från vad som är bäst för patienten snarare än vem som har rätt).						
31. Jag är mindre effektiv i arbetet när jag är trött.						
32. Det är mer troligt att jag gör misstag i situationer som känns spända eller fientliga.						
33. Stress som utgår från personliga problem påverkar min arbetsförmåga negativt.						
34. Jag har det stöd jag behöver från andra medarbetare för att vårda patienter.						
35. Det är lätt för personalen här på AKOM att ställa frågor när det är något de inte förstår.						
36. Avbrott i kontinuiteten i patientvården (t.ex. byte av skiftlag eller patientförflyttning) kan äventyra patientsäkerheten.						
37. I akuta situationer kan jag förutsäga hur övriga i mitt team kommer att agera.						
38. Här på AKOM arbetar personalen som ett väl samordnat team.						
39. Jag har ofta svårt att uttrycka en avvikande uppfattning gentemot specialistläkarna.						
40. Professionell personal kan lämna personliga problem bakom sig under arbetstid.						

Safety Attitudes Questionnaire, Attityder till säkerhetsklimat (version akutmottagning).

	Stämmer inte alls	Stämmer inte så bra	Varken eller	Stämmer ganska bra	Stämmer precis	Ej aktuellt
41. Arbetsmoralen är hög här på AKOM.						
42. Studenter i min yrkesgrupp handleds på ett adekvat sätt.						
43. Jag vet för- och efternamn på de medarbetare som jag arbetade med på mitt senaste arbetspass.						
44. Jag har gjort misstag som potentiellt hade kunnat skada patienter.						
45. Specialistläkarna här på AKOM gör ett bra jobb.						
46. Här på AKOM tar all personal ansvar för patientsäkerheten.						
47. Jag känner mig trött när jag stiger upp på morgonen och vet att jag ska till jobbet.						
48. Här på AKOM är patientsäkerheten alltid av högsta prioritet.						
49. Mitt arbete gör att jag känner mig trött.						
50. Vid skiftbyten rapporteras viktiga frågor grundligt.						
51. Här på AKOM arbetar vi enligt kliniska och evidens-baserade riktlinjer för att säkerställa patientsäkerheten.						
52. Jag känner mig frustrerad över mitt jobb.						
53. Jag känner att jag arbetar för hårt på mitt jobb.						
54. Information från avvikelserapporter används för att ge en mer patientsäker vård här på AKOM.						
55. I akuta situationer (t.ex. trauma, hjärtstopp) påverkas inte mitt handlande om jag arbetar tillsammans med en oerfaren medarbetare.						
56. Personalen ignorerar ofta regler och riktlinjer, t ex basala hygienrutiner, metodanvisningar, kliniska riktlinjer, sterila utrymmen etc. som gäller på AKOM.						
57. Jag själv ignorerar ofta regler och riktlinjer, t ex basala hygienrutiner, metodanvisningar, kliniska riktlinjer, sterila utrymmen etc. som gäller på AKOM.						
58. Det är vanligt att brister i kommunikation leder till försenade utskrivningar.						

Safety Attitudes Questionnaire, Attityder till säkerhetsklimat (version akutmottagning).

Bakgrundsinformation. *Sätt kryss eller skriv på avsett utrymme*						
59. Är du	❑ Man		❑ Kvinna		❑ Annat	
60. Hur gammal är du?	_____ år					
61. Befattning?	❑ Läkare, examensår:_____ ❑ Sjuksköterska, examensår:_____ ❑ Undersköterska examensår:_____ ❑ Kanslist, examensår:_____ ❑ Annat, examensår:_____					
62. Examensår för specialistutbildning Ange vilken specialitet?	År:_____ Specialitet:_____					
63. Vilka är dina vanligaste arbetspass?	Dagar ❑	Kvällar ❑	Nätter ❑	Helger ❑	Varierar ❑	
64. Andel av tjänst varav klinisk verksamhet?	Ange i %:_____					
65. När du arbetar, hur ofta arbetar du i triagen?	Dagligen ❑	Ngn gång per vecka ❑	Varannan vecka ❑	Ngn gång per månad ❑	Mer sällan ❑	Aldrig ❑
67. När du arbetar hur ofta arbetar du på AKOM?	Dagligen ❑	Ngn gång per vecka ❑	Varannan vecka ❑	Ngn gång per månad ❑	Mer sällan ❑	Aldrig ❑

Tack för att du tog dig tid att besvara frågorna.

Dina synpunkter är mycket viktiga och värdefulla!