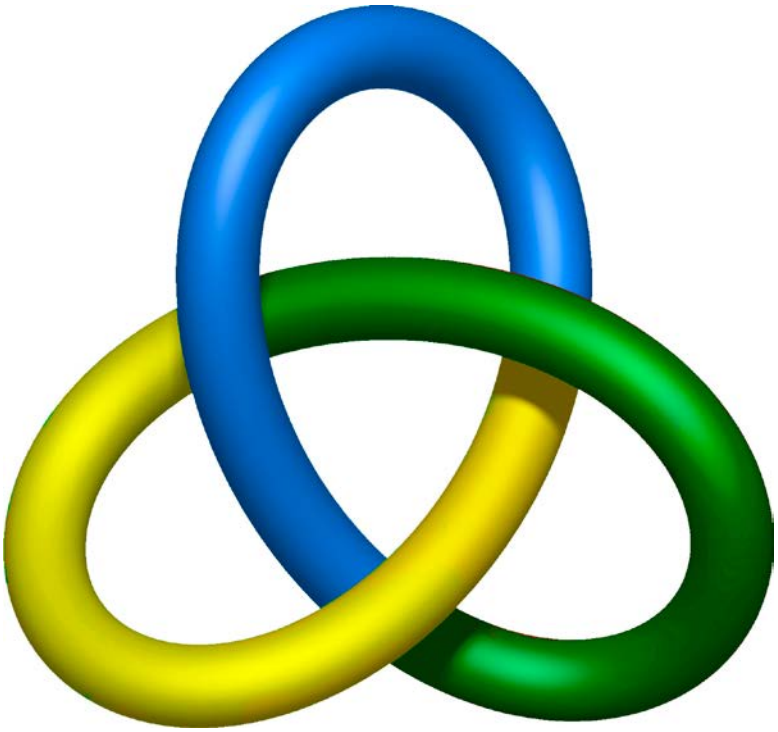
Thesis for doctoral degree (Ph.D.)
2018

The experience of being new and desirable support during the first year in the emergency medical services



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THE EXPERIENCE OF BEING NEW AND DESIRABLE SUPPORT DURING THE FIRST YEAR IN THE EMERGENCY MEDICAL SERVICES

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Stockholm 2018

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Printed by Arkitektkopia AB, 2018

ISBN 978-91-7831-180-4

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THESIS FOR DOCTORAL DEGREE (Ph.D.)

For the PhD degree at Karolinska Insitutet, the thesis will be defended in Ihre at Södersjukhuset, Stockholm.

Friday, October 26, 2018, 10 a.m

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To all professionals new to the ambulance service.

ABSTRACT

The emergency medical services (EMS) has been described as a challenging professional practice where the persons in need of care vary greatly in terms of age, symptoms and situations. There is limited research regarding the experience of being new to this line of work, and what support new professionals desire during their first year in a professional practice like the EMS.

The overall aim of this thesis was to increase knowledge about the experience of being new to the EMS and to identify what support new professionals desire during their first year.

This thesis is based on the findings from four studies. The theory of communities of practice has been used for interpreting, understanding and explanation of the synthesised findings of these four studies.

Qualitative research approach was used in Studies I and II, the Delphi technique was used in Study III and a quantitative research approach was used in Study IV. Data was collected using interviews and questionnaires.

The findings in this thesis show that the experience of being new to the EMS is a triality of the own identity, the community and the practice and the desirable support during the first year was summarized by 11 statements of support. The own identity refers to the experiences of transitioning into a new professional identity. It is a period of mixed emotions and low self-confidence where supports that aim at strengthen self-confidence is desired. The community refers to the experience of the colleagues in the EMS. Supportive climate and a trustworthy colleague have positive influence on the own professional development and help strengthening self-confidence. Unsupportive and harsh cultures, without mutual engagement around patient care, negatively affected the experience. Supports that contribute to the new professionals feeling welcome and respected in the new community was desired. The practice refers to the experiences of the EMS assignments and the EMS context. Being able to work independently and handle unpredictability was considered challenging, and sometimes this challenge was intensified when the colleague and the new professional did not share the same view of the situation. Supports that aim at creating a sense of stability and control was desired.

The thesis concludes that the experience of being new to the EMS is a triality where the own personal development of a new identity, the EMS community and the EMS practice highly influence the experience. It is important to emphasis all three dimensions of this triality when supporting new professionals in the EMS. This thesis also concludes the importance of all members of the EMS community having mutual engagement and a shared view on what, when and how the patient care in the EMS should be provided. The findings in this thesis will contribute knowledge that will be of use when designing formal support- and introduction programs for professionals new to the EMS.

LIST OF SCIENTIFIC PAPERS

I. **Hörberg A**, Lindström V, Kalén S, Scheja M, Vicente, V. Striving for balance – A qualitative study to explore the experiences of nurses new to the ambulance service in Sweden. *Nurse Education in Practice,* 2017;27:63-70.

II. **Hörberg A**, Lindström V, Scheja M, Conte H, Kalén S. Challenging encounters as experienced by registered nurses new to the Emergency medical service - Explored by using the theory of communities of practice. *Submitted.*

III. **Hörberg A**, Jirwe M, Kalén S, Vicente V, Lindström V. We need support! A Delphi study about desirable support during the first year in the emergency medical service. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine, 2017;25:89*

IV. **Hörberg A**, Kalén S, Jirwe M, Scheja M, Lindström V. Treat me nice! – A cross-sectional study examining support during the first year in the Emergency Medical Services. *Submitted.*

CONTENTS

LIST OF ABBREVIATIONS AND DEFINITIONS

AN	Ambulance nurse
CoP	Communities of practice
EMS	Emergency medical service
NP	Nurse practitioner
RN	Registered nurse

Definitions

In this thesis, I will use three concepts when writing about the EMS; context, professional practice and practice. I differ between the three according to the following definitions.

A professional practice will be used meaning of the work-place where professionals perform their profession. Ambulance professionals work in the EMS and provide care for out-of-hospital patients. The EMS is their professional practice.

Context is used as a wider concept than professional practice. Context includes all that can occur in the EMS and affect the professionals working in it. In the EMS context, the weather, bystanders, traffic, animals, et cetera affect the ambulance professionals while working in their professional practice.

A practice is a theoretical concept borrowed from the theory of community of practice. A practice is what unites a group of people. The practice of the EMS is that the EMS professionals have a joint enterprise such as caring and transporting persons in need of care to a hospital, they have a mutual engagement around giving a person the best possible care and they have a shared repertoire, i.e. all that enable them to give the best possible care to a person.

1 INTRODUCTION

There is a story I like about Benjamin Franklin as a child. He sees a whistle in a toy store and runs home to get all his saved money. Benjamin, who has never before bought anything by himself, gives all his savings to the cashier who willingly accepts the payment in exchange for the cherished whistle. Benjamin happily returns to his home with his new, wonderful whistle. Back at home, upon learning what little Benjamin paid, his brothers and sisters laugh at him and tell him that he has overpaid by more than twice the amount. The whistle loses its magic. Little Benjamin reflected that if only they had told him earlier, or if only he had asked for advice before buying the whistle, then he would not have made the mistake of over paying for it. Later in life however, Benjamin Franklin is said to have used the whistle experience as a guiding principle when facing important decisions, telling to himself "don´t pay too much for the whistle".

This is a story about how inexperience can lead to mistakes but also that we can learn from those mistakes.

Everyone is new and inexperienced at something, sometime in their life. Being new to something has to be allowed. However, in healthcare services mistakes due to inexperience can be fatal for persons in need of care, and may lead to professionals feeling so bad that they leave the profession. I believe that in the emergency medical services (EMS), new professionals should not have to "overpay for their whistles" to become experts in their field.

In 2009, I started to work in the EMS in Stockholm, and even though I had been new to other fields in the healthcare service before, this time was different. The EMS encompassed more challenges than I had expected. I started to look for a trusted peer to be my unofficial mentor, someone to guide me through the first period of confusion. I was lucky to find a person who became very valuable to me, and the idea of a formal mentorship program in the EMS started to grow. I wrote my master´s thesis about mentorship in the EMS, and during that work I came to realize how little was known about what support new professionals in the EMS need and/or desire. Having an unofficial mentor helped me, but this might not be what someone else needs for their professional development. When I searched the literature for research about the experiences of being new to the EMS and how to support new professionals in this field I found very little scientific knowledge. I wanted to know more and thus, my own scientific journey begun. My curiosity about how new professionals experience the EMS, how they develop and cope with all aspects of the EMS has been my driving force throughout this work.

2 BACKGROUND

2.1 THE EMERGENCY MEDICAL SERVICES (EMS)

In the literature, the concept of EMS describes all parts in the chain of survival in the prehospital setting, from the dispatching systems to the out-of-hospital care and transporting systems (Castren et al., 2008). When using the term EMS in this thesis I will refer to the part of the chain of survival that constitutes the ambulance service.

The oldest known description of EMS is found in the Bible and the story of the Good Samaritan: "He went up to him and bandage his wounds, pouring oil and wine on them. They put him on his own animal brought him to an inn and took care of him" (Luke 10:34). Nearly 2000 years later, the concept gained traction, as witnessed during the Napoleon war (1803-1815). Chief surgeon Dominic-Jean Larrey deployed the Good Samaritan-idea by letting military personnel perform triage and retrieve the wounded and dead back to base hospitals using horse drawn two-wheel carriages called flying ambulances (Skandalakis, Lainas, Zoras, Skandalakis, & Mirilas, 2006). Larrey's flying ambulances are the first documented organised transport of patients to care facilities. The idea of ambulances being transporting organizations persisted into modern times. Personnel that staffed the ambulances were most commonly drivers or firemen with little or no medical training. In Sweden, it was not until mid 1970 that medical training became mandatory to be able to work in an ambulance (Suserud & Lundberg, 2016). Since then, there has been a rapid developed of the EMS. From merely transporting persons in need of care to the emergency hospitals to an organisation that provides advanced medical care both on scene and during the transport (Suserud & Lundberg, 2016). In the recent years, the number of calls to the dispatch centre and subsequently also the number of ambulance assignments, has increased (Swedish National Audit Office, 2017). This has in turn lead to the amount of ambulances in Sweden increasing and also the need to recruit new staff for this particular line of work.

2.2 THE ASPECTS OF THE EMS CONTEXT

The professional practice of the EMS has contextual prerequisites that distinguishes from in-hospital professional practices. People in need of an ambulance range from young, ill or injured children to multi-sick older and frail persons (Houston, 2010; Nilsson & Lindstrom, 2016; Vicente et al., 2012). These persons, may present symptoms that range from being acutely life threatening, to mild symptoms that can be adequately dealt with through self-care at home (Rantala, Ekwall, & Forsberg, 2016). In addition to this plethora of caring needs and symptoms, the person is in environments such as his/her own home, in a public place, on a trafficked road, in

a nursing home, in a forest, out on a lake, etc. To support medical decision making in this professional practice, the professional can use written medical guidelines (Hagiwara, Suserud, Jonsson, & Henricson, 2013).

The EMS assignment starts with a person experiencing a crisis of such magnitude that the person's own resources are inadequate resulting in a call to the emergency dispatch centre. At the dispatch centre the call is assessed and if necessary, an ambulance is allocated an assignment (Castren et al., 2008). In the ambulance, a pager alerts the crew and written information about the emergency situation is provided from the dispatch centre. The written information is provided to help the ambulance professionals prepare for the required care. However, research has reported that sometimes the information does not provide an accurate picture of the situation and EMS professionals has described that they need to be prepared to be unprepared in each caring situation (Gunnarsson & Warren Stomberg, 2009; Holmberg & Fagerberg, 2010; Sundström & Dahlberg, 2012).

In addition to situations the EMS professionals may not be prepared for, and caring for diverse signs and symptoms, working in the EMS has been described as providing more than medical treatment (Elmqvist, Fridlund, & Ekebergh, 2008). In the encounter with a person in need of ambulance care, this person's social, physical and psychological perspective need to be taken in account (Elmqvist et al., 2008; Gunnarsson & Warren Stomberg, 2009; Holmberg & Fagerberg, 2010; Rantala, Forsberg, & Ekwall, 2018; Wireklint Sundstrom & Dahlberg, 2011). When arriving at scene every care situation is considered unique and needs to be arranged in relation to the circumstances (Holmberg & Fagerberg, 2010; Wireklint Sundstrom & Dahlberg, 2011). For example, a person found outside may be hypothermic in an addition to having a fractured ankle. If there has been a traffic accident, cooperation with police and rescue service may be the first thing the ambulance professionals need to establish. In a person's home, aspects such as sleeping children behind a closed door or arrangements for the care of house pets before a person can be taken to a hospital may come into play as well. Other aspects of working in the EMS include the risk of personal and patient security. A study by Suserud, Blomquist, and Johansson (2002) show that a majority of ambulance professionals have been subjected to situations involving threats and/or violence. The risk of agitated animals, weapons or other people in the vicinity that can present a threat to yourself or the patients' needs to be considered in all situations.

In this multifaceted context, the EMS professionals describe using intuition and prior experience when handling the diversity of unexpected events that may occur during a shift (Ahl et al., 2005; Holmberg & Fagerberg, 2010). In addition to intuition and experience, EMS professionals require a broad range of professional competencies (Holmberg, Fagerberg, & Wahlberg, 2017; Sjolin, Lindstrom, Hult, Ringsted, & Kurland, 2015; Wihlborg, Edgren, Johansson, & Sivberg, 2014, 2016).

2.3 COMPETENCE IN THE EMS GLOBALLY

Competence is a complex matter, described and defined in several ways and influenced by several factors (Wihlborg, 2017). In this thesis, competence will be defined as the knowledge, skills, abilities and attitudes that a person requires to manage tasks and challenges in working life and other fields of a professional context (Benner, 1982; Illeris, 2009). The competence required to work in the EMS appear to be difficult to define and around the world EMS professionals hold different levels of formal education. In Europe for example, ambulances can be staffed with one registered nurse (RN) or paramedic with the ability to administer drugs, and an Emergency Medical Technician (EMT) or an Emergency Care Assistant with basic training in emergency care (Bos, Krol, Veenvliet, & Plass, 2015; Evans, McGovern, Birch, & Newbury-Birch, 2014). Physicians are present in rapid response units or helicopters (ibid). In UK and Australia there is an increasing use of Specialist Paramedics, such as Emergency Practitioner, Paramedic Practitioner, Community Practitioners or Critical Care Practitioners in the ambulance service (Cooper & Grant, 2009; O'Hara et al., 2015). Nurse practitioner (NP) programs are being implemented as a result of an increasing demand of the competence of ambulance professionals during the recent years. NP programs are usually Master of Science in Nursing programs that incorporate courses such as advanced pharmacology and pathophysiology as well as in clinical decision making, health promotion and advanced health assessment (American Association of Nurse Practitioners, 2016). The NP role is similar to that of a specialist nurse in the ambulance service in Sweden (The Swedish Association for Ambulance Nurses & The Swedish Society of Nursing, 2012) with the exception being that NPs are authorized to prescribe medications (Kelly & Mathews, 2001). In USA and Canada, the competence in the EMS range from that of Emergency medical responders to Paramedics (Evans et al., 2014). This diversity in required formal competence, indicate the difficulty of knowing how to prepare a new professional to a professional practice like the EMS. However, no matter how different the required formal competence may be, even with a global perspective, the professionals work in a context where the prerequisites and wide variety of persons in need of care are similar no matter where in the world the professionals work.

2.4 COMPETENCE IN THE EMS IN SWEDEN

In Sweden, there is a national regulation since 2005 that each ambulance needs to be staffed with at least one professional licensed to administer medication. In Sweden, this professional is a RN (SOSFS, 2009:10). This entails that every ambulance is being staffed with at least one RN holding the medical responsibility and an EMT with a one-year education in basic life support and prehospital training, or another RN. Depending on the region, physicians in the Swedish EMS can be contacted

via telephone, either at the dispatch centre or the hospital emergency ward and/or in a rapid response unit (Suserud & Lundberg, 2016). Lately, to meet a growing societal demand and expectation on ambulance care, many regions have introduced a local regulation that an ambulance needs to be staffed with at least one specialist nurse, commonly a Prehospital Emergency Care Nurse, furthermore referred to as ambulance nurse (AN) (Suserud & Lundberg, 2016). An AN in Sweden hold a postgraduate diploma in specialist nursing with extended medical knowledge and nursing knowledge (Lindström, Bohm, & Kurland, 2015; Sjolin et al., 2015). According to the Swedish Higher Education Act (SFS, 2014:1096) ANs should be able to "demonstrate the ability to assess somatic or mental status and immediate needs of sick or injured individuals and also demonstrate the ability to undertake the interventions required for patients in widely differing circumstances" and to "demonstrate the ability to apply his or her specialist knowledge in connection with major accidents and catastrophes".

Previous research has acknowledged that RNs/ANs working in the EMS hold a complex profession that requires competencies that include a broad knowledge base and extended skills (O'Hara et al., 2015; Wihlborg et al., 2014). In addition to practical skills and broad knowledge base, research suggests that personal attributes such as having self-confidence, being open-minded, flexible, inventive, being a team-player or even a team-leader and still have the ability to work alone are desirable attributes to work in the ambulance service (Kilner, 2004; Sundström & Dahlberg, 2012; Wihlborg et al., 2014). A study by Wihlborg et al. (2016) further elucidates that the ability and possibility to be reflective also affect the EMS professionals' competence in the ambulance service.

Every year an EMS organization in a larger city in Sweden hire approximately 60 new professionals (Personal communication, September 19, 2018) with this number as a basis it would be reasonable to assume that approximately 250-300 new professionals enter the EMS in Sweden every year. These new professionals face the same challenges and prerequisites as the experienced professionals do, but without the prior experience of ways to handle the variety of persons and situations encountered in the EMS context.

2.5 BEING NEW

Being new, at something or in a situation, is defined as being inexperienced at or unaccustomed to an activity (OxfordDictionary, 2016). In health care research the concept of being new most often refers to the first 12 months of practice (Chang & Hancock, 2003; Duchscher, 2008; Sargent & Olmedo, 2013). The descriptions of 'being new' to the health care service stems from the experiences of three types of situations; the new graduate RN, the experienced RN in a new professional

practice and the RN in a new professional role (Benner, 1982, 2001; Schumacher & Meleis, 1994). A new RN or AN in the EMS in Sweden can be experiencing any of these three above mentioned situations. Therefore, all three situations will be described in the following brief overview of the notion of being new. Priority has been given to emergency care literature when this has been available.

The new graduate RN

The experience of being a new graduate RN is described as an emotionally challenging period of time filled with nervousness, stress and anxiety (Duchscher, 2008; Morrow, 2009; O'Shea & Kelly, 2007; Valdez, 2008). New graduate RNs describe a lack of confidence in their own knowledge and have high expectations on their own performances (Morrow, 2009; Valdez, 2008) Much energy is being placed on trying to fit in among the experienced colleagues (Andersson & Edberg, 2010). During the first year, the new graduate relies on written guidelines to support him/her and focus on learning the new routines (Benner, 1982). Having a preceptor or mentor has been described as essential when it comes to being a new graduate in a new professional practice (Glynn & Silva, 2013).

The experienced RN in a new professional practice

According to Benner (2001) an experienced RN that enter a new professional practice describes similar challenges as when the novice RN leaves the student role. A study by Hamric and Hanson (2003) shows that when RNs change professional practice they describe feelings of conflict, maladaptation, frustration and anxiety like those of the new graduate. Being new to a critical care ward RNs usually testify to feelings of vulnerability, having lack of confidence and sense of loss of control (Farnell & Dawson, 2006).

RNs new to a professional practice struggle with learning new clinical and critical thinking skills as well as learning and adapting to the new unit culture (Cockerham, Figueroa-Altmann, Eyster, Ross, & Salamy, 2011).

The RN in a new professional role

The situation of RNs in a new professional role can for example mean RNs completing a post graduate education to become a nurse practitioner or a specialist nurse. Studies exploring experiences of new nurse practitioner and specialist nurses' first year describe feelings of stress, anxiety, role confusion and emotional turmoil (Nicolson, Burr, & Powell, 2005; Poronsky, 2013). With lack of experience of the new professional role the new nurse practitioners report feeling incompetent, experience loss of confidence and place great emphasis on understanding and

adapting to the new role (Chang, Mu, & Tsay, 2006). New nurse practitioners report feelings of guilt, uncertainty and inadequacy generated by a perceived tension between what they know and what they think they should know, but don't (Kelly & Mathews, 2001).

The notion of being new to health care services is quite well documented in the literature. A conclusion to be drawn is that being new is a complex, multifaceted experience that is similar regardless of prior nursing experience. According to the descriptions above, the experiences of being new can be roughly divided into inner and outer challenges. Outer challenges involve the surrounding elements that affect the new professional. In this sense, this would involve the need to acquire new skills and knowledge, learn new routines, policies and procedures, understand new cultures and get to know new colleagues. Inner challenges are the inner elements that happen within a person. In this sense, this would include the turmoil of emotions that a new professional go through while developing a new professional identity. The inner challenges are highly affected by the experience of the outer challenges and the process of the inner challenges has been described as a form of transition (Barnes, 2015b).

2.6 TRANSITION

Transition is a concept that involves the way people respond to changes in their life world (Meleis, 1975). People undergo transitions in all aspects of life when they need to incorporate change, for example health to illness, when entering adulthood or developing a new professional identity. It has been described as a journey from one position in life to another and a reconstruction of self-identity (Barnes, 2015b). Even though definitions vary depending on contextual focus, most research agrees that transition is a dynamic process that occurs over time and entails change and adaption (Barnes, 2015b; Kralik, 2006; MacLellan, Levett-Jones & Higgins, 2015).

Theories of transition are usually described in stages which can be either two-phased (Kelly & Mathews, 2001) or multi-staged (Bridges, 2009; Brown & Olshansky, 1997).

New professionals that transition into a new professional role need to let go of their former professional identity before the development of the new professional identity can begin (Benner, 1982; Poronsky, 2013). This indicates that there needs to be an ending of the old identity before the new can develop (Bridges, 2003).

In a multistage transition model, the ending is the first stage and the most crucial as it forms the foundation on which the new RN build their future development (Brown & Olshansky, 1997). This stage has been described to begin even before the actual new employment starts when a student starts planning for a job, or when the experienced RN starts thinking about applying for a new position. When the decision is made and the new employment begins it is an intense process that continues for several months. During this time stress, confusion and anxiety are common emotions (Bridges, 2009; Brown & Olshansky, 1997).

After a period of time, the new professional enters a new stage in his/her transitional journey. This period has been described as a psychological no-man's land and a limbo between two identities called "that somewhere of in-betweenness" (Brides, s. 5, 2003) This stage occurs when the old identity has been abandoned but the new not yet adapted. It is a time of professional re-patterning that can be compared to the winter in which a flowers roots begin to prepare themselves for the springs renewal and blossom (Brown & Olshansky, 1997; Duchscher, 2008). Like a flower during winter, going through this stage requires patience and bravery (Bridges, 2009). Support and understanding of how this stage affects the individual are more important now than in any of the other stages of transition (Bridges, 2009; Meleis, 1975; Poronsky, 2013). In this stage, a new professional needs encouragement, structure and opportunities to grow (Bridges, 2009; Brown & Olshansky, 1997). If too great responsibilities are placed on the new professional during this time, self-confidence may be negatively affected (MacLellan et al., 2015; Sargent & Olmedo, 2013).

The last stage begins when the new RN has made significant advances in becoming more confident and feel more legitimate in the new professional practice (Brown & Olshansky, 1997; Duchscher, 2008). This stage can be described as the new beginning, where new values, attitudes and the new identity is formed (Bridges, 2009).

Healthy, successful transitions may lead to emotional and physical well-being, increased cooperation and well-functioning team relationships as well as increased retention within an organisation (Schumacher & Meleis, 1994). Whereas unhealthy transitions may lead to competence and confidences of the new professionals being negatively affected and lead to professionals leaving the profession (Brown & Olshansky, 1997). For transition to progress successfully and healthy, Bridges (2009) propose the need for four P's: a Purpose, a Picture, a Plan and a Part to play. To find ones "part to play" in a new professional practice a new professional face the outer challenges of being new and the process of becoming a legitimate member of the new community.

2.7 COMMUNITIES OF PRACTICE (COP)

Communities of practice (CoP) is a social learning theory sprung from the notion of learning from experience and from an experienced peer (Lave & Wenger, 1991). Even in prior EMS research, aspects of learning such as experience based knowledge and learning through peers have been illuminated (Ahl et al., 2005). According to Lave and Wenger (1991), being human means being constantly engaged in the pursuit of enterprises of all kinds, from ensuring survival to seeking lofty pleasures. As we pursue these enterprises, we interact, both with other humans and with the world around us. It is through this pursuit of enterprise and through social interactions that humans learn and develop (ibid). Over time, people with sustained pursuit of shared enterprise create communities (Lave & Wenger, 1991; Wenger, 1998, 2000). Lave and Wenger call these communities, communities of practice (CoP). What characterise a community of practice is that's its members have a *joint enterprise*, that is what they want to do, a *mutual engagement* around this enterprise and a *shared repertoire* of concepts, tools and ways of doing things. In the theory of communities of practice, development of a new identity is described as a process of becoming a full member of a community. The new professional enters the community as a legitimate peripheral participant and development occurs through increased level of participation (Lave & Wenger, 1991). The theory of community of practice is used in this thesis as a framework to describe, understand and explain the new professionals process of becoming part of the EMS community.

3 RATIONALE

Previous research agrees that being new in and to professional practice is an emotional, stressful period of time when the new professional faces both inner and outer challenges. It is a period of making the inner journey of transition where a new professional identity is developed, and it is an outer process of becoming a legitimate member of the new community. During the first year, a new professional strives to create a sense of control over the new situation by for example relying on written medical guidelines. However, a professional practice like the EMS is characterized by unpredictability, with guidelines unable to cover all probable situations that may occur. These prerequisites and the wide range of people in need of care in the EMS are similar all over the world; however, the required level of formal competence is different. That there is no global consensus on how to prepare and/or support new professionals in and to this context further indicates the complexity of the context.

With an increased level of emergency calls and ambulance assignments there is an increased need to hire new professionals and to increase retention within the profession. To reduce the risk of professionals leaving the EMS and to support new professionals, the perspectives of those being new to the EMS is needed. Therefore, research based on new professionals' own experiences from their first year is called for.

Currently, there is a lack of research on the experience of being new to the EMS and how to support new professionals during their first year. Without knowledge about what new professionals experience during their first year and what support these new professionals themselves desire, patient safety, healthy transition and retention may be at risk.

4 AIM OF THE THESIS

The overall aim of this work was to increase knowledge about the experience of being new to the EMS and to identify what support new professionals desire during their first year. This work will contribute new knowledge that will be useful when designing formal orientation programmes for new professionals in the EMS.

Research questions:

– How do professionals new to the EMS experience their first year?

– What support do new professionals in the EMS desire during their first year?

The specific aims of the four studies:

I: To explore RNs' experience of their first year of employment in the Swedish ambulance service.

II: To explore challenging encounters experienced by RNs during their first year in the EMS by using the social learning theory of CoP.

III: To identify the support desired by new and inexperienced EMS professionals during their first year in the EMS.

IV: To describe what ANs consider to be important support during the first year in the EMS.

5 RESEARCH APPROACHES

The most important issue when choosing a research approach is the aim of the research. A research approach can be used to explore, explain, describe and predict a phenomenon or outcome (Polit & Beck, 2008). When there are limited descriptions of a phenomenon, exploratory research is suitable and can be a means to identify variables for subsequent explanatory and/or predicative research (Illing, 2014).

The initial aim of this work was to develop, implement and evaluate a model for mentorship in the EMS. When searching the literature for research regarding the experience of being new to the EMS, little was found. There was also a lack of knowledge on how to support new professionals in this professional practice. Therefore, the initial plan was abandoned and the existing overall aim formulated. Since the overall aim of this thesis consists of two research questions, the four studies were planned as two parts, each part aimed to answer one of the two research questions of the overall aim. This is illustrated in Figure 1. In Part I, qualitative research approaches were considered the most appropriate. In Part II, a Delphi method and a quantitative survey approach were considered the most appropriate.

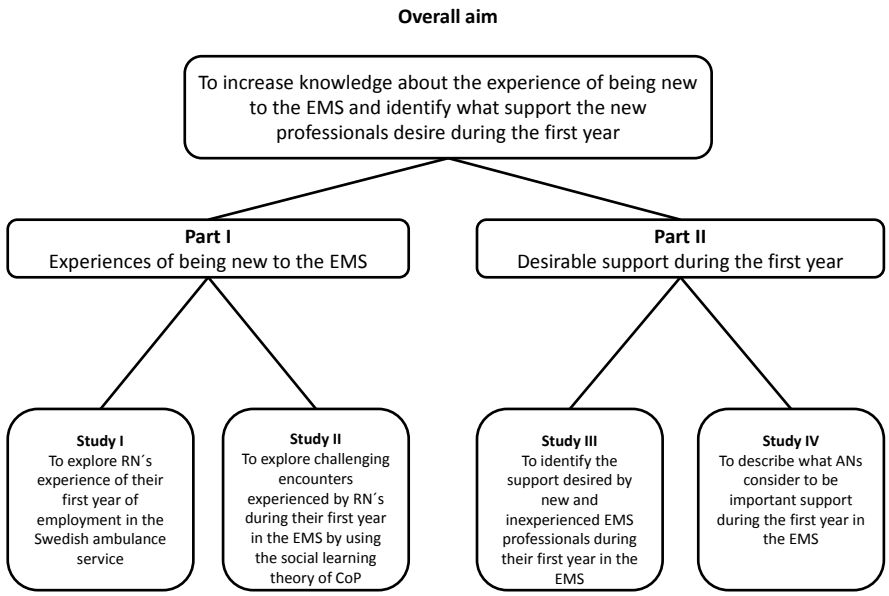

Figure 1. *Overview of the overall aim of the thesis and the aims of the four studies.*

5.1 QUALITATIVE RESEARCH APPROACH

A qualitative research design was used in Studies I and II, since the aim was to explore different aspects of the experiences of the first year in the EMS. Qualitative research aims to create a deeper understanding of a phenomenon in its natural setting, and is often based on the participants' own perspectives (Marshall & Rossman, 2010). Qualitative research is most often based on narratives, interviews and/or observations and requires understanding and co-operation between the researcher and the informant (Patton, 2002).

In this thesis, epistemological and ontological departures were taken from a constructivist perspective. From this perspective, reality is subjective and multiple, and knowledge is created when the researcher interacts with those being researched (Illing, 2014; Lincoln & Guba, 1985; Polit & Beck, 2008). From a constructivist view, texts based on interviews are mutually created by the interviewer and the interviewee and the understanding of such material is always dependent on subjective interpretations (Graneheim & Lundman, 2004). When analysing materials based on interviews it is important that the researcher follow a structured process to minimize the risk that subjective interpretations will cloud the analysis. Qualitative content analysis is a structured research method used to analyse written, verbal or visual communication messages (Elo & Kyngas, 2008; Hsieh & Shannon, 2005). In Studies I, II and Round 1 in the analysis of Study III, data are based on material from interviews and different approaches to content analysis were chosen as methods to structure the analytic process.

Content analysis

Content analysis can be defined as analysis of the manifest or latent content of a body of communicated material, through classification, tabulation and evaluation of key symbols and themes, in order to ascertain its meaning and probable effect (Hsieh & Shannon, 2005; Krippendorff, 2012). There are different approaches to content analysis, manifest/latent and inductive/deductive approach depending on the issue under study (Downe-Wamboldt, 1992; Graneheim, Lindgren, & Lundman, 2017; Graneheim & Lundman, 2004).

In Study I, an inductive latent content analysis as described by Elo and Kyngas (2008) was used. Inductive means that patterns, categories and themes are discovered without the use of an existing framework or coding sheet (Patton, 2002). This approach is recommended when there is not enough earlier knowledge about the phenomenon (Elo & Kyngas, 2008). Latent content analysis means that the underlying meaning of the data is sought and gradually emerges as the researcher interact with the data (Graneheim et al., 2017).

In Study II, a content analysis inspired by the deductive approach described by Elo and Kyngas (2008) was used. A deductive approach is based on existing knowledge and can be used when a researcher wants to test a theory in a new context (Elo & Kyngas, 2008; Polit & Beck, 2008).

In Round 1 of Study III, a manifest, conventional content analysis according to Hsieh and Shannon (2005) was used. Manifest content analysis deals with what is said and describes the visible and obvious components of a text (Graneheim & Lundman, 2004). There is always a level of interpretation involved in content analysis, however, a manifest approach can be used when the researcher wants the analysis to stay close to the text (Graneheim et al., 2017).

For a content analysis to be more than merely a comprehensive summary of an event, experience or phenomenon, the researcher's own involvement and interpretation is essential (Graneheim & Lundman, 2004). This, however, requires integrity of purpose and a clear description of the researcher´s own background and how and what the researcher has done to prevent any predetermined beliefs to affect the analysis process (Polit & Beck, 2008). A description of my background is included in the reflexivity section in this thesis.

5.2 DELPHI TECHNIQUE

The Delphi technique is based on the assumption that group opinion is more valid than individual opinions, and provides group consensus on issues where none previously existed (Asselin & Harper, 2014; Keeney, Hansson, & McKenna, 2011). In Study III, the aim was to identify support that the professionals themselves would desire during their first year. Prior research in this area is languishing and a Delphi technique was considered appropriate to get group opinion on desirable support among new professionals in the EMS.

The general idea of a Delphi study is to engage a panel of experts that individually and anonymously grade statements according to personal opinion. The process is on-going with continuous personal and group feedback until group consensus or stability is reached (Hasson, Keeney, & McKenna, 2000; Keeney et al., 2011; Keeney, Hasson, & McKenna, 2006; Novakowski & Wellar, 2008). It should be noted that the Delphi technique is used to enhance effective decision-making in for example nursing or social care research, not to find a correct answer to a question (Keeney, Hasson, & McKenna, 2001).

In Study III, the informants were considered new to the EMS (1-3 years of experience) and therefore considered to be experts in their own experience of being new and what support they would desire.

5.3 QUANTITATIVE RESEARCH APPROACH

Quantitative research uses numerical data and describes a phenomenon through statistical procedures (Polit & Beck, 2008). Study IV aimed to describe the importance of a number of desirable supports, and a quantitative survey approach was considered suitable for this purpose. The survey in Study IV, consisted of the same statements that were generated in the Delphi study in Study III. In Study IV, the participants were asked to grade each statement on a 7-point Likert scale.

Likert scale type questions

In 1932, Rensis Likert introduced a scale type question designed to measure people's attitudes (Likert, 1932). A typical Likert scale is on a 5-point or 7-point scale where the participants rate or rank their agreement with a particular statement (Sullivan & Artino, 2013). Likert type scales were used in Rounds 2-4 in Study III and in Study IV. When deciding how to use a Likert type scale a researcher needs to decide on how many scale steps to use. With fewer steps, the questionnaire takes a shorter time to respond to and often has higher response rates than those with more steps. However, too few scale steps may affect the reliability of the instrument (Jamieson, 2004). Study III used a Delphi methodology where the participants were asked to grade each of the 70 statements repeatedly in three survey rounds. The methodology is dependent on as high a response rate as possible throughout all rounds; therefore, a 5-point scale was considered the most suitable for this study. Study IV used a questionnaire that required only a one-time response. In this study, a 7-point scale was considered the most suitable.

Another aspect of Likert type scale questions is whether a neutral midpoint or an "undecided" option should be offered. Garland (1991) stated that if offered, a midpoint may lead to social desirability bias. This means that respondents want to appear helpful and not give what they perceive as socially unacceptable answers. The decision about using a midpoint or not should also depends on the level of uncertain or neutral responses that the researcher is willing to tolerate. In Studies III and IV, an odd number of scale steps was used, however the midpoint did not offer an "undecisive" alternative. In both studies the level of importance was of interest and since a level of un-importantness would be of less value to the study result and clinical implications, the scale started with 1= not important and the following steps represented an increasing level of importance.

A third aspect of Likert scale type questions is when it comes to analysing. There seems to be a disagreement in the literature regarding how answers from Likert scale type questions should be analysed, whether or not Likert type grading is of ordinal or interval character (Jamieson, 2004; Knapp, 1990; Norman, 2010). Ordinal numbers can be ordered according to increased or decreased value (2 is

less than 4) and in interval characters, the distance between the numbers is equal (2 is half of 4). During the analysis of Study III, the data from the Likert type scale was treated according to what is suggested by the Delphi methodology (Hansson et al. 2000). In Study IV, the analysis was performed on the assumption that the gradings were of interval character. The reason for this was based on the statement by Norman (2010) that Likert scale type questions are used mostly as interval in education and medical research.

6 METHODS

The four studies in this thesis used a qualitative approach (Studies I and II), the Delphi technique (Study III) and a quantitative approach (Study IV). An overview of the studies and methods is presented in Table 1.

Table 1. Overview of study methods.

Study	Participants	Method for data collection	Method for analysis
Study I	Professionals working with the highest level of formal competence in the EMS team, EMS experience 2-14 months (n=13)	Face to face interviews	Latent content analysis with inductive approach according to the frame work presented by Elo & Kyngäs (2008)
Study II	Professionals working with the highest level of formal competence in the EMS team, EMS experience 1-3 years (n=32)	Telephone interviews	Latent content analysis with deductive approach according to the framework presented by Elo & Kyngäs (2008)
Study III	Same as in Study II (n=32)	A Delphi technique in four rounds: Round 1: Telephone interviews. Round 2-4: Questionnaire with Likert type statements. Grading 1-5 (1=not important, 5=very important)	Round 1: Manifest conventional content analysis as suggested by Hsieh and Shannon (2005) Round 2-4: Descriptive statistics
Study IV	AN that graduated during 2016-2017 from any of the 11 universities that provide the one year, post graduate program of specialist nurse in prehospital emergency care (n= 230)	Survey with 70 Likert type statements about support. Grading 1-7, (1=not important, 7=very important)	Descriptive statistics

6.1 PARTICIPANTS

All four studies in this thesis stem from the participants' own experiences of their first year. This was intentional as this work strived to increase the knowledge of the experience of being new to the EMS. This is best believed to be described by those experiencing it. In the four studies the participants were RNs, ANs or specialist nurses with a specialist degree other than in prehospital emergency care. Henceforth, RN will be used when referring to the participants in the studies.

Study I

Study I aimed to explore RNs´ experiences of their first year in the EMS in Sweden and inclusion criteria were:

- RN working with the highest level of formal competence on the EMS team
- Working full-time in the EMS
- Employed in the EMS for 2-14 months

Inclusion criteria were set based on the belief that professionals working full time would have rich descriptions of all aspects of being new in this context. The level of experience was set with the assumption that during the first 2 months of employment, the new professional would participate in orientation programmes.

Thirty-one EMS providing company directors and/or regional directors representing all twenty-one EMS regions in Sweden received an email with information about the study. Each company director was asked for consent and help in identifying possible participants. After two weeks, one reminder email was sent. Consent was given from eleven regions. Eighty-five possible participants were identified and received an email with information about the study and a question of participation. After two weeks one reminder email was sent. Eight people sent an email and said that they did not fit the inclusion criterion, and fifteen RNs volunteered to participate. Two were excluded due to late consent. After agreeing to participate, a meeting was arranged between the RN and me, according to his/her wishes. Thirteen RNs from seven different districts representing urban, suburban and rural areas in Sweden were interviewed.

Studies II and III

For Studies II and III the inclusion criteria changed slightly based on the knowledge gathered from transition theories. To be able to reflect on the first year, the assumption is that the first year must have passed. Inclusion criteria for participation in Studies II and III were:

- Holding the highest level of formal competence on the EMS team
- Working full-time in the EMS
- Having been employed in the EMS for more than 12 months and less than three years

A purposive sampling strategy and snowball technique were used (Patton, 2002). Initially the participants in Study I and other eligible participants, identified via the author's personal knowledge or by regional directors, were asked to participate. The ones who agreed to participate were asked to suggest other RNs and like a

snowball gets bigger with each turn in the snow, the number of eligible participants increased with every included participant (Patton, 2002). In total 32 RNs, 20 women and 12 men, from 18 different regions in Sweden agreed to participate. These 32 RNs constituted the expert panel in Study III.

Study IV

Since Study IV used a quantitative approach, we wanted to reach a large number of eligible participants from all over Sweden. Due to the respect for personal integrity, this was a challenge as not all organizations can share information about their employees. A way of respecting personal integrity and still being able to reach a large number of eligible participants was via the 11 universities in Sweden that provide the one-year post graduate specialist nurse programme in pre-hospital emergency care. Since the students at the universities may vary greatly in terms of years of prior EMS experience, inclusion criteria were set based on the year of graduation. We also wanted to reach graduates who had gone through the first year of being new in their new professional role and were still able to remember the experience of that first year. Therefore, we included all graduates who had graduated from any of the 11 universities during year 2016 and 2017.

All 11 universities were contacted and addresses to all graduated students from 2016 and 2017 were obtained via registrations offices at the universities. One university chose to keep the identity of the graduated students confidential and administered the questionnaire themselves. For those 27 graduated ANs the questionnaire was coded using a code for the university and executive numbers XX1, XX2, XX3…etc.

A total of 396 eligible participants were identified via university registration offices.

6.2 DATA COLLECTION

Study I

Thirteen face-to-face, semi-structured deep interviews were performed during the spring of 2015. The interviews started with the open question:

Can you tell me about your experiences of your first day in the EMS?

This question was asked with the idea that it would help the RN go back in memory and reflect on their first year. The interview continued with the question:

Can you tell me about your experiences of the rest of your first year?

Follow-up questions like: *Can you elaborate on that further?* or, *Can you tell me more about how you experienced that?* were continuously asked throughout the interviews (Kvale & Brinkman, 2014). Using a semi-structured interview guide ensures that the same basic lines of inquiry are pursued in each interview; however, the researcher is free to probe and ask elaborating questions that will illuminate particular subjects within the bounds of the inquiry (Patton, 2002). After the first two interviews, a reflection was made that an interviewee could be more or less talkative and detailed in their stories. Therefore, the choice was made to add two more open questions to the interview guide. These served as a means to help the RNs to reflect on their experiences from the first year:

Can you tell me about a situation that you felt you were able to handle the way you would have wanted?

Can you tell me about a situation that you did not feel that you were able to handle the way you would have wanted?

There is no such thing as a perfect interviewee and there is no way of knowing in advance who will be detailed and articulate and who will not. The experiences of those who are able to express themselves in an elaborative manner may not be representative of the whole group, and all perspectives are equally important when gathering data through interviews (Krippendorff, 2012). For that reason, it is important for the interviewer to be skilled enough to guide the interviewee to ways of expressing his/her experiences. An interview guide serves the purpose of making sure that the same topics are brought up in every interview (Patton, 2002). In some of the interviews, RNs talked about situations where they felt insecure by themselves, and in these cases, that question was not asked. None of the RNs brought up situations where they had felt secure by themselves.

Interviewing is based on the assumption that we cannot observe everything and that the perspective of others is meaningful and able to be made explicit (Patton, 2002). According to Patton (2002), we interview to find out what is on and in someone else's mind and to gather their stories. Advantages of face-to-face interviews are that the researcher can interact with the own body language and help create a safe environment for the interviewee to feel comfortable in (Kvale & Brinkman, 2014). The body language of the interviewee was also noted and used as guidance in the analysis of the material. Noticing body language may give a richer access to any emotions behind a statement than merely the written text (Krippendorff, 2012). The disadvantages of face-to-face interviews are they are costlier than telephone interviews since the researcher needs to travel to the informant and may also limit the ability to include informants from geographically distant areas (Kvale & Brinkman, 2014).

Studies II and III

Data collection for Study II and for Round 1 in Study III was conducted via telephone interviews during the spring of 2016. Data collection for round 2-4 in Study III was conducted using a questionnaire according to the Delphi technique. Since data collection and analysis for a Delphi occurs simultaneously, they will be described in more detail in the analysis section.

In the telephone interviews, an interview guide was used. It was developed by the research group and piloted in a group of seven people, two novice RNs in the EMS, two researchers and three experienced RNs in the EMS. The interview guide consisted of the following questions:

Can you tell me about a situation during your first year in which you did not experience that you could manage the way you would have liked to?

What support would you have desired to manage that particular situation?

During your first year, what other support, apart from what you just described, would you have desired?

One advantage of telephone interviews is that it is less costly and useful when time is limited (Kvale & Brinkman, 2014). Telephone interviews also enable the researcher interviewing people in geographically distant places (Krippendorff, 2012; Polit & Beck, 2008). By using telephone interviews, RNs from all of Sweden were able to be included. Polit and Beck (2008) suggest that telephone interviews can be acceptable when the interview is short, specific and not too personal. The interviews had a mean time of 14 minutes, and even though this can be considered short for a qualitative interview, the content of the interviews was rich and detailed.

Study IV

In Study IV, data were collected using the questionnaire constructed and validated through the Delphi technique in Study III (Appendix 1). Three hundred ninety-five letters that contained information about the study, a paper version of the questionnaire, a pre-paid return envelope and a personal code to a web-version of the questionnaire were sent on to RNs January 2018. One RN had only an email address registered at the university and received an email containing the same information as the other participants. One reminder was sent after three weeks. Five envelopes were returned due to unknown recipient. Two letters were returned with an explanation from the recipient him/herself that they had never worked in the EMS and so did not feel capable answering the questionnaire, leading to a total of n=389 eligible participants. Two questionnaires were returned with only the first page answered and were excluded due to insufficient data. In total 230 participants (59%) chose to participate and returned the questionnaires fully completed.

6.3 ANALYSIS

Study I

An inductive content analysis was carried out using the framework of preparation, organisation and presentation suggested by Elo and Kyngas (2008). The analytic process followed the structure presented by the marked trail in Figure 2.

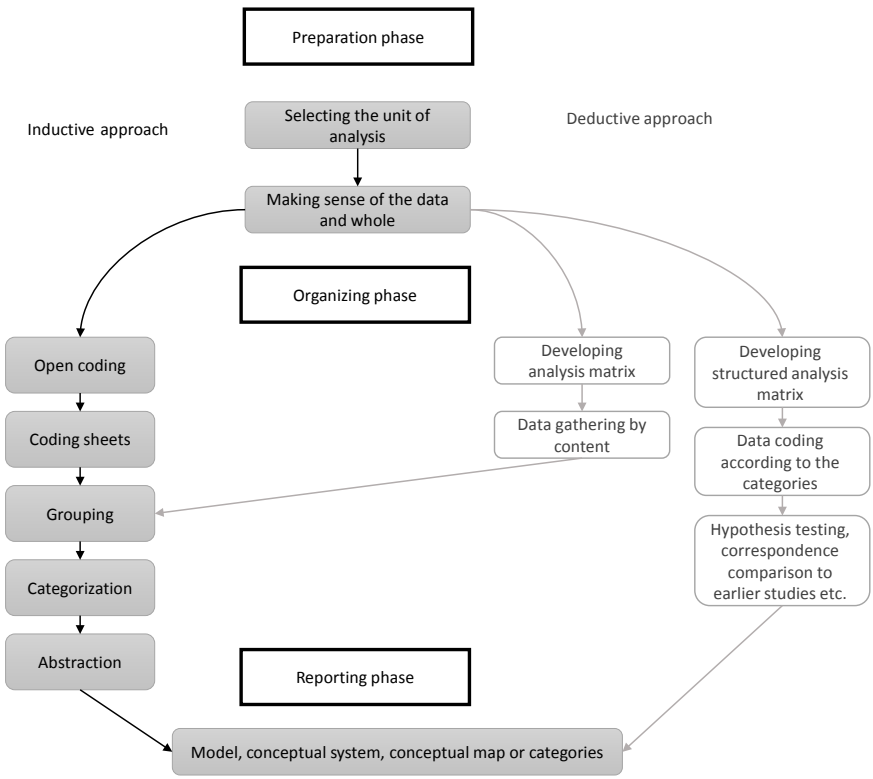

Figure 2. *Inductive analysis process adapted from Elo & Kyngäs (2008). Reproduced with permission by Wiley and Sons.*

Preparation: The first step in a content analysis involves selecting the unit of analysis. In interview studies, the unit of analysis includes parts of or the whole transcribed material of the interview (Graneheim & Lundman, 2004). Each interview was transcribed verbatim and read repeatedly while listening to the original recording in order to create an understanding of the whole.

Organisation: Meaning units were highlighted and condensed and the condensed units were coded with a descriptive word or sentence. At this stage, an effort was made to stay close to the manifest text. After this, the codes were grouped resulting in 10 subcategories labelled with a word or a phrase that described the content of the subcategory (Table 2.).

Table 2. Example from the analytic process adapted from Study I with permission from Nurse Education in Practice.

Meaning unit	Condensed unit	Code	Subcategory	Category
But now I´m in charge and that is hard…it is so exciting but really scary, oh how ambivalent it was.	Ambivalence in feeling excited and scared at the same time.	Excited and scared	Mixed emotions	Experience of transition
That I´m supposed to know, in any and every situation, in some way I´m supposed to be able to manage it.	Expectations of being able to manage any and every situation	Expectations of managing everything	Expectations concerning one's own ability	

Three different areas of content into which the subcategories could be further grouped were identified. These were then abstracted to form the categories from which one main category was derived. Abstraction means that the researcher strives to formulate a general description of the content of the categories or codes in a group (Elo & Kyngas, 2008). Abstraction continues as far as it is reasonable and possible. In Study I, the analysis process was continuously discussed among the authors until a consensus of understanding the data was reached.

Reporting: The results of the analysis were reported using quotes and illustrations.

Study II

A content analysis was carried out, inspired by the framework of preparation, organisation and presentation suggested by Elo and Kyngas (2008). The analysis process followed the structure presented by the marked trail in Figure 3.

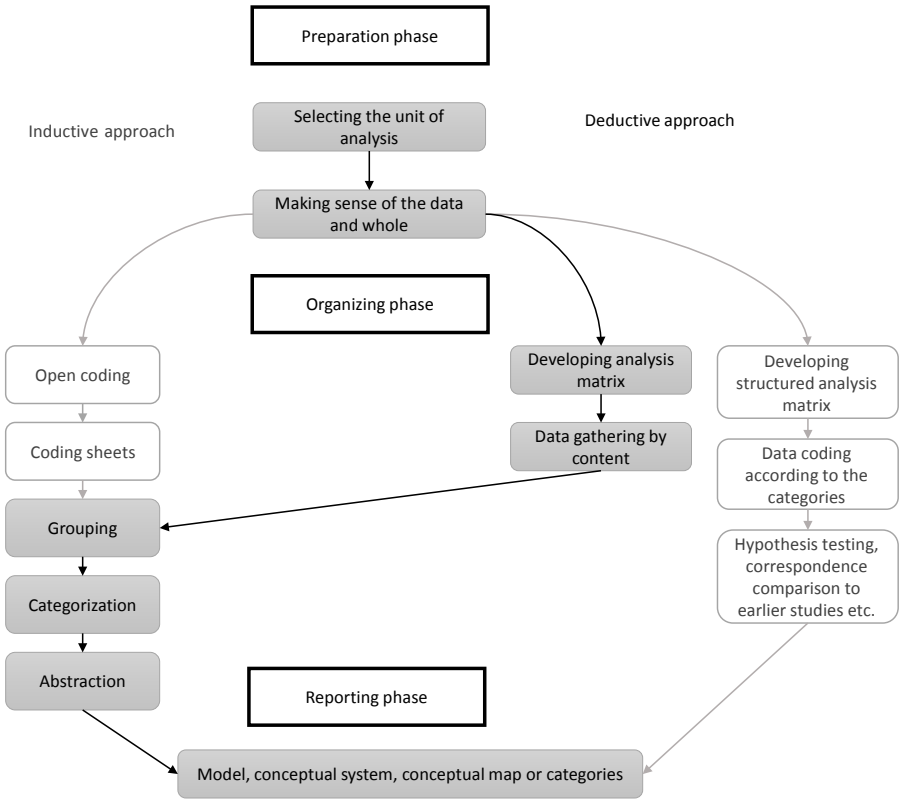

Figure 3. *Deductive analytic process adapted from Elo & Kyngäs (2008). Reproduced with permission by Wiley and Sons.*

Preparation: All interviews were tape-recorded and transcribed verbatim and constituted the unit of analysis. To make sense of the data and of the whole, the answers to the first question in the interviews were read repeatedly.

Organising phase: To identify challenges regarding professional development within a CoP a categorisation matrix based on the three dimensions of a CoP, mutual engagement, joint enterprise and shared repertoire was used (Elo & Kyngas, 2008; Wenger, 1998). Data were gathered by challenges being highlighted in the text, openly coded and grouped according to correspondence with any of the three dimensions of a CoP. Statements that did not fit into any of the dimensions of a CoP were sorted as a fourth content area labelled as 'other challenges'. Recurrent discussions regarding which content area each statement would belong to and the following categorization were performed in the research group until consensus

was reached. Codes within the four content areas were internally grouped and the groups were labelled with a descriptive content-characteristic sentence, forming twelve sub-categories. Abstraction of the twelve sub-categories led to the formulation of three generic categories and the formulation of one main category.

Reporting: The results of the analysis were reported using quotes and illustrations.

Study III

The analysis of a Delphi study is performed after each consecutive data collection round and the process is described by the flowchart in Table 3.

Table 3. Delphi flowchart of the four rounds adapted from Study III with permission http://creativecommons.org/licenses/by/4.0/.

	Round 1	→ **Round 2**	→ **Round 3**	→ **Round 4**
Number of participants	32	32	32	31
Response rate	100%	100%	97%	100%
Drop-out	0	0	1	0
Round activity	Interviews analyzed by manifest content analysis	→ Questionnaire with 65 items	→ Questionnaire with 19 items (14 not reaching consensus in round 2 + 5 new)	→ Questionnaire with 9 items
		↓	↓	↓
		51 items with consensus reached	10 items with consensus reached	3 items with consensus reached

In Round 1, the transcribed data from question 2 and 3 in the 32 telephone interviews were analysed using a manifest content analysis. The manifest content is the visible and obvious content in a written text (Downe-Wamboldt, 1992). In this study, a conventional content analysis as described by Hsieh and Shannon (2005) was used. Conventional content analysis is generally used to describe a phenomenon, in this case the desired support during the first year in the EMS. One advantage of using an approach that produces descriptions that closely connect to the data was that it enabled for the participants to recognize their own wording (Krippendorff, 2012). One challenge of this approach is that the researcher might fail to develop a complete understanding of the context and thereby fail to identify key concepts (Hsieh & Shannon, 2005; Krippendorff, 2012). The analysis was carried out in four steps. First the text was read word for word, to get a sense of

the data as a whole. Next, the exact words from the text that were considered to represent key concepts were highlighted. Reflective notes were written down in the margin of the text during the process. The key concepts were coded using the reflective notes as guidance, and then sorted based on internal relationship forming categories. The categories were then labelled according to content and formulated as statements (Table 4). The analytic process resulted in a questionnaire consisting of 62 statements of support, referred to as items. The 62 items were sorted into eight different categories.

Table 4. Examples of the manifest content analysis process in Round 1 adapted from Study III with permission http://creativecommons.org/licenses/by/4.0/.

Interview	Meaning unit	Code	Item	Category
When you need it to just flow, where time is of essence…and… it's hard to say exactly but you can think of situations where someone dies, gives birth, is severely ill or children…you can do a lot of exercises on those situations…we do practice traffic accidents and stuff like that, but we should have more exercises on the ordinary things… (Expert #1)	Practice situations where time is of the essence and the ordinary things (Expert #1)	Practical exercises (Experts#1,3,5, 12, 13,14,16,17, 18,19,20,22,23, 27,31)	Practice situations that occur rarely (Experts #1,5,12,13,14, 16,17,19,22,23,31) Practice situations that occur frequently (Experts#1,3,5,14,17, 18,19,20,27)	Support from practical exercises

Before Round 2, the questionnaire was piloted in a group of seven people; two RNs new to the EMS, two researchers and three experienced EMS professionals. The pilot resulted in one of the items in the questionnaire being expanded into four items. This resulted in the final questionnaire to be distributed in Round 2, consisting of 65 items.

In Round 2, the questionnaire was distributed to the 32 experts via the KI survey tool, Survey&Report© Version 4.2 (Artologic.net, Växsjö, Sweden). The experts were asked to grade each item on a 5-point Likert scale. In this round, the questionnaire also contained one open question where the experts could add a suggestion for a new item in free-text if they wanted to. Five new items were created from free-text suggestions. For analytical purposes the scale was split into three groups (1-2, 3 and 4-5). Frequencies were calculated for these trichotomized groups, and items that reached the predetermined consensus level of 75% were removed from the questionnaire.

In Round 3, the free-text option was removed and the five additional items were included in the questionnaire. The experts received a questionnaire containing 19 items, the remaining 14 items where consensus had not been reached and the additional 5 items. They also received a PDF document that was supposed to contain their own response and the median of the group response for each statement. The purpose of providing the experts with personal feedback on their own responses in relation to what the group as a whole had responded to a question is to increase the response rate (Keeney et al., 2011). In Round 2, a technical error occurred and only group feedback could be sent in that round. All participants were informed of this. Since the response rate was considerably high (97%) in Round 3 with only one dropout, the technical error was considered to have had little effect on the response rate. In Rounds 3 and 4 the error had been adjusted and all experts were provided with their own personal response as well as group responses in the feedback. In Round 4 three new items reached consensus.

Study IV

In Study IV, the 230 participants (59%) who returned the questionnaire had had the opportunity to answer the questionnaire electronically or via the paper version. All data were registered in the software tool Survey&Report© Version 4.2 (Artologic.net, Växsjö, Sweden), transferred to an Excel spreadsheet, and then analysed by using the statistic software package for Mac, SPSS version 24 (SPSS Inc., Chicago, IL USA). The Likert scale type gradings were attributed as numbers, not labels, and treated as interval data (Norman, 2010). Data was analysed using descriptive statistics and frequencies, mean and standard deviation (SD) were computed. The dependent variables were found to be normally distributed, and an independent t-test was used to compare means regarding; gender (man/woman), level of prior EMS experience (less experience < 3 years/more experience >3 years) and geographic region (rural/large city region) (Polit & Beck, 2008). Statistical significance was set at $p < 0.05$. The 3-year limit in level of prior EMS experience was set in accordance with Benner and the Dreyfus skills acquisition model (Benner, 1982). Mean difference in geographic region was calculated for the two groups where the geographical difference was considered the most in accordance with the definitions made by Swedish Board of Agriculture [Svenska Jordbruksverket] (2018).

The findings of each of the four studies will first be presented consecutively, and then a synthesis of the main findings will be presented in the findings section.

6.4 ETHICAL CONSIDERATIONS

To protect the integrity of the people involved in research, ethical considerations have to be taken into account in any research that includes human beings. This includes respect for confidentiality and gathering informed consent before the research can commence (Illing, 2014). All studies in this thesis were conducted according to the Helsinki Declaration (World Medical Association Declaration of Helsinki [WMA], 2018). An application for ethical approval for all four studies was sent to and approved by the Regional Ethical Review Board in Stockholm (Diary number: 2015/87-31/5). All participants were informed of the purpose and aim of the research in advance, and participation was voluntary. All participants were informed that they could drop out at any time without having to give an explanation as to why, and if so, their data would be excluded from the study without any consequences. In Study I, informed consent was given by the RNs signing a consent form at the beginning of the interviews. In Studies II and III the participants received an email with information about the study. The ones who replied to the email were contacted via telephone about the time of the interview, and consent was given in the recorded material. In Study IV, consent was considered given by the answering of the survey. No personal data were included in the analysed material or presented in the results of any of the four studies.

No sensitive issues were believed to be involved in these studies. However, one of the greatest ethical challenges I came across in doing my studies was just about that. Qualitative interviewing is highly personal and interpersonal because it takes the researcher into the real world of the people being interviewed and opens up what is inside a person (Patton, 2002). During the telephone interviews for Study II and Round 1 of Study III, the participants were very openhearted and talked about mistakes and conflicts that they had encountered. A reflection regarding this may be that it is easier to be openhearted in a telephone interview than when being interviewed face-to-face as the interviewee may feel more anonymous. This leads to a new insight into how difficult it can be for a researcher to determine in advance what is a sensitive issue for another person and what is not. According to Patton (2002) the risk of promising confidentiality is that interviewees may tell the interviewer things they never intended to reveal. Knowing how to handle sensitive and/or unexpected information is important when conducting qualitative interviews. A researcher is neither a therapist nor a judge, nor can he/she behave like a “cold slab of granite” (Patton, 2002 p. 405). When the interview was over, the participants were given an opportunity to talk about what they had experienced without recording if they wished to. None of the participants declared a need for this. There was also an action plan for handling ethical issues if needed. The insight about the ethical challenge of qualitative interviewing was for me, one of the most valuable lessons learned by me during this research work.

6.5 REFLEXIVITY

My research methods are mainly qualitative (Studies I, II and Round I in Study III) and qualitative research requires the researcher to engage with the participants when collecting data. Qualitative research works in and through interpretation and the researcher and the phenomenon being researched cannot be meaningfully separated (Hand, 2003; Marshall & Rossman, 2010). For that reason, a reflection of the researcher's role, voice and perspective is required when communicating qualitative research (Hand, 2003; Ng, Lingard, & Kennedy, 2014; Patton, 2002).

My role is that I am a researcher in a context where I am active. My background is as an ambulance nurse, and my interest in this research area started with my own experience of being new to the EMS. This has provided me with both an insider and an outsider perspective on my research. My insider perspective comes from my own experience of being new and that I have my clinical work in the EMS. Being an insider has helped me understand the participants' descriptions of their experiences by being able to visualize the chaos at a traffic accident and relate to a described feeling of joy when assisting a childbirth. In qualitative research, an insider perspective is an asset when making observations, asking questions and interpreting responses (Hand, 2003). However, it requires constant self-awareness, and this is a challenge that requires practice. A well-trained, experienced qualitative researcher adds value and credibility to the findings, and an inexperienced, ill-prepared researcher casts doubt on what is reported (Patton, 2002). At the beginning of my PhD journey, I was an inexperienced interviewer and researcher. A more experienced interviewer might have improved the quality of the initial interviews for example by asking more elaborating questions at times where I did not. During my research journey, I became a more skilled interviewer and the interviews in my later studies could be conducted more like a conversation and still cover the topics of my interview guide.

During this work, I have consciously tried to be open to what the data say and to keep an open mind in carrying out the analyses. The focus has been that every experience is unique and every person has individual needs, thoughts, backgrounds and desires.

7 MAIN FINDINGS

The four studies in this thesis explored the experience of being new and desirable support during this time. The findings are presented in two parts and followed by a synthesis of the main findings of the thesis. Part I includes the findings of Studies I and II. Part II includes the findings of Studies III and IV.

7.1 STUDIES I AND II

Study I

This study explored RNs' experiences of their first year in the EMS in Sweden and the analysis resulted in three categories and one main category (Figure 4).

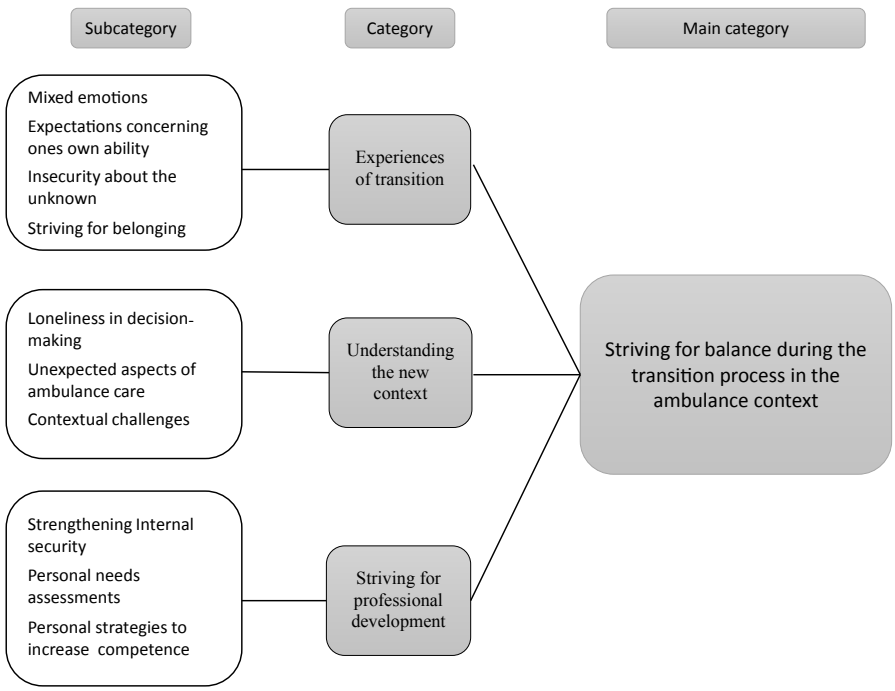

Figure 4. *Illustration of the findings of Study I adapted from Study I with permission by Nurse Education Today.*

The main category, *Striving for balance during the transition process in the ambulance context* presents the experience of being new to the EMS as an act of balance between different experiences and emotions. The category, *Experiences of transition* presents the balance between positive and negative emotions, such

as pride, happiness and excitement versus frustration, vulnerability and insecurity about all that was new and unknown. Experiencing transition was also described as having high expectations of their own ability and striving for belonging. The category, *Understanding the new context,* constituted the RNs' experiences of all that was described as specific to the EMS context. This included the experience of having to make independent, difficult decisions and facing situations that the RNs did not experience that they were prepared to face. What was described as the most specific about the EMS context was not considered to be that of the acuteness of patient care, but the "everything else," such as driving the ambulance, not finding the right address or knowing when, how and what kind of backup to call for. *Striving for professional development* included the experiences of balancing between self-assessed needs for development and unsupervised personal strategies to fill the knowledge gaps. The striving for balance was negatively affected by condescending attitudes from colleagues and lack of structured support.

Study II

This study aimed at exploring challenging encounters experienced by RNs during their first year in the EMS by using the social learning theory CoP. The findings of this study showed that the theory of CoP was suitable when exploring challenging encounters in the EMS. The challenges described during the first year could be related to the three dimensions of a CoP, namely challenges in mutual engagement, joint enterprise and a shared repertoire. In addition, the findings also highlighted the challenges of the EMS context. The findings are described by three generic categories and one main category (Figure 5).

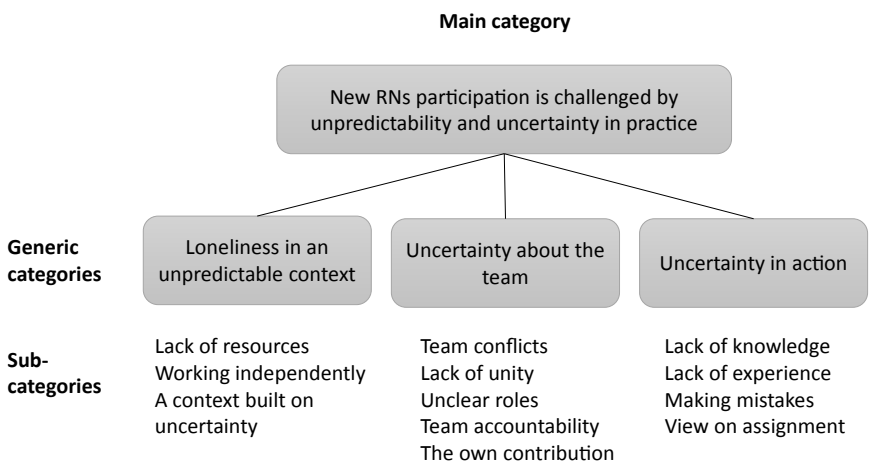

Figure 5. *Illustration of the findings of Study II.*

The main category, *New RNs participation is challenged by unpredictability and uncertainty in practice* was described as not knowing what to expect of oneself or of other healthcare professionals and not being able to be prepared for when and what would happen during the shift. The main category suggests that the challenges that new professionals face during their first year affect their professional development. The category *Loneliness in an unpredictable context* presents challenges such as having to make independent decisions, with limited resources and support when unexpected events occur. *Uncertainty about the team* presents challenges such as conflicts on the team due to unclear roles and a sense of a non-existent team unity. The RNs felt uncertain about whether or not they could trust their own competence or the competence of others, which was described as lack of team accountability. *Uncertainty in action*, is presented as feeling uncertain about how to handle a new situation, and having an EMT colleague sometimes increased this uncertainty in action. Due to different level of formal education, the RNs and the EMT often did not share the same view about what needed to be done, which led to conflicts on the team. When a wrong decision was made due to accepting the advice of a colleague, the RNs would blame themselves for not standing up for their own beliefs. The new RNs also described a self-perceived lack of knowledge and lack of experience as challenging when trying to handle every new situation in the EMS.

7.2 STUDIES III AND IV

Study III

This study aimed to identify the support desired by new and inexperienced EMS professionals during their first year in the EMS. The group of experts identified 70 items regarding desirable support. In 64 of these 70 items, the group also agreed on the level of importance. In 63 items, the group agreed that the level of importance was important or very important, graded 4 or 5. In one item, the group agreed on level of importance to be not important, graded 1 or 2. All items and group gradings are presented with mean values and SD in Appendix 2.

Study IV

This study in this thesis aimed to describe what ambulance nurses consider to be important support during the first year. The survey study resulted in 14 of the 70 items from the Delphi study being graded with a mean value > 6.00 and SD < 1.00 (Table 5). These 14 statements, with mean values ranging between 6.73 and 6.20, were considered to be the most important during the first year in the EMS. In all statements, the mean values from women were higher than the mean values from men; this was, however, not statistically significant in all statements. There was also a statistically significant difference regarding geographic region and level of prior EMS experience in some of the items (Table 5).

Table 5. The 14 most important supports, mean values of the whole group and according to gender, geographic region and years of EMS experience (Study IV).

	Whole group	Gender			Years of EMS experience			Geography		
Statement	**Mean**	**Male**	**Female**	**p-value**	**< 3 yrs**	**> 3 yrs**	**p-value**	**Urban**	**Rural**	**p-value**
Have a structured introduction period	6.73	6.67	6.68	0.246	6.75	6.72	0.752	6.77	6.68	0.579
Get peer support debriefing in extreme situations	6.71	6.70	6.73	0.716	6.70	6.72	0.891	6.59	6.82	0.108
Have a trustworthy colleague	6.68	6.55	6.79	0.007*	6.69	6.68	0.943	6.62	6.87	0.016*
Have access to applicable medical guidelines	6.68	6.59	6.76	0.063	6.72	6.67	0.624	6.31	6.75	0.027*
Be respected and accepted by the colleagues at the ambulance station	6.59	6.43	6.73	0.001*	6.53	6.61	0.447	6.41	6.75	0.019*
There is an open climate at the ambulance station	6.56	6.46	6.64	0.046*	6.67	6.51	0.086	6.41	6.65	0.137
Trust in the ambulance station manager	6.50	6.31	6.65	0.002*	6.63	6.45	0.073	6.36	6.58	0.151
The organization is characterized by professionalism	6.50	6.33	6.63	0.008*	6.52	6.49	0.819	6.13	6.68	0.013*
Practice methods to get a structured way to work (e.g. according to the ABCDE-principle)	6.50	6.36	6.62	0.035*	6.61	6.46	0.246	6.49	6.53	0.812
The organization is characterized by equally	6.50	6.38	6.60	0.076	6.52	6.49	0.871	6.15	6.73	0.010*
Have an experienced colleague	6.47	6.31	6.61	0.013*	6.67	6.40	0.008*	6.38	6.48	0.630
Participate in courses along with experienced colleagues	6.43	6.27	6.58	0.008*	6.44	6.43	0.977	6.38	6.57	0.228
Get feedback on the own actions from the receiving unit	6.40	6.31	6.48	0.200	6.39	6.41	0.895	6.36	6.52	0.457
The organization provides time for professional development activities	6.20	6.08	6.31	0.061	6.23	6.19	0.767	6.28	6.24	0.816

* $p < 0.05$

7.3 SYNTHESIS OF THE MAIN FINDINGS

Study I and II

To explore the experience of being new to the EMS a synthesis the findings of Studies I and II was performed. This was done by analysing how and if the different subcategories of the two studies relate to each other (Table 6).

Table 6. Overview of the main findings of Studies I and II.

	Main category	Generic Categories	Subcategories
Study I	Striving for balance during the transition process in the ambulance context	Experiences of transition	Mixed emotions
			Expectations concerning one´s own ability
			Insecurity about the unknown
			Striving for belonging
		Understanding the new context	Loneliness in decision-making
			Unexpected aspects of ambulance care
			Contextual challenges
		Striving for professional development	Strengthening internal security
			Personal needs assessments
			Personal strategies to increase competence
Study II	New RNs participation is challenged by unpredictability and uncertainty in the practice	Loneliness in an unpredictable practice	Lack of resources
			Working independently
			A context built on uncertainty
		Uncertainty about the team	Team conflicts
			Lack of unity
			Unclear roles
			Team accountability
			The own contribution
		Uncertainty in action	Lack of knowledge
			Lack of experience
			Making mistakes
			View on assignment

By reorganising the subcategories, a common theme emerged that describes the experience of being new to the EMS. The subcategories were organized and formed three main categories, Identity, Community and Practice (Table 7).

Table 7. Result of the synthesis of the findings of Studies I and II.

Identity	**Community**	**Practice**
Mixed emotions	Unclear roles	Loneliness in decision-making
Expectations concerning one´s own ability	Team conflicts	Unexpected aspects of ambulance care
Insecurity about the unknown	Team accountability	Contextual challenges
Striving for belonging	View on assignment	Lack of resources
Strengthening internal security	Lack of unity	Working independently
Personal needs assessments		A context built on uncertainty
Personal strategies to increase competence		
Lack of knowledge		
Making mistakes		
Lack of experience		
The own contribution		

Eleven of the subcategories described different aspects of the feelings and emotions that an individual in the EMS experiences during the first year. The subcategories in this category focus on the person and what happens in a person's mind when being new to the EMS. Wenger (1998) refers to this as *Identity*.

Five of the subcategories concerned the colleague/colleagues and becoming part of the EMS team. These subcategories also describe aspects that affected the process of becoming a team. Lave and Wenger (1991) describe this as the process that occur when a new member strives to move from legitimate peripheral participation to full participation in the *Community.*

Six of the subcategories were about the "how" and "what" of the EMS context. These six subcategories were about the independence and loneliness in the EMS (the repertoire), the contextual challenges (the enterprise) and the striving to achieve the best care for a person despite challenging contextual prerequisites (the engagement). This category includes the three dimensions of a *practice* (Wenger, 1998).

The three categories of the synthesis should not be separated as three separate aspects of the experience of being new but viewed as a whole. The aspects of the experiences of being new to the EMS that concerned the individual development of a new professional identity were highly influenced by and interrelated with the EMS practice and the EMS community. Together, the three categories should be treated as a triality of the experience of being new to the EMS. A triality is defined as the state of being threefold (Collins Dictionary, 2018). Metaphorically, this could be illustrated by a threefold knot (Figure 6), where all three knots are part of the same structure and each depends on the other. If one knot is pulled, the other two will be affected. One knot is represented by the practice, one by community and one by identity.

Figure 6. *Illustration of the triality of the experience of being new. Adapted with permission from the creator Jim.belk https://commons.wikimedia.org/wiki/File:Tricoloring.png#filelinks.*

Studies III and IV

To look for similarities in the two studies that explored what support new professionals desire during the first year in the EMS, a synthesis was made of the highest graded items in both Study III and Study IV. When comparing the 14 highest graded statements of each study, 11 statements aligned. By adding the mean values of Studies III and IV these 11 statements were ordered as follows (Table 8).

Table 8. Results of the synthesis of the results of Studies III and IV.

11 highest graded in both studies	Study III+IV	Study III		Study IV	
Statement	**Mean**	**Mean**	**Std. deviation**	**Mean**	**Std. deviation**
Get peer support debriefing in extreme situations	11.71	5.0	0.2	6.71	0.68
Have a structured introduction period	11.63	4.9	0.3	6.73	0.71
Have a trustworthy colleague	11.58	4.9	0.4	6.68	0.65
Have access to applicable medical guidelines	11.48	4.8	0.4	6.68	0.69
Be respected and accepted by the colleagues at the ambulance station	11.39	4.8	0.5	6.59	0.68
There is an open climate at the ambulance station	11.36	4.8	0.6	6.56	0.68
Trust in the ambulance station manager	11.30	4.8	0.4	6.50	0.77
The organization is characterized by professionalism	11.30	4.8	0.6	6.50	0.82
Practice methods to get a structured way to work (e.g. according to the ABCDE-principle)	11.30	4.8	0.7	6.50	0.89
Have an experienced colleague	11.27	4.8	0.5	6.47	0.89
Get feedback on the own actions from the receiving unit	11.20	4.8	0.4	6.40	0.97

The 11 highest graded statements can be read as the most desirable in a total of 70 desirable forms of support during the first year in the EMS. To have peer support debriefing in extreme situations got the highest combined mean value.

The findings of the synthesis of Studies III and IV were adapted to the findings of the synthesis of Studies I and II and understood by the theory of CoP. The desirable supports aim at supporting the professional from a holistic point of view during the first year; however, the desirable supports can be sorted according to the different aspects of the triality of being new to the EMS.

When dealing with the challenges of *identity,* the new professional can be supported in terms of: Having a structured introduction period, getting peer support debriefing in extreme situations, having an experienced colleague and getting feedback about the own actions from the receiving unit.

When dealing with the challenging aspects of *practice,* the new professional can be supported in terms of: Having applicable medical guidelines, the organization is characterized by professionalism and practice ways to get a structured way to work (e.g., according to the ABCDE-principle).

When dealing with the challenging aspects of *community,* the new professional can be supported in terms of: Having a trustworthy colleague, being respected and accepted by the colleagues at the ambulance station, there is an open climate at the ambulance station, and when there is trust in the ambulance station manager.

8 DISCUSSION

The synthesis of the four studies illuminates for the first time the experiences of being new to the EMS context and the desirable support during the first year. Being new to the EMS was experienced as a triality between the practice, the community and the identity. This triality was not described as three separate parts of an experience, but one experience being built up by three dimensions of equal importance to the new professional.

The experience of being new expressed more focus on the social and cultural interplay between the practice, the community and the identity than for example on learning new routines, medical treatments and the caring for patients. Also, the desired support focused more on trust, being respected and accepted and professionalism than on practical skills training. Since, educational programmes generally seem to have their main focus on medical knowledge (Sjolin et al., 2015; Yardley et al., 2018). The findings of this thesis may imply that the medical training or educational programmes that a university provides when preparing new professionals to the EMS in Sweden is adequate when it comes to the enterprise of medical knowledge and skills. Challenges such as handling social and cultural interplay however, have historically got less attention, both in educational programmes and in orientation to practice programmes (Yardley et al., 2018). This thesis illuminates that there is a need to prepare new professionals to handle the social and cultural interplay in the EMS in addition to medical treatments.

Even though the experience of being new to the EMS was a triality of the identity, community and practice, to understand the overall experience of being new to the EMS and desirable supports, it is important to illuminate how each part in this triality influences the others. Therefore, the identity, the practice and the community will be discussed one by one.

Identity

One knot in the triality of the experience of being new was the developing a new professional identity. According to Wenger (1998) a person's identity is shaped thought participation in a social community and what a person experience is understood thought this participation.

When a person is a full member of a community, he/she is in familiar territory. The person is experienced as competent and knows how to engage with other members of the community. He/she understands his/her own actions and the actions of others because he/she understands why and how things are done (Wenger, 1998). Being new to the EMS was considered challenging as the professional had left

an old professional practice where he/she was an expert and now suddenly found him/herself being a novice again. This move from expert to novice is an emotional process that can be described by the phases of transition (Barnes, 2015b; MacLellan et al., 2015; Meleis, Sawyer, Im, Hilfinger Messias, & Schumacher, 2000; Schumacher & Meleis, 1994). The RNs in this thesis all described emotions and experiences of transition.

When a person enters a new practice, he/she enters the first phase of transition, where the old identity and the sense of being competent need to abandoned (Bridges, 2009). The separation between the old and the new is often descried as a period of emotional turmoil and self-doubt about one's own competence (Barnes, 2015b; Poronsky, 2013). According to the theory of CoP, identity is shaped through an interplay between what we know and what we do not know however, entering a constantly shifting context like that of the EMS places the new professional in an endless combination of unknown situations which may lead to a preponderance of "don´t knows" and subsequently more self-doubt. The large number (70 items) of desirable supports identified in Study III highlight that the EMS is a challenging context to be new to.

While experiencing the second phase of transition, the in-betweenness, it has been argued that new professionals benefit from having limited responsibility, progressive independence and being able to allow assessments to take time (Andersson & Edberg, 2010; Barnes, 2015a; Kelly & Mathews, 2001; Yardley et al., 2018). The prerequisites for the EMS context such as the acuteness of some situations and working independently cannot be changed to suit the needs of a new professional transition. However, it is important to underscore that new professionals to a greater extent than experienced need structure, a continuum and something solid (Benner, Tanner, & Chesla, 1992). This is highlighted in this thesis by supports such as a structured introduction period, having an experienced colleague, getting feedback about the own actions from the receiving unit and getting peer support debriefing in extreme situations being among the most important. Those desirable supports can be seen as means by which new professionals strive to create a sense of security and solidity even in a practice like the EMS.

The third phase of transition, the new beginning, is where the new identity is being formed (Bridges, 2009). What a person experiences, interprets, understands, does and doesn't do, knows, doesn't know and doesn't try to know, is negotiated in the in the course of doing the job and interacting with others (Wenger, 1998). Professionals who develop a strong professional identity tend to stay in the profession to a greater extent than professionals who don't (St-Martin, Harripaul, Antonacci, Laframboise, & Purden, 2015). The importance of the colleague in this process seems to go beyond merely acting so that the new professional feels

welcome and respected in the EMS community. The experienced colleague acts like a role model who will shape the new professional's identity. So, it is important that the colleague is not just experienced but also friendly, reliable and genuinely interested in helping the new professional in developing his/her new identity. In this process colleagues who act as mentors have been acknowledged as beneficial for both the new professional, the mentor and the organisation (Harrington, 2011; Jakubik, Eliades, Gavriloff, & Weese, 2011; Stenfors-Hayes et al., 2010). Despite the many positive effects of mentorship, nurse mentors have reported feelings of ambiguity and overload when working and interacting with new professionals (Harrington, 2011; Omansky, 2010). When implementing a mentorship programme, the importance of personal recognition and support for the mentors is highlighted in the literature (ibid).

The Practice

The practice is what unites individuals, what brings them together. When there is a shared view and mutual engagement about what needs to be done and a shared repertoire around how to do what needs to be done, a practice emerges (Wenger, 1998). However, a common view is only common when the view is held in common. The conflicts and lack of unity sensed and described by the professionals in Studies I and II seem to indicate that the view of the EMS practice is not always common. One speculation about the reason for this is argued in Study II. This speculation stems from a question regarding the fact that EMTs and RNs in the EMS may belong to two different CoPs, in parallel to one common and therefore, their view about enterprise may differ. Another suggestion for the reason as to why the view of enterprise in the EMS is not shared between the professionals could be what Kramer (1974) refers to as reality shock. This means that what is taught in academic settings is not in line with what is practiced in the professional practice (Kramer, 1974). However, in the EMS there may be a risk that the reality shock is reversed. With the use of unsupervised strategies to fill knowledge gaps as the ones that the new professionals in Study I described when formal support was lacking, reality shock in the EMS may imply that what is actually practiced in the EMS deviates from the evidence-based knowledge taught in academic settings.

Another aspect of the EMS practice involved the prerequisites of the EMS context. The EMS context is described by the participants in this thesis and other research as different from that of the in-hospital environment (Givati, Markham, & Street, 2018; Mausz & Tavares, 2017). When being new to an in-hospital ward, new professionals highlight learning the new routines and new desirable skills as one of the challenges (Cockerham et al., 2011). In this thesis however, learning new routines was not in focus. What affected the experience of being new to the EMS entailed EMS-specific aspects, such as working independently in an unpredictable context,

driving an ambulance and communicating via radio. This may indicate that strict routines are less common due to the unpredictable nature of the EMS practice. On the other hand, desirable supports such as practice methods to get a structured way to work and the desire for applicable medical guidelines, indicate that new professionals in the EMS strive for a way to create a sense of taking control of the unpredictable practice. The applicability of the existing medical guidelines in the EMS in Sweden has been questioned before (Hagiwara et al., 2013). To support new professionals, it seems that further investigation of the applicability of the guidelines is needed.

Even though the EMS context was described as unpredictable and challenging (Study II), this experience would be eased if there were a sense of unity on the team. Wenger (1998) argues that a situation may be experienced as challenging, but it is the meaning derived from the situation that will determine whether the situation will lead to positive professional development or not. Since the view of caring, what needed to be done and how was not always shared on the EMS team, conflicts occurred. If being left unsolved, there may be a risk that conflicts lead to negative meaning being derived from a challenging situation. Enhancing a common view in the EMS may be achieved through formalized reflection on and in action (Wihlborg et al., 2016). The desire that the EMS organisation is characterised by professionalism may also be seen as a call for a practice where the professionals share views and values. Kramer, Brewer, and Maguire (2013) refer to this as a healthy work environment and, if achieved, a healthy work environment has a positive effect on both reality shock and transition. Numminen et al. (2015) also found a correlation between the perception of practice environment and retention, where satisfaction and positive perception of practice lead to higher competence and intention to stay in the profession.

In the light of the practice knot in the triality of being new to the EMS, it seems important to ensure that new professionals are prepared for the specifics of the EMS context and supported with a focus on creating a common view by all professionals in the EMS.

The Community

The next knot in the triality of being new to the EMS is the community. A practice exists because of the people engaged in it, and the people engaged in practice form the community (Wenger, 2000). In this thesis, all EMS professionals constitute the community, both the one team colleague and other colleagues, as well as managers at the station and/or in the organisation. Mutual engagement in the community, and whatever it takes to make mutual engagement possible are the key to a successful practice (Wenger, 1998). The informants in this thesis describe a harsh culture,

bullying behaviour, conflicts or a sense of non-existent unity. This affected the mutual engagement around patient care. Understanding the professional and organizational culture in a new community has been described as important but challenging when being new (Pecukonis, Doyle, & Bliss, 2008). Culture can be defined as the social complexities within a workplace (Strouse, Nickerson, & McCloskey, 2018). In a study by Strouse and Nickerson (2016) culture is described as the glue that holds an organisation together and at the same time as what "eats its young": it can be multifaceted, multivalent and contradictory (Strouse & Nickerson, 2016). That the experience of culture can be contradictory is highlighted when comparing the culture described by EMS professionals in a study by Ahl et al. (2005) with the culture described by the new professionals in Studies I and II. The experienced professionals in Ahl et al. (2005) describe their culture as a brotherhood similar to that in military settings and there was a strong sense of unity among the professionals. Meanwhile the RNs in Studies I and II described a sense of non-existent unity. This suggests that the process of becoming a respected member of an EMS team takes time. It seems that new professionals have to "earn" their position in the EMS community and vice versa. The new professionals did not always know whether or not they could trust the competence of the experienced peer and the experienced professionals had to prove themselves to be trusted by the new professional. Supports such as having a trustworthy colleague and that there is an open climate at the ambulance station seem especially important to support new professional to enter the community of the EMS.

If mutual engagement is the key to a successful practice, then development is what makes practice move forward and prevents it from stagnation and resolution. Development, which Lave and Wenger (1991) refer to as participation, is what happens in the interplay between the new professional and the experienced colleagues in the community. In this interplay, it is the meaning derived from the experience that will determine whether or not the community will thrive or stagnate (Wenger, 1998). New professionals bring new knowledge and ideas, and these ideas can either be suppressed or accepted by the experienced colleagues, or it can lead to conflicts. Trust in the organisational manager might lead to the new professionals turning to the manager for support when conflicts occur. If discussed with an organisational manager, unsettled conflicts may be resolved and lead to reconstruction of knowledge.

Trust was also described as an important attribute of the colleague and to being respected and accepted by the colleagues at the ambulance station. To be respected and be accepted has been described as a key factor for building and establishing trust in a community (Andersson & Edberg, 2010). The new professionals in the EMS placed trusted in their peers to support them when they encountered a challenging situation (Studies I, II, III and IV). However, sometimes this was met by

condescending attitudes and the new professional reflected that they would refrain from seeking support in the future (Study I and II). When help is not sought as needed, this can lead to medical errors, accidents and poor work performance (Rush, Adamack, Gordon, & Janke, 2014). New professionals place considerable importance on emotional support and collegiality as contributing to their sense of confidence (Henderson, Ossenberg, & Tyler, 2015). Absence of supportive attitudes, unwillingness to answer questions from new colleagues and bullying behaviours can be a sign of distrust in a community (Ebrahimi, Hassankhani, Negarandeh, Azizi, & Gillespie, 2016; Pfaff, Baxter, Jack, & Ploeg, 2014; Rush et al., 2014). Trust is vital between the colleagues in an organization like the EMS (Ahl et al., 2005). With improved understanding of the reasons for distrust, effective relationships between new and experienced professionals can be built (van der Werff & Buckley, 2017).

Understanding the reasons for unsupportive attitudes is also important in any organization, as cultures tend to be inherited by the next generation (Ebrahimi et al., 2016).

8.1 METHODOLOGICAL REFLECTIONS

The four studies in this thesis were carried out using three different approaches: a qualitative, a Delphi and a quantitative approach. During the work of the four studies, there are aspects that might have influenced the findings in various ways.

All four studies included participants from all over Sweden; this wide variety in gender, background and geographic region made it possible to capture a broad perspective of the experience of being new and desirable supports. The participants also had in the different levels of prior experience, both EMS experience and in-hospital experience. The difference in prior experience may affect the experience of the first year in the EMS. Perhaps it would have been ideal to be able to include participants with the exact same amount of and type of prior experience. However, this is not the reality in the EMS in Sweden and even if possible, including participants with the exact level of prior nursing experience would not be representative of the EMS population. Even though prior nursing experience may affect the transition to specialist nursing care the evidence for this is sparse (Faraz, 2017). Barnes (2015a) for example found no statistical significance that prior RN experience would be either a promotor or inhibitor of the transition process from RN to NP. Instead Barnes (2015a) argues that the type of prior experience, not the numbers of years, should be in focus. Clear descriptions of participant demography are included in all studies to clarify to the participants' background as much as possible.

In Studies I and II the qualitative data were transcribed and coded by me. After the first interviews had been coded, the codes were compared to the meaning units and discussed in the research group. Then I performed coding of the rest of the data in the same way. I was the only one who had full access to all data, which can be seen as a limitation. However, since different parts of all interviews were provided to the group and discussed continuously, this was not necessary disadvantageous. Member checking, letting the informants themselves read the analysed data and giving feedback about the researcher's interpretations could have been used to further validate the data (Polit & Beck, 2008; Shenton, 2004). The Delphi methodology used in Study III uses member checking by the iterative nature of the process (Keeney & Hansson, 2011). In Studies I and II, member checking was not used as it is considered time-consuming and resource-consuming (Shenton, 2004). Instead frequent meetings of the research group were held throughout the entire analysis process to ensure agreement in the way data were interpreted, coded and categorised (Graneheim et al., 2017).

In Study II, the theory of CoP was used as a theoretical framework to identify challenges during the first year. The theory of CoP is a social learning theory where the context in which the individual acts and the people he/she interacts with are considered to influence the individual development Lave and Wenger (1991). Since the influence of both the EMS context and the colleague was highlighted in Study I, the theory of CoP was considered a suitable way to further explore the notion of being new to the EMS. Choosing CoP does not mean that other learning theories are less influential. Different learning theories view the notion of learning and development from different points of view, and CoP is one.

In Studies III and IV, only one of the co-researchers (VL) and I had full access to data in SPSS© and Survey&Report©. After transferring data from the paper version questionnaires to an Excel spreadsheet, one author (VL) checked a random sample for coherence between the paper version and spreadsheet. In Study III, the Delphi technique was used and the strengths of the method i.e. group consensus, expert assessment, anonymity and systematic feedback, may also be its limitations (Keeney et al., 2001; Kennedy, 2004). The analysis was performed after each consecutive round and discussed frequently with one of the co-authors (MJ) who are very knowledgeable about the technique.

In Study IV, the analytic process was discussed with a statistician at KI to ensure appropriate methods of analysis, and the process was then discussed frequently in the research group.

8.2 TRUSTWORTHINESS

A qualitative research approach can be found in Studies I, II and III. Although the Delphi technique is not described as a qualitative method (Keeney et al., 2001), the initial Round 1 in Study III was carried out using a qualitative approach. Study IV used a quantitative approach. The criterion to describe different aspects concerning the research quality differ depending on research paradigm. In a naturalistic paradigm, dependability, credibility and transferability are most often used to discuss the trustworthiness of a study (Guba & Lincoln, 1994; Lincoln & Guba, 1985; Patton, 2002). Even though the research approaches in this thesis can be said to originate from different paradigms, my epistemological belief does not, and the terms credibility, dependability and transferability are used to address the issues of quality. In the following sections a discussion regarding how these criteria are met is provided.

Credibility

Credibility is the criterion for how well the work aligns with its purpose (Polit & Beck, 2008). Strategies to achieve credibility involve the choice of context, participants, methodological approach, data collection methods and triangulation (Patton, 2002). All studies are performed in the EMS context and include full-time employed EMS professionals. In all studies, a purposive sampling strategy was used to include representative participants. In Study IV a total population of all graduates from any of the 11 universities in Sweden providing the prehospital emergency care specialist nurse education were included. The Demography of the participants was presented in a table in each study to help the reader to determine credibility (Elo et al., 2014). During the research process, continuous discussions were held in the author group to make sure that coding and categories were representative of the content. The author group for each study was constituted by a mix of professionals who could contribute with both insider and outsider perspectives of the researched subject (Thurmond, 2001). With the aim of strengthening credibility, quotes and illustrative figures were used when presenting the findings (Elo et al., 2014). The findings are also discussed using both supporting and contradicting examples when available.

Dependability

Dependability is the criterion for the stability of data over time and conditions (Polit & Beck, 2008). To enhance dependability only one person performed the interviews in Studies I, II and III. This was done as a means to ensure that all interviews were performed in the same matter. Also, a predetermined interview guide was used in all interviews. The interview guide was developed by all authors and

for Studies II and III the guide was piloted to check that the "right questions were asked in the right way" (Elo et al., 2014, p.4). All interviews were performed during a limited period of time to ensure that all interviews were performed in similar ways and covered the same areas. Dependability is affected by sample size (Elo et al., 2014). In qualitative research, there is no generally accepted optimal sample size because the sample size is dependent on the research question (Polit & Beck, 2008). In Studies I, II and III, all eligible participants who agreed to participate during the data collection period were included. One indication that sample size is optimal is when no new insights or aspects of the researched phenomenon emerges from the collected data (Elo et al., 2014). In Study I, the aim was to gather as rich and broad descriptions of the experiences of the first year as possible; as no new aspects of the first year emerged with the last two interviews, this was considered to have been achieved. In Studies II and III, the aim was to get as many different descriptions of challenging encounters as possible. The data collected from the 32 telephone interviews were considered sufficient for the study purpose; however, there could always be additional aspects of challenging encounters during the first year that were not highlighted in these studies.

Transferability

Transferability refers to the extent to which the findings of a study can be transferred to other contexts or groups (Polit & Beck, 2008). A researcher can make efforts to describe the sending context and the steps of analysis as thorough as possible. However, only the reader can determine whether or not a sending context is similar to their own and determine transferability of the findings (Lincoln & Guba, 1985). To help a reader to determine the transferability, an effort was made in all studies to describe the Swedish EMS context and the participants in detail. In Studies I and II, quotes and illustrations were also used to present the findings (Elo & Kyngas, 2008; Graneheim & Lundman, 2004). That 11 of the 14 highest graded items in Studies III and IV aligned can be interpreted as stability in data and that the findings of the synthesis may be transferable. To further enhance transferability, it would be of interest to investigate desirable supports, using the same questionnaire in an international setting.

9 CONCLUSIONS

This thesis aims to contribute to increased knowledge of the experience of being new to the EMS and the desirable support during the first year. From the findings of the four studies and the synthesis, the following conclusions can be drawn:

The experience of being new to the EMS is a triality where one's own personal development of a new identity, the colleague and the rest of the EMS community and the EMS practice highly influence the experience. The findings of the four studies conclude that it is important to emphasise all three dimensions of the triality when supporting new professionals in the EMS. This thesis also identifies the importance of all members of the EMS community having mutual engagement and a shared view about what, when and how the patient care in the EMS should be provided.

The transition to a new professional identity takes time and involves emotions such as self-doubt and lack of confidence in one's own competence. During this time, a new professional needs support. The supports desired by professionals new to the EMS focus on ways to handle unpredictability and uncertainty. This focus stems from the experience of the EMS context as unpredictable and lonely. The supports described in this thesis imply that new professionals strive to create a sense of stability and control. The attitudes and culture of the EMS community and the highly influential colleague can both strengthen and weaken the new RN in this strive and in the development of their new identity.

10 CLINICAL IMPLICATIONS

The findings and conclusions of this work can be used in any professional practice with prerequisites like that of the EMS. With the increased knowledge of the notion of being new generated in this work as a base, support that aims at strengthening new professionals, increasing retention and establishing a welcoming culture in the own organisation may be developed. The following bullet point serves as suggestions as to how to use the knowledge generated by this thesis.

- The knowlegde provided by this thesis may also be of use when designing formal introduction programmes or mentorship programmes.
- Formal introduction programmes developed from the knowledge provided in this thesis would benefit from the following main areas:
    1. Expand over 12 months and be mandatory for all new professionals regardless of years of prior nursing experience.
    2. Include interventions that focus on strengthening new professionals' self-confidence.
    3. Include interventions that focus on supporting new professionals to become part of the community at the station/organisation.
    4. Include interventions that focus on ways and strategies to handle unpreditability and uncertainty.
- To increase knowledge and understanding of the transition process and the challenges of becoming part of a team that may be of guidance when introducing new professionals to the organisation.
- As a means for organisations to work for and create a healthy working climate in their own EMS community.

To achieve this, it is important that stakeholders create opportunities for organizations to have the resources to support new professionals in the EMS.

11 FUTURE RESEARCH

Several questions and ideas for future research emerged during this work:

- A longitudinal study that explores transition in the EMS might generate further knowledge about the experience of transition and even what different supports a professional would desire during the different stages of transition in the EMS.
- Studies that explores retention and intention to leave the EMS might further increase the knowledge about how to support, not only new professionals but the experienced ones as well.
- Research regarding how experienced EMS professionals experience being a preceptor view and/or a colleague to a new professional. Illuminating what the experienced professionals need to increase their ability to support and understand the needs of the new professionals may further strengthen professional development in the EMS.
- Research regarding the culture and climate in the EMS community would be of interest in order to create a deeper understanding of the EMS community. A deeper understanding of the culture that new professionals enter may be of further help when designing formal introduction programmes.
- Research that explores desirable support from an international perspective would highlight differences and/or similarities between what new professionals desire in different EMS contexts. It would also be of interest to explore whether or not desirable supports differ between countries where the professionals have different levels of formal education/training.
- It would be of great interest to develop, implement and evaluate a formal introduction programme based on the implications and supports presented in this thesis. And to investigate the financial aspects of such introduction program, with emphasis on aspects such as retention and professional well-being.
- Patient outcome of a formal introdution programme for new professionals would be of interest to both healthcare organisations and stakeholders.

12 SAMMANFATTNING (SUMMARY IN SWEDISH)

Personal som arbetar inom ambulanssjukvården behöver kunna vårda människor i alla åldrar och med alla tänkbara symtom och skador, i alla tänkbara miljöer. Att vårda en människa utanför sjukhusets resurser, ställer höga krav på ambulanspersonalens kompetens och det formella utbildningskravet på ambulanspersonal varierar runt om i världen. Detta tyder på en komplexitet i att utbilda och träna personal i ett så varierande och heltäckande vårdyrke som ambulanssjukvård utgör. I Sverige har socialstyrelsen utfärdat ett formellt krav sedan 2005, att varje ambulans skall bemannas med minst en legitimerad sjuksköterska. Utöver detta finns ingen nationell styrning kring vilken formell kompetens ambulanssjukvårdens personal skall ha. Däremot finns forskning som visar att önskvärda kompetenser inom ambulanssjukvård bland annat är att vara flexibel, initiativrik, reflekterande, kunna vara teamledare, ha en bred kunskapsbank, ha många praktiska färdigheter samt att kunna arbeta självständigt. Ambulanssjukvården beskrivs också ofta som ett erfarenhetsyrke där personalen använder sin samlade erfarenhet för att kunna hantera nya oväntade situationer som kan uppkomma i vårdmötet med de människor som behöver ambulanssjukvård.

Ny personal saknar denna tidigare erfarenhet vilket leder till att ny personal ofta sätter sin tillit till skrivna medicinska riktlinjer eller liknande styrdokument. Ny personal genomgår också ofta en transition vilket kan beskrivas som den process som bland annat sker då en ny professionell yrkesidentitet skapas. Denna process brukar ta ca 12 månader, med individuella skillnader och innefattar känslor som stress, oro, höga krav på den egna förmågan och minskat självförtroende. Under denna period skall även den nyanställda hitta sin plats i organisationen och sin roll bland kollegorna, lära sig nya rutiner och förstå den nya kulturen på arbetsplatsen, både den uttalade och den tysta kulturen. Detta är en krävande tid där misstag begås och många nyanställda avslutar sin anställning. Hur nyanställd personal tas emot och stöttas under första anställningsåret har beskrivits som en framgångsfaktor, både för den professionella utvecklingen och för patientsäkerhet.

Inom ambulanssjukvårdens varierande arbetsmiljö finns få rutinuppdrag och utifrån vår kunskap finns idag ingen forskning som visar hur detta första år upplevs eller hur nyanställd personal tas emot och stöttas inom ambulanssjukvård. Därför genomfördes denna doktorsavhandling med det övergripande syftet att öka kunskapen kring upplevelser av att vara ny inom ambulanssjukvård och att identifiera vilka stöd nyanställd personal önskar under sitt första år.

Utifrån syftet har fyra delstudier med olika vetenskapliga metoder genomförts.

Delstudie I, var den första studien att genomföras och denna studie syftade till att undersöka upplevelsen av det första anställningsåret. I denna studie intervjuades 13 personer som hade arbetat mellan 2 och 14 månader inom ambulanssjukvård runt om i Sverige. Dessa personer ombads först att berätta om sin första dag och sedan generellt om sitt första år inom ambulanssjukvården. Resultatet visade att första året upplevs som en balansgång mellan ytterligheter som att känna sig trygg och otrygg, kunnig och okunnig. Det som påverkade denna balansgång var hur den nyanställda upplevde relationen till sin kollega och ambulanssjukvårdens miljö. En stöttande kollega påverkade balansen positivt och en icke stöttande kollega med hård och avvisande attityd påverkade balansen negativt. I denna balansgång identifierade den nyanställda sina egna kunskapsluckor. I brist på formella stöd strävade den nya efter att fylla dessa kunskapsluckor genom strategier som att konsultera Internet eller att fråga någon man litade på.

Delstudie II syftade till att undersöka utmanande situationer utifrån ett lärperspektiv för att undersöka om utmanande situationer kan relatera till en persons professionella utveckling. I denna studie intervjuades 32 sjuksköterskor som arbetat inom ambulanssjukvård mellan 1 och 3 år runt om i Sverige. Intervjuerna genomfördes via telefon och sjuksköterskorna fick berätta om en situation som han/hon varit med om under sitt första anställningsår och som han/hon hade upplevt att han/hon inte hade hanterat så bra som han/hon hade velat. Resultatet visade att utmanande situationer kan relatera till lärande, både positivt och negativt beroende på hur den utmanande situationen bearbetas och upplevs.

Delstudie III syftade till att identifiera vilka stöd nyanställd personal anser önskvärda under första året inom ambulanssjukvård. Till denna studie intervjuades 32 personer (samma personer som i delstudie II). I telefonintervjuerna frågades de 32 personerna om vilket stöd de hade önskat i den utmanande situation som de just beskrivit till Studie II och därefter tillfrågades de om vilka andra stöd de hade önskat under sitt första anställningsår. Resultatet sammanställdes till ett frågeformulär med 70 påståenden om stöd som de 32 personerna individuellt fick gradera i 3 omgångar för att gruppen som helhet skulle komma överens om vad de ansåg vara önskvärda stöd under första året. Gruppen var överens om att 63 stöd var viktiga och 1 stöd var oviktigt. I 6 påståenden om stöd kom gruppen inte överens om det var viktigt eller oviktigt.

Delstudie IV syftade till att undersöka vilka av de 70 stöd som framkommit i Studie III som ansågs vara viktigast. I denna studie skickades ett brev innehållande frågeformuläret med 70 påståenden om önskvärda stöd som identifierats i delstudie III ut till alla som tagit examen i specialistsjuksköterskeprogrammet med inriktning ambulanssjukvård i Sverige under åren 2016 och 2017. Totalt 230 (59%) av 389 personer svarade på enkäten och av de 70 påståendena om stöd graderades 14 som viktigast.

I avhandlingen sammanställdes resultaten från dessa fyra delstudier. Avhandlingens slutgiltiga resultat visar att upplevelsen av att vara ny inom ambulanssjukvård är som en treenighet som omfattar upplevelser av att utveckla en ny identitet, upplevelser av kollegan och gruppen och upplevelser av uppdraget och miljön. De tre dimensionerna av upplevelsen av det första året är starkt sammankopplade där den ena påverkar den andra. Till exempel hur kollegan bemöter den nyanställda, påverkar hur den nyanställda upplever utmaningarna i miljön och upplevelsen av miljön påverkar hur den nyanställda upplever sin egen kompetens och utgången av den vård som ges. För att stödja nyanställda inom ambulanssjukvård understryks i denna avhandling vikten av att förstå hur alla tre dimensioner av upplevelsen av det första året påverkar den nyanställda. Av de fjorton högst graderade påståenden om stöd i Studie III och IV, var elva samma i båda studierna. Dessa elva stöd bedöms vara viktigast och utifrån treenigheten av upplevelsen av att vara ny kan dessa stöd stötta en nyanställd enligt följande:

För att stärka individen och utvecklandet av en stark yrkesidentitet under första året behöver den nyanställde: Ha en strukturerad introduktionsperiod, ha kamratstöd i extrema situationer, ha en erfaren kollega och att få återkoppling på den egna handlingen från mottagande enhet viktigt.

För att stärka den nyanställda att hantera osäkerhet och oförberedbarhet i ambulansuppdraget behövs stöd i form av att: Ha tillämpbara medicinska riktlinjer, att organisationen genomsyras av professionalitet och att de nyanställda får praktiskt öva för att få ett strukturerat arbetssätt (tex genom ABCDE-principen) viktigt.

För att stötta den nyanställdas känsla av samhörighet med kollegorna behövs stöd i form av att: Ha en pålitlig kollega, vara accepterad och respekterad på ambulansstationen, det är ett öppet klimat på ambulansstationen och att känna tillit till närmaste chef viktigt.

Resultatet av denna avhandling kan användas på ett flertal sätt, som underlag för utvecklingsprogram för ambulanspersonal, som underlag för utformandet av strukturerad introduktion för nyanställda som grund för att informera beslutsfattare om vikten av att avsätta resurser för att kunna stödja nyanställd personal inom verksamheter som ambulanssjukvård. Denna avhandling kan även användas som grund för att inspirera verksamheter till att arbeta medvetet med att skapa sunda kulturer för att nyanställda skall känna sig välkomna, respekterade och accepterade och förhoppningsvis stanna kvar inom ambulanssjukvården.

13 ACKNOWLEDGEMENTS

My PhD journey has been exactly that multifaceted experience of transition as described in this thesis. There have been times of joy and excitement, and times of extreme stress, anxiety and self-doubt. During this journey, I have been surrounded by loving people that could understand my emotions because they were in the middle of the same journey, or had recently completed the same journey. I have also been surrounded by my amazing family, that even though you may not always understand what I was going through, you were there for me and listened patiently when I needed you to. For this I´m more grateful than words can express. Thank you all.

My own transitional journey into becoming a PhD would never have started if it wasn´t for my first main supervisor, **Veronica Vicente**. Thank you for introducing me to the world of science.

I have had the luxury of having had three amazing supervisors; My main supervisor **Veronica Lindström,** thank you for always, *always* being there for me when I needed you. Your energy and your way of taking everything with a smile and a laugh is such an inspiration. Even the serious and heavy talks with you, ends up with you making me smile. You are a fantastic inspiration- and positive-energy-booster. **Susanne Kalén,** thank you for your incredible reflective ability, this thesis would never have reached its level of reflective depth without the inspiring, developing discussions we have had. You have been a great source of inspiration and support, from the first time I read your thesis to the writing of my own. **Max Scheja**, my kick-ass professor in pedagogic. I have never met a person that love talking about professional development in the sense of learning as you do. The way you light up and the energy you have brought to our many phone- or café-discussions have always inspired me. If I have developed a tenth of your ability to express yourself, I´m forever grateful.

My mentor, **Mats Holmberg**, you have truly been the right person in the right place. Thank you for patiently listening and being supportive in my many many confusions, frustrations and difficulties. I hope you continue accepting being a mentor for other PhD students!

My co-authors, **Maria Jirwe,** thank you for opening my eyes to the world of Delphi and being there on so many more levels than merely a co-author. Your openness, kindness and wisdom has showed me that even though life can be hard one can get through and reach a PhD. **Helen Conte**, you swept me of my feet from the first time we spoke on the phone. If energy had a face it would be yours. Thank you for listening, supporting and being that angry "tant" when I needed it, and of course thank you for all discussions about learning in communities of practice.

Åke Östman, thank you and everyone at the headquarter at AISAB for supporting and believing in me, and a special thanks to **Henrik Lindelöv** and **Hasse Olsson**, for always greeting me with a smile and a hug, nothing is ever a problem to you and seeing you always got me in a good mood. **Svante Sörensson, Ulrika Sundset** and **Sonalie Bjälvenäs**, thank you for helping me with my schedule so that I could get time to write when I needed it. Your efforts have been invaluable in writing this thesis.

Jonas Wihlborg, my idol and my most annoying discussion partner. You have challenged me in so many ways and you helped me grow professionally during this doctoral journey. Without you always questioning and arguing for the opposite, I would never have reached my PhD. Thank you, from the bottom of my heart, you have been more important to me than I have been able to express.

Helge Myklebust, my dear friend. Thank you for being there both when life is like carrying a heavy load, up a steep, snowy, rainy, foggy mountain…in a head wind, and when life is like that unbeatable feeling after completing an ultramarathon.

Tobias Rönneblad, thank you for all long talks when we were going through another challenging journey and for your never-ending kindness and generosity.

Jason Murphy, my dear co-PhD student, soon it´s your turn! Thank you for all supportive and developing discussions and for believing in me.

Tomas Nilsson, we have truly walked side by side through this entire journey and our relationship passed through a transition of its own. Thank you for being who you are and helping me ease-up on taking myself too serious some times.

Jenny Ståhl, my Klövsjö bästis, thank you for all walk and talks, for your never-ending optimism and contagious laugh. You give so much energy and I would have been on a dark place so much more often if it wasn´t for you.

Tjomper, my little sister, I love you. You have always had my back, it means everything. Thank you for getting on that bus, (even though I know it scares you a bit) and travelling 500 km just to see me when I needed you.

Jacob Söderbergh, my first and informal mentor. Your invaluable support when I was new to the EMS is what got me thinking about mentorship in the first place. Thank you for all the wisdom and that you keep being there for me whenever I need to ventilate.

My three old friends, **Maria, Bodil** and **Jenny**, you have all supported me in different ways and our "never have I ever-trips" have been perfect and well needed breaks from the world of writing.

Jeanette Öhrman, you are invaluable, thank you for all administrative help throughout my doctoral education.

To all you amazing people and researchers in **AHNR** that work hard for the scientific development of the Swedish EMS. To all colleagues in my **KI SÖS research group.** To all you former and existing Academic EMS **AKA**'s. To my former colleagues at Vällingby ambulance station: **Micke, Sonna, Maria S, Pierre, Cecilia and Elli** my mentee – Elli, you make me strive for my own, never ending professional development in the EMS.

I would also like to thank all **participants** in my studies for their valuable contributions.

Last, but definitely not least I would like to thank **Academic EMS** and the **Stockholm County Council** for funding this research and making my PhD journey possible.

There are so many more that have supported me, and the acknowledgments would need as much space as the entire thesis. From the bottom of my heart, thanks to all of you that have been here with me during this journey!

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APPENDIX 1

Swedish version of the questionnaire sent to all who had graduated from the postgraduate specialist programme in pre-hospital emergency care nursing during the years 2016 and 2017 (Study IV)

Vilka stöd är viktiga det <u>första</u> anställningsåret inom ambulanssjukvård?

Att vara ny inom ambulanssjukvård har visat sig vara en utmanande tid. Nyanställda beskriver blandade känslor så som stolthet och glädje men också rädsla och oro för att göra fel. Att få stöd under denna period är en viktig faktor för professionell utveckling, trygghet och kvarstannande inom yrket, men <u>vilka</u> stöd är viktiga under det första året inom ambulanssjukvård?

Detta är den fjärde och sista delen i en doktorsavhandling och du är en av drygt 400 personer i Sverige och Finland som blivit utvald till att deltaga. Med din hjälp kommer vi att kunna undersöka hur ambulanssjukvården skulle kunna stötta nyanställda under det första anställningsåret. Stort tack för att du väljer att vara med och bidra till detta arbete.

Detta frågeformulär har skapats från intervjuer med ambulanssjuksköterskor från hela Sverige. Det innehåller 8 demografiska frågor och 70 påståenden om stöd under det första anställningsåret. Det beräknas ta ca 10 minuter att fylla i hela frågeformuläret. Resultatet kommer att publiceras i en vetenskaplig artikel. Ditt bidrag är viktigt och dina svar kommer givetvis att hanteras anonymt även fast ditt namn står på din enkät.

Vi ber dig att tänka tillbaka på <u>ditt</u> första år och utgå från dig själv när du graderar de olika påståendena. Vilka av dessa stöd anser du hade/har varit viktiga under ditt första år, och hur viktigt anser du att det stödet hade varit?

Genom den här undersökningen hoppas vi kunna bidra till professionell utveckling och att öka trygghet och kvarstannande bland nyanställda inom ambulanssjukvården.

Stor tack för din tid och din medverkan!

Har du några frågor eller önskar dra tillbaka ditt deltagande kontaktar du Anna Hörberg via: anna.horberg@ki.se

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Så här fyller du i pappersenkäten
Nedan ser du hur du markerar ett svarsalternativ, och hur du avmarkerar ett redan gjort val.

☒ Korrekt markerat svarsalternativ

☒ Inkorrekt markerat svarsalternativ, krysset ska vara mitt i rutan

☒ Inkorrekt markerat svarsalternativ, krysset är alltför kraftigt

■ Ångrat val, svarsalternativet räknas <u>inte</u> som markerat

Demografisk information:

1. Jag identifierar mig som:

☐ Man
☐ Kvinna
☐ Annat

2. Min ålder:

☐ 20-30 år
☐ 31-40 år
☐ 41-50 år
☐ > 50 år

3. Totalt har jag arbetat inom hälso- och sjukvård:

☐ < 1 år
☐ 1-3 år
☐ 3-5 år
☐ >6 år

4. Totalt har jag arbetat inom ambulanssjukvård:

☐ < 1 år
☐ 1-3 år
☐ 3-5 år
☐ > 6 år

5. Totalt har jag arbetat som Specialistsjuksköterska i Ambulanssjukvård (Sve) / Förstavårdare (Fin):

☐ 0-1 år
☐ 1-3 år
☐ 3-5 år
☐ > 6 år

6. Innan jag började arbeta som Specialistsjuksköterska i Ambulanssjukvård (Sve) / Förstavårdare (Fin) arbetade jag: Observera att du kan välja fler än ett svarsalternativ.

- ☐ På sjukhus
- ☐ Som ambulanssjukvårdare
- ☐ I ambulans som Leg. Sjuksköterska
- ☐ I ambulans som Specialistsjuksköterska med annan inriktning (IVA/ANE eller motsvarande)
- ☐ Jag har ingen tidigare sjukvårdserfarenhet
- ☐ Om annat, specificera

7. För närvarande är jag anställd i:

- ☐ Ambulanssjukvård i landsting (Sve) / Sjukvårdsdistrikt (Fin)
- ☐ Ambulanssjukvård i privat bolag
- ☐ Räddningsverk (Fin)
- ☐ Om annat, specificera:

8. Majoriteten av mina arbetspass ligger inom:

- ☐ Storstadsområde (Stockholm/ Malmö/Göteborg eller Helsingfors)
- ☐ Mellanstor stad
- ☐ Landsbyggd

Gradera följande påståenden efter hur viktigt du anser det vara under första anställningsåret i ambulanssjukvården. Markera bara ett svarsalternativ per påstående.

9. Stöd i form av Praktisk övning: Under första anställningsåret hur viktigt är det att:

	Oviktigt						Mycket viktigt
Praktiskt öva på metoder (t.ex. ABCDE) för att få ett strukturerat arbetssätt	☐	☐	☐	☐	☐	☐	☐
Praktiskt öva med simulering	☐	☐	☐	☐	☐	☐	☐
Praktiskt öva patientfall som förekommer sällan	☐	☐	☐	☐	☐	☐	☐
Praktiskt öva patientfall som är vanligt förekommande	☐	☐	☐	☐	☐	☐	☐
Praktiskt öva i samverkan med polis och räddningstjänst	☐	☐	☐	☐	☐	☐	☐
Praktiskt öva sjukvårdsledning	☐	☐	☐	☐	☐	☐	☐
Praktiskt öva med kommunikationsutrustning	☐	☐	☐	☐	☐	☐	☐
Praktiskt öva med ambulansens medicintekniska utrustning	☐	☐	☐	☐	☐	☐	☐
Praktiskt öva tekniker för immobilisering	☐	☐	☐	☐	☐	☐	☐
Praktiskt öva tekniker för losstagning ur fordon	☐	☐	☐	☐	☐	☐	☐
Praktiskt öva tekniker för manövrering av ambulansens bår	☐	☐	☐	☐	☐	☐	☐
Praktiskt öva uppställning av fordon och bilkörning	☐	☐	☐	☐	☐	☐	☐
Ha kompetenskontroll i form av körkort för praktiska moment	☐	☐	☐	☐	☐	☐	☐
Ha praktisk genomgång av de läkemedel som används i ambulanssjukvården	☐	☐	☐	☐	☐	☐	☐

10. Teoretiska kunskapsstöd: Under första anställningsåret hur viktigt är det att:

	Oviktigt						Mycket viktigt
Ha avsatt arbetstid för att hospitera (en arbetsdag) på olika vårdenheter och instanser inom sjukhus	☐	☐	☐	☐	☐	☐	☐
Ha tillgång till föreläsningar om medicinska tillstånd hos vuxna	☐	☐	☐	☐	☐	☐	☐
Ha tillgång till föreläsningar om medicinska tillstånd hos barn	☐	☐	☐	☐	☐	☐	☐
Ha tillgång till föreläsningar om förlossning	☐	☐	☐	☐	☐	☐	☐
Ha tillgång till föreläsningar om sjukvårdsledning	☐	☐	☐	☐	☐	☐	☐
Ha tillgång till föreläsningar om psykisk ohälsa	☐	☐	☐	☐	☐	☐	☐
Erhålla strukturerad genomgång av de medicinska riktlinjer som finns inom ambulanssjukvård	☐	☐	☐	☐	☐	☐	☐
Genomgå konceptutbildningar så som AMLS, PHTLS, PS, PEPP	☐	☐	☐	☐	☐	☐	☐
Ha skriftlig kunskapskontroll	☐	☐	☐	☐	☐	☐	☐

11. Teoretiska stöd: Under första anställningsåret hur viktigt är det att ha:

	Oviktigt						Mycket viktigt
Tillgång till tillämpbara skriftliga medicinska behandlingsriktlinjer	☐	☐	☐	☐	☐	☐	☐
Tillgång till skriftliga etiska riktlinjer	☐	☐	☐	☐	☐	☐	☐
Tillgång till skriftliga riktlinjer för telefonkontakt med läkare	☐	☐	☐	☐	☐	☐	☐
Tillgång till skriftliga riktlinjer för hantering av avvikelser	☐	☐	☐	☐	☐	☐	☐
Tillgång till skriftliga riktlinjer för hantering av konflikter	☐	☐	☐	☐	☐	☐	☐
Tillgång till web-baserade instruktionsfilmer om ambulansens medicintekniska utrustning	☐	☐	☐	☐	☐	☐	☐
Ha tillgång till instruktionsfilmer om reponering av frakturer	☐	☐	☐	☐	☐	☐	☐

12. Stöd för Erfarenhetsutbyte Under första anställningsåret hur viktigt är det att:

	Oviktigt						Mycket viktigt
Delta i gemensamma utbildningsdagar tillsammans med erfarna kollegor	☐	☐	☐	☐	☐	☐	☐
Delta i gruppdiskussioner kring autentiska patientfall	☐	☐	☐	☐	☐	☐	☐
Delta i gruppdiskussioner kring etik och bemötande	☐	☐	☐	☐	☐	☐	☐
Delta i gruppdiskussioner om hot- och våld situationer	☐	☐	☐	☐	☐	☐	☐
Få återkoppling på dina hanterade patientfall från mottagande enhet	☐	☐	☐	☐	☐	☐	☐

13. Stöd i form av en Introduktionsperiod (att åka som 3:e person): Under första anställningsåret hur viktigt är det att:

	Oviktigt						Mycket viktigt
Ha en strukturerad introduktionsperiod	☐	☐	☐	☐	☐	☐	☐
Ha en individuellt anpassad introduktionsperiod	☐	☐	☐	☐	☐	☐	☐
Ha handledare med handledarkompetens under introduktionsperioden	☐	☐	☐	☐	☐	☐	☐
Arbeta med samma handledare under introduktionsperioden	☐	☐	☐	☐	☐	☐	☐
Arbeta med samma team (handledare och kollega) under introduktionsperioden	☐	☐	☐	☐	☐	☐	☐
Få regelbunden strukturerad återkoppling på din utveckling under introduktionsperioden	☐	☐	☐	☐	☐	☐	☐

14. Kollegialt stöd och arbetsmiljö: Under första anställningsåret hur viktigt är det att:

	Oviktigt						Mycket viktigt
Arbeta med en erfaren kollega	☐	☐	☐	☐	☐	☐	☐
Arbeta med samma kollega det första året	☐	☐	☐	☐	☐	☐	☐
Arbeta med en sjuksköterska (Sve) / Förstavårdare-YH (Fin)	☐	☐	☐	☐	☐	☐	☐
Känna tillit till din kollega	☐	☐	☐	☐	☐	☐	☐
Vara accepterad och respekterad av dina kollegor på arbetsstationen	☐	☐	☐	☐	☐	☐	☐
Det är ett öppet klimat på ambulansstationen	☐	☐	☐	☐	☐	☐	☐
Få kamratstöd vid krissituationer	☐	☐	☐	☐	☐	☐	☐
Ha en person i verksamheten att kontakta med driftfrågor under jourtid	☐	☐	☐	☐	☐	☐	☐
Ha en mentor som stödjer din personliga utveckling	☐	☐	☐	☐	☐	☐	☐
Ha en mentor som stödjer din professionella utveckling	☐	☐	☐	☐	☐	☐	☐
Ha en mentor att prata med vid konfliktsituationer	☐	☐	☐	☐	☐	☐	☐
Ha en mentor att kontakta med praktiska frågor	☐	☐	☐	☐	☐	☐	☐
Ha en mentor att kontakta med frågor rörande rutiner	☐	☐	☐	☐	☐	☐	☐

15. Stöd från Arbetsledning och Organisation: Under första anställningsåret hur viktigt är det att:

	Oviktigt						Mycket viktigt
Få bekräftelse på din professionella utveckling av din närmaste chef	☐	☐	☐	☐	☐	☐	☐
Få bekräftelse på din professionella utveckling av din högsta chef	☐	☐	☐	☐	☐	☐	☐
Känna förtroende för din närmaste chef	☐	☐	☐	☐	☐	☐	☐
Känna förtroende för din högsta chef	☐	☐	☐	☐	☐	☐	☐
Känna förtroende för verksamheten	☐	☐	☐	☐	☐	☐	☐
Verksamheten genomsyras av ett etiskt förhållningssätt	☐	☐	☐	☐	☐	☐	☐
Verksamheten genomsyras av professionellt bemötande	☐	☐	☐	☐	☐	☐	☐
Verksamheten genomsyras av jämställdhet och likabehandling	☐	☐	☐	☐	☐	☐	☐
Verksamheten har tydliga befattningsbeskrivningar för de olika yrkeskategorierna i ambulansen	☐	☐	☐	☐	☐	☐	☐
Verksamheten bereder utrymme i planerad arbetstid för professionell utveckling	☐	☐	☐	☐	☐	☐	☐
Verksamheten har en uttalad tillåtande attityd till att patientbedömningar får ta längre tid för nyanställda	☐	☐	☐	☐	☐	☐	☐
Larmcentralen har en uttalad tillåtande attityd till att patientbedömningar får ta längre tid för nyanställda	☐	☐	☐	☐	☐	☐	☐

16. Övriga stöd: Under första anställningsåret hur viktigt är det att:

	Oviktigt						Mycket viktigt
Vara befriad från prio 1 uppdrag (Sve) / A - uppdrag (Fin)	☐	☐	☐	☐	☐	☐	☐
Få ytterligare en ambulansresurs utlarmad vid prio 1 uppdrag / A-uppdrag	☐	☐	☐	☐	☐	☐	☐
Inte ansvara för inskolning av nya kollegor	☐	☐	☐	☐	☐	☐	☐
Ha tillgång till tolkservice	☐	☐	☐	☐	☐	☐	☐

APPENDIX 2

Result of the Delphi rounds in Study III, presenting items, mean values, SD and round number for when consensus was reached. In six items, consensus was not reached (NR).

	Mean value	Standard deviation SD	Consensus reached in round NR (Not reached)
Support from practical skills exercises			
Practice methods to get a structured way to work (e.g. according to the ABCDE-principle)	4,8	0,7	2
Practice ways to lead the work at the scene of an accident	4,5	0,8	2
Get a structured run-through of the medications used in the EMS	4.5	0.8	3
Practice through simulation	4,4	0,7	2
Practice with the radio communication equipment	4,4	0,9	2
Practice with the medical equipment in the ambulance	4,4	0,9	2
Practice techniques for immobilization	4,4	0,9	2
Practice in collaboration with police and rescue service	4,4	1,0	2
Practice situations that occur rarely	4,3	0,8	2
Practice techniques for removing people from vehicles	4,3	0,9	2
Have practical skills tests	4.3	1.0	2
Practice situations that occur frequently	4,3	1,1	2
Driving and parking exercises	4,1	1,1	2
Practice techniques to maneuver the stretcher	4.0	0.9	3
Support from theoretical knowledge			
Have access to lectures on medical conditions in children	4,5	0,7	2
Get a structured run-through of the EMS medical guidelines	4,5	0,8	2
Get access to concept educations such as AMLS, PHTLS, PS, PEPP	4,4	0,8	2
Have access to lectures on medical conditions in adults	4,3	0,8	2
Have written tests on theoretical knowledge	4,3	0,9	2
Have access to lectures on how to lead the work at the scene of an accident	4,2	0.8	3
Have access to lectures on child birth	4,2	0,9	2
Get access to lectures about psychiatric conditions	3.7	0.7	NR
Be able to visit and auscultate at different intra-hospital wards	3.6	1.0	NR
Support for experience-based knowledge			
Get feedback on the own actions from the receiving unit	4,8	0,4	2
Participate in courses along with experienced colleagues	4,7	0,6	2
Participate in group discussions about authentic patient situations	4,7	0,5	2

Participate in group discussions about ethics	4,5	0,8	2
Participate in group discussions about threats and violence	4.1	0.9	3
Theoretical support			
Have access to applicable medical guidelines	4,8	0,4	2
Have access to internet-based instruction films on the ambulance´s technical equipment	4.3	0.6	3
Have access to written guidelines on when and how to contact a physician	4,2	0,8	2
Have access to written guidelines about how to report deviations	4.1	0.9	3
Have access to instruction films about how to realign a fracture	4.0	0.8	3
Have access to written ethical guidelines	3.5	0.8	NR
Have access to written guidelines regarding how to manage conflicts	3.5	0.8	NR
Support from an introduction period			
Get regular feedback on the own development during an introduction period	4,9	0,2	2
Have a structured introduction period	4,9	0,3	2
Have an individually fitted introduction period	4,7	0,7	2
Have a supervisor with formal supervisor competence	4,4	0,8	2
Work with the same supervisor during the introduction period	4,0	0.7	3
Work with the same ambulance team (supervisor and his/her colleague) during the introduction period	3.7	0.8	4
Support from colleagues and work environment			
Get peer support debriefing in extreme situations	5,0	0,2	2
Have a trustworthy colleague	4,9	0,4	2
Have an experienced colleague	4,8	0,5	2
Be respected and accepted by the colleagues at the ambulance station	4,8	0,5	2
There is an open climate at the ambulance station	4,8	0,6	2
Have one person in the organization to contact with logistics questions during off-hour	4.6	0.6	2
Have a mentor to contact about routines	4,5	0.8	3
Have a mentor to support professional development	4,3	0,8	2
Have a mentor to talk to about conflicts	4,3	1,0	2
Have a mentor to contact about practical issues	4,2	0,8	2
Have a mentor to support personal development	4,0	0,9	2
Work with another RN	3.9	0.9	4
Work with the same colleague during the first year	2.9	0.9	NR
Support from management and organization			
Trust in the ambulance station manager	4.8	0.4	2
Have confidence in the organization	4,8	0,4	2

The organization is characterized by professionalism	4,8	0,6	2
Get feedback on the own professional development from the ambulance station manager	4,7	0,6	2
The organization accepts that new professionals need more time to perform patient assessments	4,6	0,6	2
The organization provides time for professional development activities	4,6	0,7	2
The organization is characterized by equally	4,6	0,7	2
The organization has clear competence descriptions of what is expected of each role in the team	4,5	0,8	2
The organization is characterized by ethical considerations	4,5	0,7	2
The dispatch center accepts that new professionals need more time to perform patient assessments	4,4	0,7	2
Trust in the organization director	4,3	1,0	2
Get feedback on the own professional development from the organization director	4.1	0.9	3
Other support			
Being exempt from introducing new colleagues	4,6	0,9	2
Have access to an interpreter service	4.1	0.7	4
Being exempt from life-threatening assignments with the highest level of priority	1,4	0,7	2
Receiving an extra unit when being given life-threatening assignments with the highest level of priority	2.4	0.8	NR

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Nurse Education in Practice 27 (2017) 63–70

Contents lists available at ScienceDirect

Nurse Education in Practice

journal homepage: www.elsevier.com/nepr

Clinical education

Striving for balance - A qualitative study to explore the experiences of nurses new to the ambulance service in Sweden

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ARTICLE INFO

Article history:
Received 1 September 2016
Received in revised form
2 March 2017
Accepted 17 August 2017

Keywords:
Ambulance
Novice nurse
Professional development
Transition

ABSTRACT

New nurses and nurses new to a professional practice go through a transition where they adopt a new professional identity. This has been described as a challenging time where peer support and limited responsibility are considered necessary.

Little is known about the experience of nurses being new to the ambulance service where support is limited and the nurse holds full responsibility of patient care. The aim of this study has therefore been to explore nurses' experiences during their first year of employment in the Swedish ambulance service.

Data was generated from semi-structured interviews with 13 nurses having less than 12 months of experience of work in the ambulance service. The nurses represented nine different districts in Sweden. Analysis was a latent inductive qualitative content analysis.

The analysis resulted in the main category, "Striving for balance during the transition process in the ambulance context".

Transition in the ambulance service was experienced as a balance act between emotions, expectations and a strive for professional development. The balance was negatively affected by harsh, condescending attitudes among colleagues and the lack of structured support and feedback. In striving for balance in their new professional practice, the nurses described personal, unsupervised strategies for professional development.

1. Introduction

Registered nurses (RN) who enter a new professional practice encounter an array of challenges and emotions (Henderson et al., 2015). Independently of whether it is a case of RNs being completely new to the profession or experienced RNs entering a new speciality, it is considered a vulnerable time, and it is during this time that the majority of clinical mistakes and medical errors are made (Saintsing et al., 2011).

Literature describes that nurses new to a professional practice benefit from peer support and limited responsibility during the first year (Benner, 1982; Henderson et al., 2015).

Little is known about the experiences of nurses new to professional practices where support is limited and where the nurse holds the sole responsibility of acute ill or injured patients from day one.

This study has been conducted in the ambulance service in Sweden, which is described as a professional practice where each situation is unpredictable and the physician most commonly available only by telephone (Hagiwara et al., 2013; Sundström and Dahlberg, 2012). An ambulance team in Sweden consists of one RN or specialist nurse and one Emergency Medical Technician (EMT).

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http://dx.doi.org/10.1016/j.nepr.2017.08.015
1471-5953/

2. Background

During the first year in a new professional practice, every RN goes through a developmental journey where new knowledge and skills are acquired and a transition to a new professional identity occurs (Schumacher and Meleis, 1994). Transition has most frequently been described in connection with nursing students becoming RNs as a complex "array of emotional, intellectual, physical, sociocultural and developmental issues" (Duchscher, 2008 s. 442). Feelings of stress related to fear of inadequacy, not knowing what to do and work overload are commonly described during this period of time (Chang and Hancock, 2003; O'Shea and Kelly, 2007; Valdez, 2008).

Even experienced RNs entering a new speciality may to go through this same transformative journey (Benner, 2001; Chang et al., 2006). RN transition is popularly referred to using the five stages of the Dreyfus model of skill acquisition: Novice, Advanced beginner, Competent, Proficient and Expert, as described by Benner (1982). The RN enters a professional practice as a Novice, where every situation is new and the RN relies on context-free rules to guide their actions. In the following stages, Advanced beginner, Competent and Proficient, the RN gradually develops knowledge, skills and a holistic understanding of what is expected of them in the new practice. At Expert level, the RN has enormous experience and actions are guided by intuition (Benner, 1982). It is considered important during the transition process to limit the amount of responsibility and to provide effective guidance and support to the new RN (Andersson and Edberg, 2010; Duchscher, 2008; Henderson et al., 2015).

In settings such as intensive care units (ICU), primary care units and emergency care units, the experience of being new has been described as sometimes overwhelming and about "surviving" (Farnell and Dawson, 2006; Harrington, 2011; Messmer et al., 2004). In these environments, great demands are made on new RNs' ability for critical thinking, clinical decision-making and self-confidence (Messmer et al., 2004). Periods of supernumerary time and mentorship are considered essential to assist new RNs to acquire extended knowledge and skills and to transition into competent practitioners (Farnell and Dawson, 2006; Messmer et al., 2004). For example in the ICU, primary and emergency care units, a supportive peer can be summoned, previous medical records of the patients can be collected and additional hands can be asked for assistance in new and challenging situations.

The Swedish National Board of Health and Welfare states that an ambulance must be staffed by at least one person who is qualified to administer drugs (SOSFS, 2009, 10). This has led to ambulances in Sweden being staffed by at least one RN or RN with a specialist degree. RNs working in the ambulance service are expected to work autonomously with limited resources, and to provide advanced care for patients with complex care needs in uncontrolled environments and pressured work conditions (Jensen, 2011; The Swedish Association for Ambulance Nurses and The Swedish Society of Nursing, 2012). Although RNs in the ambulance service can contact a physician by telephone, decisions have most often to be made autonomously. Little is known about RNs' experience of being new to this context and therefore, the aim of this study was to explore RNs' experiences of their first year of employment in the Swedish ambulance service.

By exploring RNs' experiences of being new to a context with limited resources and support this study intends to contribute knowledge in the field of professional development in nursing.

3. Research design

In this study a qualitative approach was used to explore the experience of RNs being new to the ambulance service.

3.1. Setting

The desired professional competence of ambulance staff varies internationally (Cooper and Grant, 2009; Kilner, 2004). In Sweden, each ambulance is staffed with one RN or an RN with a specialist degree and an Emergency Medical Technician (EMT). An EMT in Sweden holds the profession of an assistant nurse with 40 weeks of supplementary training in emergency care (Suserud et al., 1998). A specialist degree in nursing requires one year of additional training at the university (The Higher Education Ordinance, 1993). Even though a specialist degree in prehospital emergency care nursing is preferred in the ambulance service in Sweden, it is not a mandatory requirement. Other specialist nursing degrees, for example intensive care or anaesthesia, are accepted in the ambulance service as well.

A new RN rotates frequently and rarely work with the same colleague.

3.2. Informants

To identify specialist nurses with less than 12 months of experience in the ambulance service representing different areas of Sweden, a purposeful sampling strategy was used. Experiences may vary in rural and urban areas. By including informants from different geographical areas the purposeful sampling also aimed at obtaining a broad insight into the RNs experiences of being new to the ambulance service. All informants were specialist nurses in prehospital emergency care, except two who had yet to finish a last theoretical assignment before receiving their degree. These two RNs had received dispensation to work in the ambulance service by their employer. The informants will be referred to as RNs in this study. In total 85 possible informants were identified via Human resources and fifteen agreed to participate. Two were excluded due to substantial delay in giving informed consent to participate. In total, 13 RNs from nine different healthcare regions representing urban, suburban and rural areas were included (Table 1). Of the eight informants employed in urban areas four also worked at ambulance stations in rural areas.

3.3. Data collection

To collect in-depth and detailed data of the RNs experiences of being new to the ambulance service individual semi-structured interviews were used. The interviews were carried out at ambulance stations or in the RNs' homes by the first author. A semi-structured interview guide was used (Patton, 1990), to ensure that the same topics were pursued and still allow flexibility in each interview. All interviews started with a question about the experiences of the first day followed by a question about the overall experience of working in the ambulance service. To allow both positive and negative experiences to be addressed two additional questions were prepared: "Can you tell me about a situation that you felt you were able to handle the way you wanted? And, can you tell me about a situation that you did not feel that you were able to handle the way you would have wanted?" Follow-up questions like "can you tell me more about that?" or "in what way did that affect you?" were asked continuously during the interview to add further depth and detail to the data (Patton, 1990). The interviews were tape-recorded and lasted between 38 and 56 min.

3.4. Data analysis

An inductive content analysis was carried out using the

Table 1
Informant information.

Area	Gender (F=Female, M = Male)	Experience of ambulance service (Months)	Prior nursing experience (Years)
Rural (2 areas)	F_1	2	9
	F_2	10	28
	F_2	9	25
Suburban (2 areas)	F_1	10	5
	M_2	10	2
Urban (5 areas)	M_1	4	5
	M_1	9	5
	F_1	6	15
	F_2	11	4
	F_3	11	7.5
	F_3	10	3
	M_4	9	4.5
	M_5	12	3

framework of preparation, organisation and presentation suggested by Elo and Kyngäs (2008). Each interview was transcribed verbatim and read twice while listening to the original recording in order to create an understanding of the whole. Meaning units were highlighted and condensed and the condensed units were coded with a descriptive word or sentence. At this stage, effort was made to stay close to the manifest text. After this the codes were grouped resulting in 10 subcategories labelled with a word or a phrase that described the content of the subcategory (Table 2.).

Three different areas of content into which the subcategories could be further grouped were identified. These were then abstracted to form the categories from which one main category was derived (Elo and Kyngäs, 2008) (Fig. 1).

The process of analysis was discussed continuously among the authors until a consensus of understanding the data was reached.

3.5. Ethical considerations

This study followed the International Council of Nurses (ICN) Code of Ethics for Nurses, respecting human rights, the right to life, dignity and to be treated with respect. All the RNs were informed about the study both in writing and orally before the interviews took place. Participation was voluntary and the RNs were guaranteed confidentiality. No personal data was recorded and the informants were informed about their right to leave the study at any time and their interviews would not be used in the study. This study was approved by the Regional Ethical Board in Stockholm (Diary number 2015/87-31/5).

4. Results

The exploration of the phenomenon of being new in the ambulance service, as experienced by the RNs, resulted in three categories and one main category as shown in Fig. 1.

4.1. Experiences of transition

This category describes the RNs' experiences of transition in their new professional practice and consists of the four subcategories: Mixed emotions; Expectations concerning one's own ability; Insecurity about the unknown; and Striving for belonging.

The RNs perceived themselves as being experienced in their previous field and entering their new professional practice was described as making a class journey, going from being someone to whom colleagues turned for advice to being an inexperienced new nurse:

> … at the hospital I was one of the most experienced, people came to me, but here you're suddenly new, it is very difficult and I feel inferior. (Informant 12)

4.2. Mixed emotions

The transition of going from being experienced to being new in the ambulance service was described as involving mixed feelings such as pride, happiness, and excitement on the one hand, and frustration, vulnerability, insecurity and nervousness on the other.

> … it is so great, I think it is a lot of fun […] but in situations involving radio communication and traffic accidents and rescue service … police … I am really scared. (Informant 2)

The ambulance service was perceived as being a dream job with a huge amount of responsibility, both regarding patient care and towards the ambulance team. The gripping feeling of saving a life was mixed with fear of the inability to do so.

4.3. Expectations concerning one's own ability

Having the medical responsibility for patient care was described as entailing considerable expectations concerning one's own ability to make the right decisions and implement adequate clinical interventions in every situation. The informants described a strive to be able to provide care on the same basis as their experienced colleagues and the role of being a specialist nurse was described as

Table 2
Example from the analysis process.

Meaning unit	Condensed unit	Code	Subcategory	Category
But now I'm in charge and that is hard … it is so exciting but really scary, oh how ambivalent it was.	Ambivalence in feeling excited and scared at the same time.	Excited and scared	Mixed emotions	Experience of transition
That I'm supposed to know, in any and every situation, in some way I'm supposed to be able to manage it.	Expectations of being able to manage any and every situation.	Expectations of managing everything	Expectations of one's own ability	

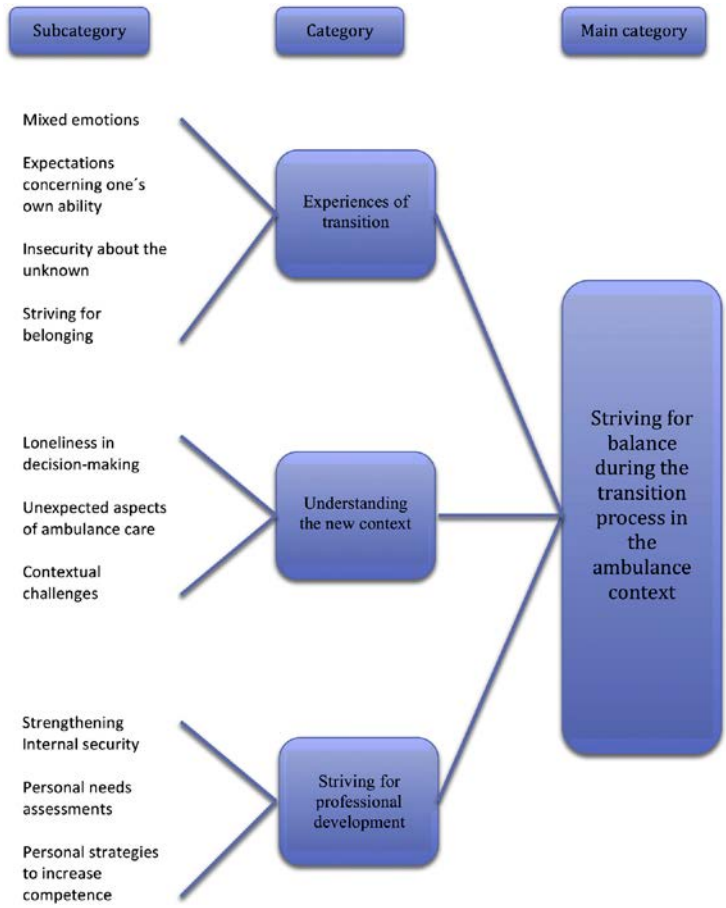

Fig. 1. Sub categories and categories describing the main category.

being able to solely manage every and any kind of situation.

> … in some way, I'm supposed to guide the work and know the most, even though I absolutely don't, there is a pressure on yourself to do that and be that way. If the colleague (EMT) doesn't know, then I'm supposed to know and if the colleague doesn't dare to do it, I must dare to do it … (Informant 1)

4.4. Insecurity about the unknown

RNs experienced the ambulance service as a challenging form of healthcare since they could not prepare themselves for what to expect during a work shift. Situations involving children, child delivery or being first on scene at traffic accidents were commonly described as situations in which the RNs felt insecure. Their insecurity was associated with inexperience. Situations where knowledge and experience were limited were described as involving frustration and vulnerability:

> … it doesn't matter, however much I know doesn't matter, because in that situation, I might not have the right knowledge or ability to do the right things. (Informant 13)

4.5. Striving for belonging

The RNs emphasized their efforts to belong and to be accepted in their new professional practice, both by colleagues at the ambulance station and within the ambulance team. This striving was highly influenced by their colleagues' behaviour. The RNs described two types of colleagues. "Good" colleagues promoted their sense of belonging and were described as experienced persons, preferably also RNs, who listened, provided support and acted as role models. Not all informants had encountered "good" colleagues however. Some merely reflected that the attributes listed above would be desirable in colleagues during the first year. "Bad" colleagues were described as unsupportive, not interested in discussing strategies or not contributing to the care of the patient. Bad colleagues were viewed as anti-models:

I hope I don't get used to it and become like them … (Informant 11)

Some RNs perceive the culture and attitude among peers as tough and "macho". Feedback was often given negatively and in a condescending way. To cope with the general mentality one informant expressed the need for thick skin:

I was very chastized in the beginning and that is wrong […] it has been a struggle, at least for me. (Informant 10)

4.6. Understanding the new context

This category describes the RNs' understanding of the new context of ambulance care and consists of the three subcategories: Loneliness in decision-making; Unexpected aspects of ambulance care; and Contextual challenges.

4.7. Loneliness in decision-making

The RNs stated that working in the ambulance service was different from any other field in the healthcare service that they had previously experienced. One of the most frequently mentioned reasons for this was loneliness. When working in a hospital ward, the RNs experienced being part of a large team with doctors and other RNs, and individuals were never as exposed as they felt in the ambulance service. Compared to the ambulance service, hospitals were considered a safe zone where help was never far away:

I just picked up the phone and the cavalry came. (Informant 13)

Being alone with the medical responsibility gave them a feeling of pride and a sense of freedom. However, since the responsibility was not shared with the EMT and there was no RN to ask for advice in decision-making, a sense of loneliness was generated:

It was like a sudden awakening, […] now it's just me here … (Informant 2)

4.8. Unexpected aspects of ambulance care

RNs described a sense of mismatch between reality and preparation when it came to understanding new contexts with which they were confronted. Unexpected aspects of ambulance care had a way of creating imbalance between reality and what RNs had been taught during their training.

The RNs felt well prepared to handle trauma and acute illness in adult patients, but unfortunately they considered that the majority of the patients they encountered did not fit into the care model that they had been taught. Either these patients needed primary care rather than emergency care, or they presented ethical dilemmas that were not perceived as being solvable with the care provided in an ambulance or by a trip to the emergency department:

All of this, everything else, they don't teach you that in the programme, how to fix things, how to … what to think of. (Informant 6)

One RN considered that the guidelines provided to help them in dealing with unexpected situations were inadequate and did not cover all aspects of ambulance care:

I think the guidelines are too rigid, it's like, oh well … what about everything else? What am I supposed to do with that? (Informant 3)

4.9. Contextual challenges

RNs understood themselves as having a holistic responsibility for patient care which meant having to account for the patient's entire life situation in order to assess what was wrong and what immediate help, if any, the patient needed:

Sometimes it's like I'm not a nurse […] it's like I'm a kind of a detective. (Informant 13)

They also felt challenged to be inventive and come up with solutions for things like how to get the patient from the apartment to the ambulance, or how to make sure that patients who stayed at home received follow-up visits from primary care. In addition to this, new elements needed to be mastered such as using radio communication, coping with a stretcher, driving a big car, working with limited resources and knowing when, how and what kind of back-up to call for.

It's not just about the medical care, I can handle that, it's everything else. (Informant 3)

4.10. Striving for professional development

This category describes the RNs' strategies and their perceptions of what they needed to develop professionally when dealing with situations that were new and where appropriate actions were not described in the guidelines. This category consists of three subcategories: Strengthening internal security; Personal strategies to increase competence; and Personal needs assessments.

4.11. Strengthening internal security

The RNs considered that trust in their own judgement and belief in themselves were essential in order to manage unpredictable situations in a patient-safe manner. Internal security was strengthened when the guidelines provided a checklist on what to do, when working with a trusted more experienced colleague or when they themselves had prior experience of similar situations:

Every one of these patient categories you meet, you lose some of your insecurity or it is pushed away and diminishes and you realize that: wow! I actually managed this excellently. (Informant 13)

4.12. Personal needs assessments

All RNs reflected on personal needs assessments of what could enhance their knowledge and skills. To get structured and regular feedback from the receiving units was described as a factor that would promote professional development:

> For me, it (feedback) would lead to … learning … I'm learning all the time, but getting confirmation on what I do and how I do it […] would of course help me a lot. (Informant 2)

Many situations were described as challenging though occurring very rarely and experiences from these situations were perceived as hard to acquire. To compensate for the lack of a continuous, experience-based professional development, they concluded that practical skills training, seminars and structured reflective discussions with peers would further enhance professional development:

> I would like to have more lectures and practical exercises, particularly these things we don't see that often … we never practise … different things … you could share … experience and competence and tell each other things … I miss that a little … (Informant 1)

4.13. Personal strategies to increase competence

RNs perceived a lack of formal support in the ambulance service and for this reason personal strategies to increase competence were emphasized. One such strategy was to watch a "good" colleague's performance:

> I have had many experienced colleagues whom I've watched and who helped me to find my own way. (Informant 12)

Other strategies were to ask questions, discuss and reflect with a trusted colleague, call a physician, read the guidelines or consult internet and Google:

> It is good to have a mobile phone in your pocket, because then you can Google on it or something. (Informant 3)

Some RNs tried to get feedback on their decisions and interventions from the receiving units and some tried to increase their competence by reading medical literature in their free time.

4.14. Striving for balance during the transition process in the ambulance context

The experience of being new to the ambulance service can be described as a strive for balance during the transition process. The RNs went from feeling like an expert in their previous field to being new again and they strived to adopt the new identity as a specialist nurse. This was described as a balance act between mixed emotions, high expectations and understanding the new context. The balance was experienced as being negatively affected by condescending and unsupportive attitudes among colleagues and a lack of structured support and feedback. In striving for balance in their new professional practice, the RNs described personal, unsupervised strategies and needs assessment for development.

5. Discussion

This study reveals that to balance the transitional process in the ambulance context the RNs used personal strategies to develop professionally and increase their competence. The RNs self-assessed their knowledge gaps and increased their competence by using available resources, such as consulting the internet or asking and observing their colleagues. The ability to seek knowledge and take responsibility for one's own professional development has become a prerequisite in the dynamic and challenging environments of modern healthcare. This self-direction in professional development has been defined as a process in which an individual takes the initiative in diagnosing needs, formulating goals, identifying resources, implementing appropriate strategies, and evaluating outcomes (Knowles, 1975). However, even though the RNs in this study experienced the importance of seeking knowledge and being prepared, the strategies described in the ambulance service were unsupervised and without formal evaluation at any time in the process. The results of this study imply that the last part of the development strategy described by Knowles (1975), the evaluation of outcome, is lacking in the Swedish ambulance service.

According to Swedish law (SFS, 1982:763, 1982), care should be based on evidence and best practice and given equity to all patients. However, without formal evaluation, professional development occurring within the isolated ambulance team might result in the transference of individual, habitual methods of handling situations instead of on evidence-based methods. This study indicates that there is a possibility that knowledge and skills may vary between RNs in the ambulance service and this variation can challenge the preconditions for high quality and equal care.

Furthermore, the results of this study show that the transition described in this context is quite similar to transitions described in other contexts (Andersson and Edberg, 2010; Cusson and Strange, 2008; Valdez, 2008; Whitehead et al., 2016).

Internal expectations concerning one's own ability to do the right thing were high and generated mixed emotions such as pride, excitement and freedom as well as insecurity, frustration, vulnerability, loneliness, inadequacy and fear of making mistakes. Negative emotions seem to be natural in nurses new to certain situations, indicating the level of emotional stress involved in transitioning to a new professional role (Barnes, 2015). Even though the RNs felt competent in their role as nurses, they still described being new to the ambulance service as having to adapt to a new role and being the one to ask the questions again. According to Kralik (2006), transition is about redefining and redeveloping the sense of self in response to the prerequisites of a new professional practice. This redevelopment indicates that the old professional identity needs to be abandoned to make room for the new. Bridges (2009) theoretical framework of transition suggests that all transition begins with an ending where the RN lets go of the old professional identity followed by a state of limbo described as a "nowhere between two somewheres" (Bridges, 2009 s. 40). The RNs' experience of feeling competent and a novice at the same time as shown in this study is endorsed by this theory.

The transition process described in this study was affected by lack of support among colleagues and a culture described as "macho". Ritualistic actions and testing of new colleagues competence are, unfortunately, not an unknown phenomenon and research has shown that these negative factors may lead to new RNs deciding to leave the profession (Morrow, 2009; Rudman et al., 2014). In order to promote balanced professional development, managers should actively discourage such unsupportive behaviour in any professional practice.

The results of this study also imply that aspects of the context influenced transition and professional development in the ambulance service. RNs often enter a new field of practice with ambitions and expectations that are more idealistic than realistic which led to feelings of not being prepared (Duchscher, 2008). Kramer (1974) called this *The Reality Shock*, which is described as the reaction that occurs when new nurses find themselves in situations for which they have spent years preparing and for which they thought they were prepared and suddenly find they are not. The RNs in this study described ambulance care as being more than just medical

interventions, and most patients were not as severely ill or injured as they felt their training had prepared them for. This experience is supported by a study by Sjolin et al. (2015), which shows that prehospital educational programmes in Sweden mainly focus on medical knowledge. According to the RNs in this study, a more reality-based education could increase preparedness to the ambulance service.

5.1. Methodological considerations

When exploring human experiences a qualitative approach facilitates data of depth and detail and open-ended questions enable the researcher to capture the points of views of other people. Since AH, who collected all the data, is an ambulance nurse there was a risk that data would be interpreted in a biased way. To limit the influence of bias or preunderstanding, meetings were held where all the authors analysed parts of the material ensuring that the findings reflected the data (Marshall and Rossman, 2010; Thurmond, 2001). Three of the authors are ambulance nurses and thereby knowledgeable about the context. Two authors have knowledge about transition and pedagogic. This mix of perspectives was used as facilitators, providing an insider perspective as well as an outsider perspective on the phenomenon.

Of 85 possible informants only 13 agreed to participate. This could indicate that the ones participating were individuals with extreme experiences and not representative of the overall experiences of being new to the ambulance service. Including informants from a wide range of geographic regions and backgrounds was an attempt to minimize the risk of extreme experiences (Patton, 1990). Individual experiences are unique and thereby there are no ways of knowing what additional interviews would add to the result of this study. The thirteen interviews however provided broad and rich descriptions of the experiences and eventually common, repeated themes emerged enabling the researchers to create an overall understanding of the experience of being new to the ambulance service.

The result of thirteen interviews does not claim generalizability, however this study strived to involve detailed and rich descriptions to increase transferability to contexts with similar prerequisites (Patton, 1990).

6. Conclusion

RNs new to the ambulance service experienced a transition where they had to self-assess their knowledge gaps and use personal unsupervised strategies to develop professionally. This self-directed professional development might lead to knowledge and skills varying between the RNs and with high quality care being put at risk. Colleagues with unsupportive attitudes affected negatively the experience of being new which might lead nurses to leave the profession, resulting in professional practices lacking experienced personnel. In contexts like the ambulance service, experience and experienced colleagues were described as important factors to increase security. The findings also show that there were more to the ambulance service than medical care of patients and to have adequate guidelines, an experienced colleague and a more reality-based education could facilitate preparation for working in this context and further increase security. This study underscores the importance of further research being carried out on professional development and ways of supporting professional development in the ambulance service.

Acknowledgements

The authors wish to acknowledge the contribution of the informants and Stockholm County Council and Academic EMS for financial support when conducting the study.

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II

Challenging encounters as experienced by registered nurses new to the Emergency Medical Service - Explored by using the theory of Communities of Practice.

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Abstract

Aim: To explore challenging encounters experienced by registered nurses (RN) during their first year in the emergency medical service by using the social learning theory of communities of practice.

Background: During the first year in a new professional practice a new RN experience a transition where the new professional identity is being formed. This is a challenging and demanding period of time. According to the learning theory of communities of practice by Lave and Wenger, individuals learning and development in a new professional practice occurs through participation in social activity and is influenced by context.

Design: This study is based on the qualitative data from semi-structured interviews. Thirty-two RNs working in the Swedish emergency medical service were interviewed via telephone during the spring of 2017.

Method: A qualitative content analysis with deductive reasoning of the interviews was used.

Findings: The analysis process generated the main category; New RNs participation is challenged by unpredictability and uncertainty in practice, and was based on three generic categories; Loneliness in an unpredictable context, Uncertainty about the team, Uncertainty in action.

Conclusion: The challenges new RNs encounter during the first year relate to all three dimensions of a community of practice; mutual engagement, joint enterprise and shared repertoire. The encountered challenges also relate to the EMS context. Taking in for account all these aspects when designing support models for nurses' professional development may be advantageously for creating a positive development for RNs new to the EMS and/or similar practices.

Keywords: Ambulances, Communities of practice, Emergency Medical Service, EMS, Mentoring, Nurses, Professional role, Staff development.

Introduction

Despite thorough formal education and professionally tailored preparation, when new to a professional practice, registered nurses (RN) worldwide still report difficulties in adapting to professional circumstances (Gerrish, 2000). The reality of professional work does not seem to live up to the nurses' sometimes idealistic expectations, which affects turnover rates, quality of care and patient outcome (Kramer, 1974; Kramer, Brewer, & Maguire, 2013). The emergency medical service (EMS) is no exception (Patterson, Jones, Hubble, Carr, Weaver, Engberg, & Castle, 2010). In the EMS, a new professional also needs to adapt to work with limited resources in highly varied settings where space may be constrained, light might be limited and footing unstable. In a challenging context like the EMS, the professionals work with critically ill patients in sub-optimal positions and with unpredictable bystanders (Carter & Thompson, 2015; Mausz & Tavares, 2017). To our knowledge there is a lack of knowledge about how new professionals develop and adapt to the challenges of a professional practice like the EMS. The aim of this study was to explore challenging encounters experienced by RNs during their first year in the EMS using the social learning theory of communities of practice.

Background

During the first year in a new professional practice a RN goes through a transition where the new professional identity is developed (Brown & Olshansky, 1997; Hörberg, Lindström, Kalén, Scheja, & Vicente, 2017). Although difficult to overcome, the challenges of transition are essential for professional development and the acquisition of new knowledge and skills (Barnes, 2015; Farnell & Dawson, 2006; Lave & Wenger, 1991).

Transition is a concept that involves the way people respond to changes in their life world (Meleis, 1975). Transition has been described as a journey from one position in life to another, and a reconstruction of self-identity (Barnes, 2015). Transition is a dynamic process that occurs over time and entails change and adaption (Barnes, 2015; Kralik, 2006; MacLellan, Levett-Jones, & Higgins, 2015). Transition is usually described by stages, where the first stage entail that the new RN let go of the old professional identity. It can be an emotional period with stress, confusion and anxiety (Barnes, 2015; Bridges, 2009; Brown & Olshansky, 1997). The second stage is entered when the old professional identity has been abandoned but the new is not yet accepted. This second stage has been described as a psychological no-man's land, a limbo between two identities. If too great responsibilities are placed on the new RN during the second stage, self-confidence may be affected (Bridges, 2009). The third and last stage begins when the new RN has made significant advances in becoming more confident and feel more legitimate in the new professional practice (Brown & Olshansky, 1997). At this stage new values, attitudes and a new identity is being formed.

Another challenging aspect involved in the transition into a new professional identity is finding one's own part to play in the new professional practice and becoming a legitimate member of the team (Bridges, 2009; Conte, Scheja, Hjelmqvist, & Jirwe, 2015). Becoming a legitimate member of a team is essential for successful team work, patient safety and retention (Numminen, Ruoppa, Leino-Kilpi, Isoaho, Hupli, & Meretoja, 2015).

Our research stems from the epistemological notion that learning and professional development occur through participation with and in a team. In the EMS, the team has been suggested to have great influence on the new professionals' development (Hörberg, Lindström et al. 2017). Therefore, the social learning theory of communities of practice (CoP) (Lave & Wenger, 1991) has been used in our study to represent one view of the development of a new professional identity during the first year in a new professional practice.

Communities of practice

The theory of CoP is based on the assumption that no activity is never not situated, and learning situated in a new professional practice is never simply a matter of the acquisition of knowledge and/or skills (Lave & Wenger, 1991). As newcomers strive to become respected members of the new professional community, they interact with new people, learn new skills and routines, and adapt to the new culture. Between the individual, the activity and the practice in which the individual engages, there is a constant interplay that shapes not only what the individual does but also who they are and how they interpret what they do (Wenger, 1998). We will refer to this interplay in terms of professional development. In this sense, professional development can be said to involve learning to become a member of a specific professional practice and the transition into a new professional identity.

CoPs are everywhere and a person can be engaged in a number of them, for example as a member of a professional practice and as a family member (Cruess, Cruess, & Steinert, 2017; Wenger, 2000). A person enters a CoP as a legitimate peripheral participant (Lave & Wenger, 1991). According to Lave and Wenger (1991) participation is the fundamental key to development. As a person becomes more engaged in practice they become more knowledgeable and skilful and move from legitimate peripheral participation to full participation. A CoP can be described as the place where people share, develop and negotiate their understanding of the world. There are three dimensions that together constitute a CoP: mutual engagement, joint enterprise and a shared repertoire (Wenger, 2000).

Mutual engagement

Being in a CoP is not just a matter of having a title or belonging to an organisation. It is the participants' *mutual engagement* that defines the CoP. This does not necessarily entail homogeneity. What makes mutual engagement possible is as much diversity as it is homogeneity. It involves an individual's competence but also the competence of others (Wenger, 1998). In an EMS team, the two professionals may have different educational backgrounds but their mutual engagement is to care for the out-of-hospital patients.

Joint enterprise

The meaning of a CoP is negotiated by its participants into a *joint enterprise*. Defining a joint enterprise is a process that is as generative as it is constraining. Metaphorically speaking, it is like a dance between accepting new knowledge and holding on to old beliefs (Wenger, 1998). The negotiation of enterprise involves knowing what matters and what does not, what to talk about and what to leave unsaid, what to display and what to withhold, and recognising when actions are good enough and when they need improvement (Wenger, 1998). There is a constant and ongoing process of negotiation between the participants and this gives rise to relations of mutual accountability. In the EMS team this can mean that members mutually trust each other to do what is best for the patient.

Shared repertoire

The third dimension of a CoP is a *shared repertoire*. Over time, the negotiated pursuit of a joint enterprise creates resources for that same enterprise. These can include routines, language, tools, symbols and genres (Wenger, 1998). In the EMS, symbols of the CoP include the shared uniform, the guidelines provided, medical equipment and ways of talking e.g. a dark humour (Rosenberg, 1991).

The context of the Emergency Medical Services

Around the world, the practices of EMS seem to be facing increasingly more demanding workloads and to a higher extent professionals are deciding to leave the profession (Cooper &

Grant, 2009; Evans, McGovern, Birch, & Newbury-Birch, 2013; O'Hara et al., 2015; Patterson et al., 2010; Suserud, 2005; Tohira, Williams, Jacobs, Bremner, & Finn, 2014). The reality of a professional practice like the EMS is far from ideal. Professionals in EMSs around the world work in teams that constitute only two people, they work with limited resources and meet critically ill or injured patients in highly varying settings. It has been described as a practice where the only thing that professionals can prepare for is to be unprepared (Sundström & Dahlberg, 2012). Without understanding the challenges that RNs new to the EMS encounter, providing support within the profession will be difficult.
In Sweden, where this study was conducted, the national regulation dictates that an ambulance in the EMS needs to be staffed by at least one RN (SOSFS, 2009). Registered nurses in Sweden holds a baccalaureate degree. Even though it is not a national mandatory requirement, some regions in Sweden only employ RNs holding a specialist degree in nursing, preferably in prehospital emergency care (Lindström, Bohm, & Kurland, 2015). A specialist degree in nursing is a protected occupational title achieved by an additional year of post graduate education. The educational content of this additional year focus on medical knowledge, nursing knowledge and contextual knowledge, with emphasis on medical knowledge (Sjolin, Lindstrom, Hult, Ringsted, & Kurland, 2014). In some universities in Sweden, the specialist nurse education program also leads to a master's degree in nursing science (ibid). Other professions represented in the EMS are emergency medical technicians (EMT) and physicians. There is no national regulation of the presence of these professions. Physicians, for example, may be available only via telephone or in special units such as a helicopter (Lindström et al., 2015). When an EMT constitutes one member of the ambulance team, EMTs are always paired with an RN, where the RN has the responsibility for the care (Wihlborg, Edgren, Johansson, & Sivberg, 2014).

By exploring challenging encounters by using the social learning theory of communities of practice, this research contributes to the field of knowledge about new professionals' development in a professional practice like the EMS and other ambulatory care practices.

Design

This is a qualitative study where the theory of CoP (Lave & Wenger, 1991) have been used as analytical frame. The analysis process was based on the qualitative content analysis process described by Elo and Kyngas (2008).

Informants

Inclusion criteria were RNs or RNs with a specialist degree, working fulltime as the one in the EMS team with the highest level of formal education, and that had been employed within an EMS organisation between 12 to 36 months.
A purposeful sample and snowball technique was used to identify informants (Patton, 2002). Region managers and human resource personnel were informed about the study and asked to identify possible informants. The names of the eligible informants that had given consent to be included in the study were e-mailed to the first author (AH). After each interview the interviewed informant was asked if he/she could recommend other possible informants. As a snowball gets bigger with each turn in the snow, the number of eligible participants increased with every interview (Patton 2002). Thirty-two informants agreed to participate (Table 1) representing both RNs and RNs with a specialist degree. All informants had the highest level of formal education in their team. Furthermore, when using the term 'RN', we refer to both RNs and RNs with a specialist degree.

Table 1. Demographic information of participants adapted from Hörberg, Jirwe et al. 2017 https://creativecommons.org/licenses/by/4.0/

Demographics		Number (percent)
Total of included participants		32 (100%)
Gender	Male	12 (37.5%)
	Female	20 (62.5%)
Academic degree	Registered nurse	9 (28%)
	Specialist nurse (One year additional education)	23 (72%)
Geographic region	Urban	16 (50%)
	Sub-urban	10 (31%)
	Rural	6 (19%)
Months of experience *(in the EMS)*	12-24	25 (78%)
	> 25	7 (22%)
Years of RN experience	< 5	11 (34%)
	5-10	15 (47%)

Data collection

Data were collected by telephone interviews during the spring of 2016. The time for the interview was chosen by the informant, and interviews lasted 6-30 minutes, with a mean time of 14 minutes. To facilitate dependability, all interviews were performed by the first author, using a semi-structured interview guide. The semi-structured interview guide was developed by all authors, and piloted in a group of seven people, two researchers, three experienced RNs and two novice RNs. The interview guide consisted of three main questions:

1. *Can you tell me about a situation during your first year in which you did not experience that you could manage the way you would have liked to?*
2. *What support would you have desired to manage that particular situation?*
3. *During your first year, what other support, apart from that you just described, would you have desired?*

In this study, data generated from question one, the informants' stories about experienced challenging encounters, was analyzed. The data generated by the answers from question two and three was analyzed in a study by Hörberg, Jirwe, Kalén, Vicente, & Lindström (2017) that identifies desirable support during the first year in the EMS.

Ethical considerations

All RNs were informed about the study in written and oral form, participation was voluntary, and all gave consent for the material to be used in this study. Confidentiality was guaranteed and the RNs were informed that they could retrieve their participation at any time without consequences.
This study was approved by the Regional Ethical Board (Diary number 2015/87-31/5).

Data analysis

The data were analysed by qualitative content analysis using the approach described by Elo and Kyngas (2008) and shown by the marked trail in Figure 1.
The analysis process was structured by the three phases of preparation, organising and reporting as suggested by Elo and Kyngas (2008).

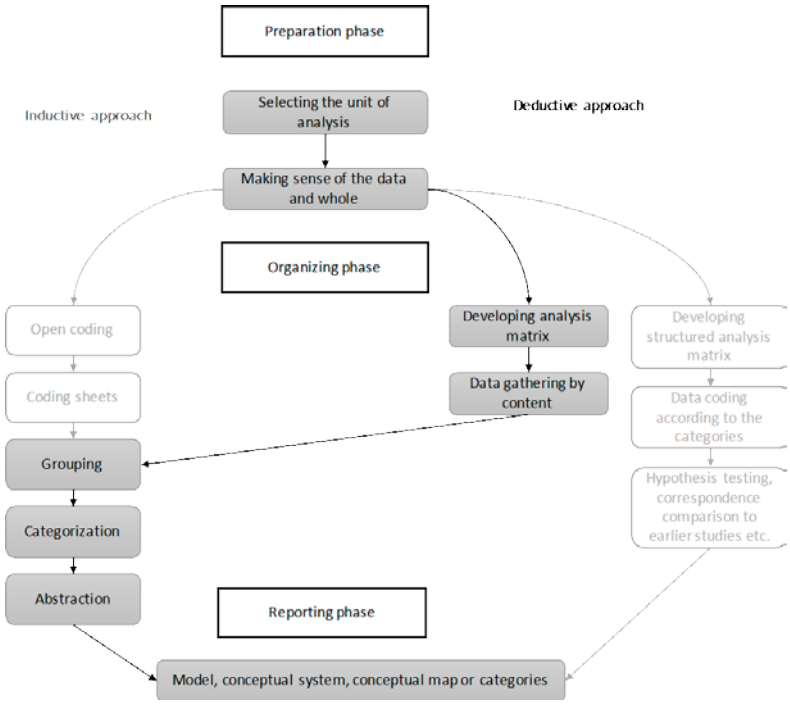

Figure 1. Data analysis process show by the marked trail, adapted from Elo and Kyngäs 2008. Reproduced with permission by Wiley and Sons.

Preparation phase
All interviews were tape-recorded and transcribed verbatim by the first author (AH). The transcribed material was checked for coherence by AH and VL. The transcribed data from question one of the interview guide constituted the unit of analysis. To make sense of the data and of the whole, the interviews were read repeatedly.

Organising phase
To identify challenges regarding professional development within the CoP a categorisation matrix based on the three dimensions of a CoP was used (Elo & Kyngas, 2008; Wenger, 1998) (Table 2). Data was gathered by the described challenges being highlighted, openly coded and grouped according to correspondence with the challenge of mutual engagement, the challenge of a joint enterprise and the challenge of a shared repertoire. Statements that did not fit in any of the challenge of a CoP were sorted as a fourth content area labelled as 'other challenges'. Data analysis was performed by all authors. Four of the authors (AH, HC, MS, SK) were knowledgeable about the theory of CoP and two authors (AH, VL) were knowledgeable about the EMS context. The mix of author knowledge provided both insider and outsider perspectives during the analysis process. Recurrent discussions regarding which content each statement would belong to and categorization were performed until consensus was reached.

Table 2. Categorization matrix and example of the analysis process

	Data from interviews	Codes from interviews	Sub-categories developed from codes
The challenge of **mutual engagement**	…and she (EMT) continued to have this aggressive attitude and question why they had called for an ambulance at all, meanwhile this man is taking his last breaths […] I just wanted to sink through the face of the earth, it was so embarrassing. (Informant 2)	Feel embarrassed by the colleague's attitude	Team conflicts
	I have never gotten any real training in how to assess a neck injury so I asked my colleague for guidance and he only says, you're the nurse, it's your call. (Informant 12)	Unsupportive colleague	Lack of unity
	I was supposed to be MA (medical officer) but I was too new…I couldn't take any…I couldn´t stop my colleague and say we need to do this and this… (Informant 32)	Not being able to take the leader role	Unclear roles
The challenge of negotiating a **joint enterprise**	Too me it's really important, but she didn't get that, she just kept on having that harsh attitude meanwhile this patient is actually dying in front of us… (Informant 2)	Not shared values with the colleague	View on assignment
	I didn´t agree but he (EMT) has worked so many years so I trusted him […] but when we came to the hospital, they questioned my assessment. (Informant 11)	Not being able to trust the colleague	Team accountability
	I just stood there and took the scolding, that doctor really run me over and I didn't have enough knowledge to stand up for myself in that situation. (Informant 28)	Not standing up one self	View on own contribution
The challenge of a **shared repertoire**	I kept looking for that thing to attach it (the CPAP) with…but I couldn't find it… […] later I understood that I thought it (the CPAP) was supposed to look different than what it did in reality… (Informant 18)	Not knowing how to use the equipment	Lack of knowledge
	I wanted to go to the hospital with the patient but in this case, we had the other patient as well… (Informant 31)	Not being able to do what feels right	Lack of experience
	I drove to an address I thought was the right but when we arrived I realized it was wrong […] I panicked. (Informant 8)	Driving to the wrong address	Making a mistake
Other challenges	It was a traffic accident…eh…on a smaller road […] we knew we were the only available ambulance because everyone else was busy… (Informant 9)	Being the only ambulance on scene	Lack of resources
	It was my first cardiac arrest and I didn't know all the routines and there was no one I would turn to and ask either. (Informant 7)	No one to ask	Working independently
	There were three adolescents screaming and a lot of people around and…well…I was not prepared for that… (Informant 19)	Not feeling prepared for what to encounter	An unpredictable context

Codes within all of the four areas were grouped and labelled with a descriptive content-characteristic sentence forming twelve sub-categories (Table 2). Of the twelve sub-categories three generic categories were created by grouping sub-categories that were considered as belonging to the same topic under higher order headings. The three generic categories were described by a main category.

Reporting phase

The findings are presented as a main category and three generic categories (Figure 2). To strengthen credibility, quotations are used to illustrate the findings.

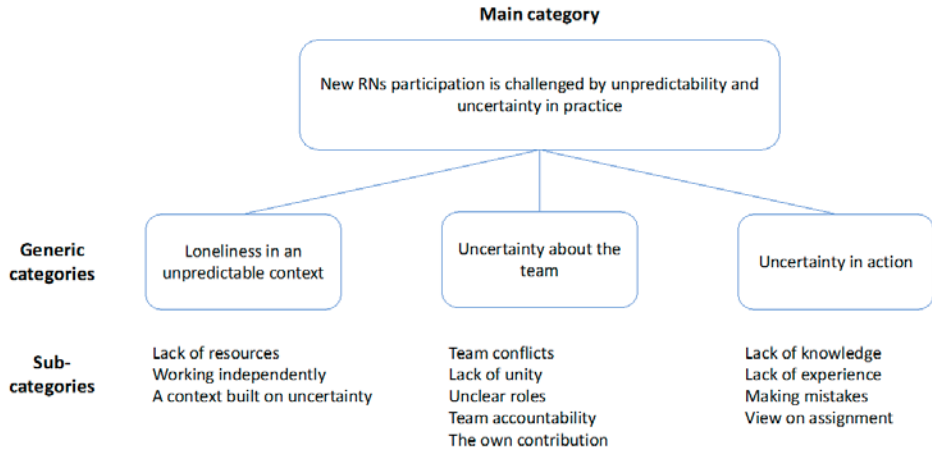

Figure 2. Illustration of the findings

Findings

It was found that the social learning theory of CoP could be used to explore challenging encounters experienced by RNs during their first year in the EMS to a great extent. Statements that were not related to the challenge of a CoP were sorted as "other challenges". All these other challenges were about the EMS context.

New RNs participation is challenged by unpredictability and uncertainty in practice

The main category describes that the new RNs participation is challenged by unpredictability and uncertainty in practice and constitutes actions and relationships that simultaneously occurred in the three dimensions of the CoP. During the first year, the RNs encountered a practice built on uncertainty and unpredictability. The RNs did not know what to expected of themselves or other health care professionals; neither did they know when to except it. In this unpredictable practice, the RNs described being affected by uncertainty about whether or not they could trust their own competence or that of others. Feeling uncertain and having only the EMT colleague to ask for support was reflected in uncertainty in action, i.e. how to handle situations.

Loneliness in an unpredictable context

The EMS was described as a context where unpredictable situations occurred. When the unexpected happened, the RNs described the challenge of having to make independent decisions with limited support and resources. Adding to the uncertainty was receiving inadequate or uncomplete information from the dispatch centre.
We got a call…level four I think it was, a child that was crying, that's all information we got, so we go there and…find an unconscious, pale, child laying on the floor…we panicked, grabbed the child and ran down to the car (Informant 30).

Data show a great diversity of encounters that EMS professionals need to be prepared for during their first year. These encounters ranged from making a decision to slow down and just hold an old man's hand while he was taking his last breaths, to being directed to a nightly gun-shooting. Some RNs described situations that they knew they might encounter but had not yet encountered. The main reason for this uncertainty being described as challenging was that the RNs had no idea of how they would react, for example when encountering a drowning child or someone who had jumped in front of a train.
In the EMS, the RNs described not knowing whether or not there were more available resources when they arrived in the first ambulance at an accident or attended a critically ill patient miles away from nearest hospital.
It was rough, […] being the person that had to make the decision… (Informant 12).
Being the only RN they reflected that they had to be able to work independently even though they did not feel competent enough to do so. This included having to make autonomous medical or logistic decisions or deciding which patient to attend to first in a traffic accident.

Uncertainty about the team

In the unpredictable context, the mutual engagement in patient care was affected by uncertainty in team roles. Not knowing what to expect of the colleague or what was expected of oneself led to conflicts within the team and a sense of non-existent team unity.
I didn´t have a colleague, I just had a person that drove around with me in the car (Informant 10).
The RNs were placed with different colleagues almost every day. When there were different levels of formal education and level of experience, or when the colleague was new to the EMS as well, the roles in the team were unclear and conflicts occurred. The RNs also reported being yelled at by a physician for not having done what the physician ordered them to do, or colleagues in assisting ambulances condescendingly commenting on decisions the RN had made. Colleagues not willing to support a new RN showed this by a neglectful attitude or by departing from guidelines without giving an explanation as to why.
Eh it´s a mentality like, we´ll do it this way…and if I say But the guidelines say…they´ll be like…Yeah well now we do it this way (Informant 10).
In another situation one RN even described having to take on the role of being responsible for another new employed RN´s orientation.
I mean, I had no idea either about what she knew or how I was supposed to teach her about how it is done in the ambulance (Informant 16).

Uncertainty in action

Conflicts could also arise in terms of negotiation about the joint enterprise, when new RNs and the more experienced colleague did not share the same view of treatment, ethical values or assignments.
We got a level 1 call and it was a 30-year-old man with sudden, severe headache…my reaction was that this could be something serious…and my colleague said, this is probably psych (Informant 10).
Sometimes the colleague did not show respect or trust the RN's competence and since they were uncertain about their own competence, the RN would "give in" to the colleague. When this led to wrong assessments or treatments, the RNs blamed themselves for not being strong enough to stand up for their own beliefs.

We discussed it but he didn´t want to change his mind, so eventually I gave in and this still irritates me[…] I felt so bad coming in to the hospital with this patient not immobilised, it was so embarrassing (Informant 4).

It was also experienced that sometimes the colleague wanted to get the job done quickly rather than making necessary assessments and treatments.

This day my colleague was going to (an event) after the shift and was very stressed about this…I noticed because directly after reading the assignment he said, We´ll go to (local hospital) with this right? But I felt that this looked like a major trauma and our guidelines then say we should go to (region hospital) (Informant 11).

Many of the situations regarded first-time encounters, such as the first cardiac arrest, the first time using some of the medical equipment or the first time giving a specific medication. When encountering something for the first time and feeling insecure about either their own competence or the colleague's competence, and not receiving support from guidelines or having someone else to ask, the RNs found themselves in situations where they did not know what to do.

I don't know, I did not know what to do…I had no idea…those 30 minutes were the worst in my entire life…because I was so new… (Informant 21).

When not knowing what to do and without the colleague or guidelines to provide assistance, there was no shared repertoire and the RNs had to create a repertoire themselves. Sometimes this led to the experience of sub-optimal treatments or assessments being made.

In terms of a self-conceived lack of experience and knowledge, believing to have done something wrong or having made a flawed assessment was described with self-criticism and remorse.

I shouldn´t have done that; if I had gotten her to the hospital faster then she might have survived… (Informant 5).

Discussion

The findings display a variety of different encounters that were considered as challenging by the new RNs, challenges that could relate to the theory of CoP and challenges about the EMS context. The challenges evolved around the unpredictable context and uncertainty within the team and in action. The challenge of the unpredictability that frames an EMS context has been highlighted in prior research (Sundström & Dahlberg, 2012). Unpredictability has also been stressed as having negative influence on new professionals' transition (Sutton & Griffin, 2004; van der Werff & Buckley, 2017). According to the theory of CoP, a person's professional development can never be isolated from the world in which he/she acts (Lave, 2009). However, the different prerequisites of a context and how these prerequisites affect professional development is not in focus in the theory of CoP. In the light of our findings, one way of preparing new professionals both for the EMS and other professional practices is by highlighting the particular prerequisites of the new professional context. Preparing new professionals for an unpredictable context may be challenging but nonetheless important.

The informants also described uncertainty about what to expect from their colleagues. Since the two professionals in the EMS team often had different levels of formal education the roles were unclear and this led to conflicts. In the light of CoP one could view this result in two ways. Even though the mutual engagement revolved around patient care there was a deviant view of the course of the assignment. This could indicate that in the EMS team RNs and EMTs belong to two different CoPs parallel to the common one and therefore collide.

In hospital practices, teams are larger, resources are greater and there is often someone else to turn to if a conflict arises (Mausz & Tavares, 2017). According to Wenger (2000) people must know each other well enough to interact productively and know whom to call for help or advice.

This might be difficult when being new to a community. Working in teams of two, as in the EMS also limits the options of whom to ask for help or advice and could be an explanation as to why conflicts arose in the EMS team.

Another way of viewing conflicts is as a natural process of transition and a part of being new to a CoP (Andersson & Edberg, 2010; Barnes, 2015; Chang & Hancock, 2003; Rush, Adamack, Gordon, & Janke, 2014). According to Lave and Wenger (1991), conflicts are a natural part of development and are generated when new professionals move from legitimate peripheral participation towards full participation. A conflict in itself should therefor neither be seen as positive nor negative. It is the meaning derived from the conflicts that will influence whether development will be creative or lead to inbred failure (Harenčárová, 2017; Rush et al., 2014; Wenger, 1998). Some conflicts described by the informants in this study were based on bullying behaviour by the experienced colleagues. The meaning derived from conflicts based on distrust, neglect or when a new professional is left unsupported is most often negative and do not lead to creative professional development (Pfaff, Baxter, Jack, & Ploeg, 2014; Rush et al., 2014). There might also be a risk when experienced colleagues show lack of respect for the new RN´s competence that the new RNs may refrain from seeking support in the future. Whichever way one views the challenges of conflicts, the findings presented here underscore the vulnerability in having only one colleague. It also stresses the importance of that colleague being trustworthy, respectful and able to support the new RN. Future research that focus on culture and attitudes of experienced professionals towards new colleagues in the EMS is needed to increase the knowledge about being new to the EMS context.

Another challenge of conflicts is that team collaboration may be affected. From the viewpoint of a CoP, new members in a community bring new ways of looking at the world that might illuminate limitations or possibilities that were previously unknown to the community (Wenger, 2000). These new influences can either be accepted and lead to the community being redefined, or it can be suppressed. For a community to be redefined and for its members to develop, people need to be able to reflect on what they do, how and why (Schön, 1983; Wenger, 2000). Reflectivity, both on an individual level and within the team has been discussed as prerequisites for successful team collaboration (Conte, Jirwe, Scheja, & Hjelmqvist, 2015). Team collaboration is an important part of professionals' engagement in practice and improves health outcomes (Conte, Jirwe, et al., 2015; Conte, Scheja, et al., 2015; World Health Organization, 2010). The benefits of formal peer-support, for example mentorship, have been acknowledged in prior studies to support a new professional's development and strengthen the sense of team unity (Chen & Lou, 2014; Kalen, Ponzer, & Silen, 2012; Rush et al., 2014). Even though Andersson and Edberg (2010) suggest that development occurs regardless of formal support, our study findings indicate that mentorship initiatives may be beneficial in contexts like the EMS.

The findings also presented that new professionals do not trust their own competence and when mistakes were made this was described with self-criticism and remorse. This part of the findings is in line with the findings of Wihlborg, Edgren, Johansson, and Sivberg (2016) that conclude that the way EMS professionals perceive their own competence is closely linked to patient outcome. Self-confidence influences how situations are conceived and an individual's self-confidence can be affected by feedback and by gaining experience (Ortiz, 2016). The need for feedback has been stressed before, and this study further highlights the importance of enabling EMS professionals to get feedback on their actions and development (Hörberg, Jirwe, et al., 2017; Hörberg, Lindström, et al., 2017; Smith et al., 2013).

Strengths and limitations

The trustworthiness of a qualitative content analysis study is established by scrutinising credibility, dependability, conformability, transferability and authenticity in all three phases of the analysis process, i.e. in the preparation, organising and reporting phases (Elo et al., 2014; Lincoln, 1985). Following the framework presented by Elo and Kyngäs (2008) provided a systematic and organised analysis process. Individual, telephone interviews were chosen since talking about challenging encounters may be sensitive to talk about in a group and may affect the individual's answer. All three phases of the analysis were reported in a descriptive manner using illustrations and quotes to enable for the reader to determine dependability and transferability of the data. During the organisation phase, there is always a level of interpretation. However, the authors met regularly to discuss the analysis process and the mix of authors' scientific knowledge and professional background were considered to reduce the risk of preunderstanding affecting the analysis. This study is also strengthened by the wide range of informants, representing both rural and urban areas. Even though the study took place in Sweden, international literature that relates to the study aim and the theoretical framework of CoP was used to increase the transferability of the findings. Authenticity refers to the extent to which authors consider a range of realities. Different realities were considered in the analysis process and presented in the discussion of the findings.
Using the theory of CoP is one way of conceptualising professional development (Wenger, 1998). By using CoP, we do not mean to say that other theories of learning are less valid.
This study has been reported according to the Consolidated Criteria for Reporting Qualitative Studies (COREQ) checklist (Tong, Sainsbury, & Craig, 2007).

Conclusion

By exploring challenging encounters using the theory of communities of practice, this study concludes that the challenges new RNs in the EMS encounter stems from challenges in mutual engagement, joint enterprise, a shared repertoire and from contextual prerequisites. The EMS context present a challenge by being unpredictable and where the new professionals only have one colleague to cooperate with. Adding to the personal challenges of transition was challenges such as conflicts or bullying behaviour from that one colleague or other experienced colleagues. The findings of this study can be used when designing formal support models for new professionals in practices like the EMS and other ambulatory care practices. Mutual engagement and a joint enterprise can for example be supported when the new RNs feel trusted and respected by their colleagues and when the roles and view on assignment are clear within the team. Clear role descriptions seem to be especially important when the level of formal education differ between the team members. Shared repertoire, i.e. ways to handle a new encounter, can be supported through formal feedback and having a trusted colleague.
New RNs professional development can also be supported if the RNs are being prepared for the specifics of the context they are new to. Having realistic expectations on the new practice may reduce the sense of uncertainty that arises when unpredictable events occur.

Further research on how formal support models based on the understanding of socio-cultural learning can support professional development in organisations like the EMS is needed.

Acknowledgements

The authors would like to thank all informants for their invaluable participation and Stockholm County Council and Academic EMS in Stockholm for funding.

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DOI 10.1186/s13049-017-0434-5

Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine

ORIGINAL RESEARCH Open Access

We need support! A Delphi study about desirable support during the first year in the emergency medical service

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Abstract

Background: New and inexperienced emergency medical service (EMS) professionals lack important experience. To prevent medical errors and improve retention there is an urgent need to identify ways to support new professionals during their first year in the EMS.

Methods: A purposeful sample and snowball technique was used and generated a panel of 32 registered nurses with 12–48 months of EMS experience. A Delphi technique in four rounds was used. Telephone interviews were undertaken in round one to identify what desirable support professionals new to the EMS desire during their first year. Content analysis of the transcribed interviews yielded items which were developed into a questionnaire. The experts graded each item in terms of perceived importance on a 5-graded likert scale. Consensus level was set at 75%. Items which reached consensus were removed from questionnaires used in subsequent rounds.

Results: Desirable support was categorized into eight areas: Support from practical skills exercises, support from theoretical knowledge, support from experiences based knowledge, theoretical support, support from an introduction period, support from colleagues and work environment, support from management and organization and other support. The experts agree on the level of importance on 64 of a total of 70 items regarding desirable support. One item was considered not important, graded 1 or 2, 63 items were considered important, graded 4 or 5.

Conclusion: Even with extensive formal competence the EMS context poses challenges where a wide variety of desirable forms of support is needed. Support structures should address both personal and professional levels and be EMS context oriented.

Keywords: Emergency medical service, Professionals, Professional development, Support

Introduction

Experience has been suggested to be one of the most valuable tools for handling the wide variety of unpredictable situations that emergency medical service (EMS) professionals around the world may encounter [1, 2]. New and inexperienced EMS professionals lack this experience.

To prevent medical errors and improve retention there is an urgent need to identify ways to support new professionals during their first year in the EMS.

Without knowledge about what the EMS professionals themselves would desire during their first year, well-intentional support strategies risk being unsuccessful.

Background

The required level of competence needed in the EMS differs around the world [3, 4]. In Sweden where this study was conducted an ambulance is staffed by at least one registered nurse (RN) and an emergency medical technician [5].

However, the patients and challenges that EMS professionals meet are the same worldwide [6–9].

EMS professionals are exposed to the full extent of human emotions, injuries and suffering in a wide variety of

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unfamiliar, unpredictable and potentially dangerous environments [5, 10, 11].

Competence can be defined as "the ability to do something successfully" https://en.oxforddictionaries.com/definition/competence and will be used in this study when referring to the skills and knowledge needed to care for the great variety of patients encountered in EMS. Today many EMS professionals' competence is assessed through the use of techniques such as simulation-based exercises. However, a professional's competence and readiness for the independent and clinical work in the EMS can be complex for educators to assess [12]. Prior experience has been described as one of the most important tools for handling the many different situations a professional may encounter [1].

A professional practice like the EMS is a far from ideal clinical work environment. Peer support is limited since the professionals work with only one partner. In most countries, a physician is available only via telephone, and sometimes that physician does not work in the EMS [2, 13]. A new EMS professional needs to be able to work independently and make quick critical decisions from day one.

The first year in professional practice is associated with insecurity, feelings of stress, self-doubt and inadequacy [14, 15]. Being unsupported, new and inexperienced may have significant consequences for patient safety [16, 17]. Inexperience has been associated with a higher degree of medical errors, delay in care and errors in critical thinking [18].

Even though simulation is a successful tool for the training and development of professional skills [19] it can never be more than a surrogate of reality. Something else, or rather something more might be needed to support the development and maintenance of competence in the EMS during the first year of practice.

In a plethora of support systems suitable for 'in-hospital' environments there seems to a lack of knowledge regarding what kind of support is eligible for the 'out of hospital' EMS. To provide a basis for discussion and future interventions this study aimed to identify the support desired by new and inexperienced EMS professionals during their first year in the EMS.

Method

Study design

The Delphi technique was used to achieve consensus on desirable support during the first year in the EMS in a group of informants considered to be experts on being new. The Delphi is an iterative process characterized by a number of rounds in which questionnaires are sent out until consensus is reached [20]. This Delphi study commenced with interviews and a broad open question, and the classical Delphi technique with four rounds was used [21]. Data was collected during April–September 2016.

Panel of experts

An expert is defined as a person who is very knowledgeable about a particular area https://en.oxforddictionaries.com/definition/expert

This study was performed in Sweden where an ambulance is staffed with at least one RN or a specialist nurse with a specialist degree and an emergency medical technician [5]. A specialist nurse has a one year postgraduation education degree in a subject such as prehospital emergency care or intensive care.

This study involves both RNs and specialist nurses, henceforth referred to as RNs. All RNs were considered experts on the experience of being new and what support they themselves would have desired during the first year in the EMS.

To obtain a wide range of perspectives on desirable support, a purposeful sample and snowball strategy was used [22]. Region directors and personal knowledge were used to identify the initial RNs. All RNs that consented to participate in the study were asked to recommend other possible experts. To avoid influence of personal gain and for the RNs to be able to reflect on their first year, the RNs had to have worked for more than 12 months in the EMS. Furthermore, for the RNs to have reached a competent level [23] and still be able to relate to the first year, an upper limit of three years of experience was set. In total 32 experts agreed to participate (Table 1).

Round 1:

The first round was an idea generating round that consisted of open-ended sets of questions [24]. For this round, individual telephone interviews were used, comprising three questions:

Table 1 Demographic information of participants

Demographics		Number (percent)
Total of included experts		32 (100%)
Gender	Male	12 (37.5%)
	Female	20 (62.5%)
Academic degree	Registered nurse	9 (28%)
	Specialist nurse *(Pre-hospital emergency care)*	18 (56%)
	Other specialist nurse	5 (16%)
Geographic region	Urban	16 (50%)
	Sub-urban	10 (31%)
	Rural	6 (19%)
Months of experience *(in the EMS)*	12–24	25 (78%)
	> 25	7 (22%)
Years of RN experience	< 5	11 (34%)
	5–10	15 (47%)
	> 10	6 (19%)

1. Can you tell me about a situation during your first year in which you did not experience that you could manage the way you would have liked to?
2. What support would you have desired to manage that particular situation?
3. During your first year, what other support, apart from that you just described, would you have desired?

All experts received the questions in advance and interviews took place at times decided by the experts. The interviews were tape-recorded and transcribed verbatim after each interview. The transcribed material was analyzed using the manifest content analysis described by Hsieh and Shannon [25] (Table 2).

Round 1 resulted in eight categories concerning desirable support and a total of 62 statements, henceforth referred to as items, about desirable support.

Round 2:

The items generated in round 1 were used to construct a questionnaire. To enhance validity the original questionnaire was piloted in a group of seven persons who did not participate in the main study [22]. The pilot group consisted of two RNs new to the EMS, two researchers, and three experienced RNs with a special interest in education. The final questionnaire in round 2 consisted of eight categories with a total of 65 items. The experts were asked to grade the importance of each item using a five-point Likert scale ranging from 'not at all important' (score 1) to 'very important' (score 5). In this round, the questionnaire also included open questions where the experts were asked to add additional items if they considered anything to be missing. The questionnaire was distributed to the 32 experts. Two reminder emails were sent during a three-week period, resulting in a 100% response rate.

As suggested in other studies [26, 27], for analytical purposes the scale was tricotomized to a three-point scale before determining if consensus had been reached. This means that the two lower responses "1–2" represented not important, "3" represented neutral and two upper responses "4–5" represented important. This was done on the assumption that people tend to grade either the highest/lowest or the next highest/lowest, arguing that the item is 'as good as it gets' or 'it is important but it can always be better' [26]. The level of consensus was predetermined and set at 75%. An item was considered to have reached consensus when 75% (24/32) or more experts agreed on any of the tricotomized scale responses. When calculating the frequencies using the tricotomized scale for each item in round 2, 51 items reached consensus and the experts suggested five new items (Table 3).

Round 3:

A new questionnaire was constructed comprising 19 items; 14 items that did not reach consensus in round 2 and five new generated in the open-ended questions in round 2 (Table 3.). Feedback containing the median value and the experts' individual response on each of the 14 items from round 2 was provided in a personal PDF document to each expert. Median value was used to show how a majority had rated each item [21]. A technical problem occurred during the process leading to a risk of individual feedback in this round being inaccurate. The median values were unaffected and accurate. The experts were informed about this risk and asked to take this into consideration when reconsidering their grading in round 3.

The questionnaire was distributed to the 32 experts and two reminder emails were sent during a four-week period resulting in 97% response rate. One expert did not complete the questionnaire.

The responses were analyzed as in round 2 and consensus was reached on a further 10 items.

Round 4:

A final questionnaire was constructed with the remaining nine items from round 3 (Table 3.). This was distributed with a PDF with feedback as previous rounds. The questionnaire was distributed to the 31 experts that completed round 3. One reminder email was sent and in 10 days the response rate was 100%. The final round generated another three items on which consensus was reached and six where it was not.

Ethical considerations

All the experts were informed about the study both in written and oral form, and participation was voluntary. Confidentiality was guaranteed and the experts were informed that they could leave the study at any time.

Because of the iterative nature of the Delphi technique, true anonymity cannot be guaranteed and the term quasi-anonymity is more often used. The first author (AH) knew the identity of the experts, and to provide individual feedback, AH also had to be able to identify experts' individual responses. No personal data was included in the report of the results and AH was the only author who knew the identity of the experts. The experts were informed about this and all gave their consent.

The need for ethics approval was waived by the Regional Ethical Board in Stockholm (Diary number 2015/87–31/5).

Results

All items that reached consensus presented in mean values, standard deviation (SD) and in what round consensus was reached are presented in Table 4. Items for

Table 2 Examples of the content analysis process in Round 1

Interview	Meaning unit	Code	Category	Item
When you need it to just flow, where time is of essence…and…it's hard to say exactly but you can think of situations where someone dies, gives birth, is severely ill or children…you can do a lot of exercises on those situations…we do practice traffic accidents and stuff like that, but we should have more exercises on the ordinary things… (Expert #1)	Practice situations where time is of the essence and the ordinary things (Expert #1)	Practical exercises (Experts#1, 3, 5, 12, 13, 14, 16, 17, 18, 19, 20, 22, 23, 27, 31)	Support from practical exercises	Practice situations that occur rarely (Experts #1, 5, 12, 13, 14, 16, 17, 19, 22, 23, 31) Practice situations that occur frequently (Experts#1, 3, 5, 14, 17, 18, 19, 20, 27)
To me, it would have been supportive to have some kind of mentor…maybe a mentor that you would come back to and have discussions with and meetings where you could discuss different situations you have experienced with other colleagues or patients…to have someone to bounce things off… (Expert #16)	It would have been supportive to have a mentor to discuss situations that had been encountered with colleagues or patients (Expert #16)	To have a mentor (Experts #2, 5, 6, 7, 8, 9, 12, 14, 16, 17, 19, 21, 24, 25, 26, 27, 29, 30)	Support from colleagues and work environment	Have a mentor that supports your personal development (Experts #2, 5, 6, 7, 9, 12, 14, 16, 17, 19, 21, 25, 26, 27, 29, 30)

Table 3 Delphi flow chart of the four rounds

	Round 1	→	Round 2	→	Round 3	→	Round 4
Number of participants	32		32		32		31
Response rate	100%		100%		97%		100%
Drop-out	0		0		1		0
Round activity	Interviews analyzed by manifest content analysis	→	Questionnaire with 65 items	→	Questionnaire with 19 items (14 not reaching consensus in round 2 + 5 new)	→	Questionnaire with 9 items
			↓		↓		↓
			51 items with consensus reached		10 items with consensus reached		3 items with consensus reached

which consensus was not reached are presented in Table 5.

Round 1:

The analysis of the telephone interviews and the pilot round generated 65 items that were grouped into eight categories describing desirable support during the first year in the ambulance service:

Support from practical skills exercises encompasses practical skills training, such as practicing with the ambulance equipment, simulation exercises and collaboration exercises. Some of the RNs also described a practical skill test as desirable support.

Support from theoretical knowledge encompasses lectures on medical conditions in adults and children, childbirth, lectures on how to structure work in the ambulance and how to use the medical guidelines. The RNs also described theoretical knowledge test to be supportive.

Support for experience-based knowledge. This category comprises support derived from experienced colleagues, such as being able to reflect with the colleagues about different patient situations and ethical dilemmas and to get feedback from the receiving units.

Theoretical support, the RNs wanted to have different support devices such as written guidelines for medical conditions, ethical dilemmas, when and how to contact a physician, how to deal with conflicts and how to report deviations.

Support from an introduction period encompasses desirable support specifically during the first weeks or months in the EMS. The RNs wanted to have an individually fitted and structured introduction period where they could work as third person with colleagues that were educated supervisors. Some of the RNs wanted to work with the same supervisor during the first weeks or months and some wanted to work with the same EMS team, i.e. both the supervisor and his or her partner. To received feedback on the own development was also desirable during this time.

Support from colleagues and work environment. This category comprises desirable attributes of the colleague, such as being experienced, trustable and being a nurse. It also comprises support from a mentor. This was mentioned by more than half of the RNs. Others talked about having a trusted colleague or 'someone' to talk to. It was also desired that there was an open climate and that the colleagues respected and accepted the new professionals. All RNs that described debriefing in situations of crisis said that this was something that the own organization already provided.

Support from management and organization encompasses the role of the managers and factors desirable to underpin the organization. Time was described as a desirable support in terms of being able to use more time to assess patients, and that the EMS organization or agency allocated time for professional development activities. This category also included the desire for a clear description of what the organization and managers expected from the EMS professionals.

Other support, this category comprises the items that did not fit into any of the other categories, such as receiving an extra unit when being given life-threatening assignments with the highest level of priority, being exempted from life-threatening assignments with the highest level of priority, and not having to supervise new colleagues themselves during the first year.

Round 2:

Fifty-one of the 65 items reached the predetermined consensus level of 75%. Consensus was reached on all items in the category *support for experience-based knowledge* and were all considered very important (graded 4 or 5). In contrast, consensus was reached on only two items in the category *theoretical support.* Fifty of the 51 items on which consensus was reached in this round were considered very important (graded 4 or 5). In the category *other support*, the RNs agreed that being exempt from life-threatening assignments with the highest level of priority was 'not important' (graded 1 or 2).

In this round five additional items were created out of the free text questions and added to the questionnaire for round 3.

Table 4 Results from Delphi rounds

	Mean value	Standard deviation SD	Consensus reached in round
Support from practical skills exercises			
Practice methods to get a structured way to work (e.g. according to the ABCDE-principle)	4,8	0,7	2
Practice ways to lead the work at the scene of an accident	4,5	0,8	2
Get a structured run-through of the medications used in the EMS	4.5	0.8	3
Practice through simulation	4,4	0,7	2
Practice with the radio communication equipment	4,4	0,9	2
Practice with the medical equipment in the ambulance	4,4	0,9	2
Practice techniques for immobilization	4,4	0,9	2
Practice in collaboration with police and rescue service	4,4	1,0	2
Practice situations that occur rarely	4,3	0,8	2
Practice techniques for removing people from vehicles	4,3	0,9	2
Have practical skills tests	4.3	1.0	2
Practice situations that occur frequently	4,3	1,1	2
Driving and parking exercises	4,1	1,1	2
Practice techniques to maneuver the stretcher	4.0	0.9	3
Support from theoretical knowledge			
Have access to lectures on medical conditions in children	4,5	0,7	2
Get a structured run-through of the EMS medical guidelines	4,5	0,8	2
Get access to concept educations such as AMLS, PHTLS, PS, PEPP	4,4	0,8	2
Have access to lectures on medical conditions in adults	4,3	0,8	2
Have written tests on theoretical knowledge	4,3	0,9	2
Have access to lectures on how to lead the work at the scene of an accident	4,2	0.8	3
Have access to lectures on child birth	4,2	0,9	2
Support for experience-based knowledge			
Get feedback on the own actions from the receiving unit	4,8	0,4	2
Participate in courses along with experienced colleagues	4,7	0,6	2
Participate in group discussions about authentic patient situations	4,7	0,5	2
Participate in group discussions about ethics	4,5	0,8	2
Participate in group discussions about threats and violence	4.1	0.9	3
Theoretical support			
Have access to applicable medical guidelines	4,8	0,4	2
Have access to internet-based instruction films on the ambulance's technical equipment	4.3	0.6	3
Have access to written guidelines on when and how to contact a physician	4,2	0,8	2
Have access to written guidelines about how to report deviations	4.1	0.9	3
Have access to instruction films about how to realign a fracture	4.0	0.8	3
Support from an introduction period			
Get regular feedback on the own development during an introduction period	4,9	0,2	2
Have a structured introduction period	4,9	0,3	2
Have an individually fitted introduction period	4,7	0,7	2
Have a supervisor with formal supervisor competence	4,4	0,8	2
Work with the same supervisor during the introduction period	4,0	0.7	3
Work with the same ambulance team (supervisor and his/her colleague) during the introduction period	3.7	0.8	4
Support from colleagues and work environment			

Table 4 Results from Delphi rounds *(Continued)*

Get peer support debriefing in extreme situations	5,0	0,2	2
Have a trustworthy colleague	4,9	0,4	2
Have an experienced colleague	4,8	0,5	2
Be respected and accepted by the colleagues at the ambulance station	4,8	0,5	2
There is an open climate at the ambulance station	4,8	0,6	2
Have one person in the organization to contact with logistics questions during off-hour	4.6	0.6	2
Have a mentor to contact about routines	4,5	0.8	3
Have a mentor to support professional development	4,3	0,8	2
Have a mentor to talk to about conflicts	4,3	1,0	2
Have a mentor to contact about practical issues	4,2	0,8	2
Have a mentor to support personal development	4,0	0,9	2
Work with another RN	3.9	0.9	4
Support from management and organization			
Trust in the ambulance station manager	4.8	0.4	2
Have confidence in the organization	4,8	0,4	2
The organization is characterized by professionalism	4,8	0,6	2
Get feedback on the own professional development from the ambulance station manager	4,7	0,6	2
The organization accepts that new professionals need more time to perform patient assessments	4,6	0,6	2
The organization provides time for professional development activities	4,6	0,7	2
The organization is characterized by equally	4,6	0,7	2
The organization has clear competence descriptions of what is expected of each role in the team	4,5	0,8	2
The organization is characterized by ethical considerations	4,5	0,7	2
The dispatch center accepts that new professionals need more time to perform patient assessments	4,4	0,7	2
Trust in the organization director	4,3	1,0	2
Get feedback on the own professional development from the organization director	4.1	0.9	3
Other support			
Being exempt from introducing new colleagues	4,6	0,9	2
Have access to an interpreter service	4.1	0.7	4
Being exempt from life-threatening assignments with the highest level of priority	1,4	0,7	2

Round 3:
During this round, consensus was reached on 10 more items. The category *support from practical skills exercise* consisted of 13 items and was the category with most items. In this round consensus was reached on the last of the remaining items in this category. Consensus was also reached on the last two items in the category *support from management and organization.* All items that for which consensus was reached in this round were considered to be very important (graded 4 or 5).

Round 4:
Consensus was reached on a further three items in the final round.

In total, consensus was reached on 64 out of 70 items after four rounds. One of these 64 items 'being exempt from life-threatening assignments with the highest level of priority' was considered to be not important, mean 1.4 (SD 0.7), and the rest were considered important with mean values between 3.7–5.0 (SD 0.2–1.0). In the categories, *support from practical skills exercises, support for experience-based knowledge, support from an introduction period* and *support from management and organization* consensus was reached on all items. The categories *theoretical support* and *support from theoretical knowledge* both comprised two items on which consensus was not reached. In the remaining categories, *support from colleagues and work environment* and *other support* consensus was reached on all but one item.

Table 5 Items for which consensus was not reached

	Mean value	Standard deviation SD
Support from theoretical knowledge		
Get access to lectures about psychiatric conditions	3.7	0.7
Be able to visit and auscultate at different intra-hospital wards	3.6	1.0
Theoretical support		
Have access to written ethical guidelines	3.5	0.8
Have access to written guidelines regarding how to manage conflicts	3.5	0.8
Support from colleagues and work environment		
Work with the same colleague during the first year	2.9	0.9
Other support		
Receiving an extra unit when being given life-threatening assignments with the highest level of priority	2.4	0.8

The mean values for the six items for which consensus was not reached ranged between 2.4–3.7 (SD 0.7–1.0) these items are presented in Table 5.

Discussion

The Delphi technique was proved to be a successful technique for gaining consensus in a group of experts about desirable support for new and inexperienced EMS professionals during the first year in the EMS. The experts in this study agreed on the importance and non-importance on 64 of 70 items concerning desirable support.

It is important to note that consensus on an item does not mean that the right answer or opinion has been found. The results carried out by using a Delphi technique help identify areas that a group of experts consider important and should be used as a basis for further discussion [22].

The desirable support revealed by this study is related to both personal development e.g. having a mentor (mean: 4.5–4.0) and the development of professional competence e.g. attending different theoretical lectures (mean: 4.5–4.2) and practical exercises (mean: 4.8–4.0).

It was considered desirable to have a mentor or someone to talk to about routines (mean: 4.5), practical questions (mean: 4.2), and conflicts (mean: 4.3), and to get confirmation on professional (mean: 4.3) and personal (mean: 4.0) development. Mentorship has been considered a key element of health care practice for several years [28, 29]. Even though a need for and prospective benefits of mentorship have been elucidated in the EMS [2, 30, 31], to our knowledge little is known about how a mentorship program in the EMS could be constructed. Effective mentorship can create conditions for the development of a wide range of professional competences such as collaboration and reflectiveness, improved communication skills and development of inter professional relationships, and can also improve patient assessment [29, 32]. EMS professionals are exposed to challenging and sometimes traumatic situations, and posttraumatic stress disorder is not uncommon [33–35]. Mentorship has also been shown to provide emotional support where the mentor can act as a free-zone, being available on an informal basis to talk, and provide advice, acceptance and friendship, which helps the new professionals balance work and life issues [29, 32]. This study indicates that emotional support in a crisis is considered extremely important. This is shown by the fact that the item regarding 'peer support debriefing in extreme situations' was the only item with a mean value of 5.0 (SD 0.2). The consensus reached on items regarding mentorship in this study will provide an important basis for further discussions and for the development of mentorship programs in the EMS.

Most of the desirable forms of support regarding practical skills training discussed in this study were EMS-oriented such as radio communication and collaboration with the rescue service and police. Even though the experts in this study were RNs, none of the practical skills items concerned nursing specific skills. This outlines the importance and meaning of the health care context rather than the level of formal competence when designing support structures. What is new and challenging in the EMS are the EMS-specific issues. The EMS has been defined as a context in which the professionals work alone, having the sole responsibility for patient care in an environment that is highly varied and unpredictable and where support from a large team of colleagues is lacking [36]. Support structures based on this study may be well suited even for other contexts with similar prerequisites, for example the police, flying doctors or nurses working in primary care in rural areas.

Furthermore, research indicates that more practical skills training in the EMS is required and a need for increased simulation-based training has been suggested [19].

Many of the items where consensus was reached related to acute situations or serious conditions such as trauma or traffic accidents, or were related to childbirth or caring for sick and injured children.

EMS professionals often report caring for children or assignments involving childbirth as major stress factors which cause them to experience insecurity [37, 38]. In many countries, there are postgraduate nurse or nurse practitioner programs in both childcare and midwifery, indicating that these care situations demand extended education. Since working with childcare and childbirth

require an additional post-graduation education, not many of the EMS professionals may have prior experience of working in these fields. Prior experience is considered one of the most important tools for handling challenging situations [1, 39]. The importance of experience in the EMS is further stressed in this study by the category *support from experience-based knowledge*, where consensus was reached on all items and the item 'having an experienced colleague' reached a mean value of 4.8.

Psychiatric patients are common and are considered a challenging patient category in the EMS as well [39, 40]. However, the only item regarding psychiatric patients, 'lectures about psychiatric conditions' (mean = 3.7 SD 0.7) did not reach consensus. This may be related to difficulties in defining psychiatric care in the EMS.

That the item about psychiatric care did not reach consensus does not necessarily mean that support with this type of patient category is not desired. Experienced EMS professionals describe psychiatric patients as challenging, and more education and supportive measures have been called for [39]. New and inexperienced professionals may focus more on support aiming to manage direct life-threatening situations, and it is only after a few years of practice that the full complexity of EMS may be grasped. It can take years before the stage of proficiency is reached and situations can be seen as whole [23]. This is also illustrated in the desirable support regarding written guidelines and a written competence description. Novice professionals rely on written rules and guidelines to direct their actions [23]. According to Duchscher [15] in the first period of time at a new workplace much effort is devoted to trying to understand what is expected, and doing it well. The item regarding applicable medical guidelines (mean 4.8) further illuminates the need for contextual adaptation when designing support structures. The guidelines provided in the EMS today have been described as not applicable and need to be written by people with knowledge about the EMS context to avoid implicit use of the guidelines [41]. Contextually-based guidelines would perhaps further support new and inexperienced professionals in the EMS. With an increase use of guidelines patient safety may also be increased.

Methodological considerations

One strength of the Delphi technique is that it enables reaching an agreement in a group of experts avoiding situations where one panel member dominates the consensus process. However, there are Delphi studies that include physical meetings, arguing that this will benefit clarification of reasons for disagreement [42].

Even though the experts in this study were different in regard to background, gender, age, and geographic areas, they were all nurses and the group was treated as homogenous. Comprising experts of different background and gender provides an expert panel with a variety of viewpoints that may provide relevant input to the Delphi and minimize the risk of bias [20].

This Delphi included 32 experts more experts might have revealed even more desirable support and richer descriptions. No precise sample sizes are advocated for Delphi, although panels between 10 and 50 participants, depending on the purpose of the study, have been recommended [26]. When deciding on panel size, the researcher needs to balance the risk of a low response rate against panel size. If the panel size is too large then the number of generated items could be overwhelming. Creating a personal bond, which is considered important to increase response rates, might be also difficult if panel sizes are too large. In this Delphi study the response rate was high and generated a manageable number of items that were considered conclusive.

There is no clear guidance regarding the appropriate level of consensus in the Delphi literature. The predetermined level of 75% was chosen as it has been recommended and has previously been used [20, 26].

In a Delphi study, individual feedback is provided to encourage an expert panel to be more involved and to increase response rates. In this study, the response rate was high throughout all rounds (100%, 97%, 100%). Only one drop-out occurred in round 2 and with respect for the integrity of the expert who dropped out, the reason for leaving the study was not questioned.

The median values and the five new items were not affected by the technical problem occurring in round 2. Since consensus was reached on another 10 items in round 3 and the response rate stayed high, this indicates that the RNs' desire to stay involved in the study was not negatively affected by the technical problem. In round 3 the problem had been corrected and individual feedback was provided accurately.

Conclusion

In the EMS, the required level of competence may differ around the world; however, the patients and challenges are the same. The rather large amount of different support items generated in this study show that even though a group of experts in the EMS have a rather similar level of competence they describe a wide variety of desirable forms of support. This implies that even with extensive formal competence the EMS context poses challenges where formal and structured support is needed. The challenges EMS professionals meet can be extreme and emotional support in these situations is especially important.

The results of this study suggest that support for new and inexperienced professionals should address both

professional and personal levels and should be context-oriented.

This study may be used as a basis for further discussions about how to design and implement formal support models in the EMS.

The need for support in the EMS has been stressed before but to our knowledge there are few support structures that have been implemented and evaluated. There is a need for further research to investigate what the obstacles are that have led to this lack of formal support structures in the EMS. When the obstacles to overcome are known, design and implement support for new EMS professionals can commence.

Acknowledgements
The authors would like to thank all experts who participated and Academic EMS in Stockholm, for supporting this research.

Funding
Funding was provided by Stockholm City Council/Academic EMS.

Availability of data and materials
The data used and analysed during the current study are available from the corresponding author on reasonable request.

Authors' contributions
All authors have contributed in conducting this study as following. Planning, AH, SK, MJ, VV, VL. Data collection, AH. Data analysis, AH, MJ, SK, VV, VL. Writing manuscript, AH, MJ, SK, VL. All authors read and approved the final manuscript.

Ethics approval and consent to participate
The study was waived by the Regional Ethics Board in Stockholm, Diarie no: 2015/87–31/5.

Consent for publication
Not applicable.

Competing interests
The authors declare that they have no competing interests.

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Received: 24 May 2017 Accepted: 30 August 2017
Published online: 06 September 2017

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IV

Treat me nice! –A cross-sectional study examining support during the first year in the Emergency Medical Services

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Abstract

Background: Working in the emergency medical service (EMS) can be extremely varying and sometimes physically and psychologically demanding. Being new in this context can be a great challenge. This study aim to describe what ambulance nurses consider to be important support during the first year in the EMS.

Methods: Three hundred and eighty-nine eligible participants that had graduated from the prehospital emergency care program were identified via university registrations office in Sweden. The eligible participants received a study specific questionnaire via mail consisting of 70 statements about support during the first year. The perceived importance of each statement were graded on a 7-point Likert scale. The gradings were analysed using descriptive statistics and frequencies, mean and SD were calculated.

Results: Two hundred and thirty questionnaires were returned fully completed, giving a response rate of 59%. Fourteen statements regarding desirable support were rated with mean values > 6.00 and SD < 1.00 and considered as being the most important during the first year in the EMS. The important supports regarded; colleagues and work environment, management and organisation, experience-based knowledge, introduction period, practical support, and theoretical support. Most statements regarded culture and climate and the way the newcomers wanted to be treated.

Conclusion: It was concluded that an important way to support newcomers in the EMS is to treat them 'nice'. This can be achieved by creating an open climate and a welcoming culture where the new professionals feel trusted and treated with respect, created ways to work structurally, have applicable medical guidelines, and for newcomers to receive feedback on their actions.

Keywords: Education Nursing, Emergency Medical Services, Nurses, Professional Role, Professional development, Support

Introduction

Being new to a professional practice is a challenging period of time. New nurses often report feelings of stress and anxiety, and medical errors may be made due to inexperience (Saintsing et al. 2011). Supporting new professionals during their first year seems to be key to strengthening self-confidence and reducing stress levels (MacLellan et al. 2015). However, to our knowledge, there is a lack of knowledge about how to support new professionals in the emergency medical services (EMS).

Background

The EMS has been described as extremely different compared to in-hospital environments. At hospital, teams are larger than in the EMS, and physicians, advanced equipment and patients' medical history are often available (Hörberg et al. 2017b). In the EMS, a professional need to be prepared to care for patients in all aspects of life, with varying illnesses or injuries, sometimes in extreme environments, with limited resources and limited back-up. In previous research, some of the specific challenges of the EMS context have included the need to be flexible, having the ability to work independently, and being prepared for anything (Jensen 2011, Sundström and Dahlberg 2012). These EMS-specific challenges may be even greater for a newcomer.

New professionals often enter a new professional practice with a feeling of being confused and inadequate. There is a period of transition where a new professional identity is formed (Bridges 2009). The transition period is described as a multifaceted experience where, unfortunately, most emotions are negative, such as stress and anxiety (MacLellan et al. 2015, Barnes 2015b). According to Benner (1982) new professionals spend their first period of time in a new professional practice relying on written guidelines, and they focus on learning routines. However, routines may be difficult to learn in a practice like the EMS where professionals encounter situations that are highly varying and unpredictable, and the guidelines have been described as inadequate and often not applicable (Hagiwara et al. 2013, Hörberg et al. 2017b).

Formal support models or mentorship programmes have been suggested to have positive effects on new professionals' development, self-confidence and even the intention to stay within the organisation, according to in-hospital research (MacLellan et al. 2015, Barnes 2015a). In contrast, lack of support for newcomers may lead to medical mistakes and lack of support may also increase the likelihood of these new professionals leaving the profession (Saintsing et al. 2011, David and Brachet 2009).

In the EMS, due to its unpredictability and lack of resources, research regarding the effects of formal support for new professionals' development, self-confidence and retention would be needed. However, to our knowledge little is known about what formal support new professionals in the EMS want and/or need for their professional development.

As a contribution to increasing the knowledge about how to support new professionals in the EMS, this study aims to describe what ambulance nurses consider to be important support during the first year in the EMS.

Method

A cross-sectional study design with questionnaires was used.

Participants and data collection

The level of formal education prior to working in the EMS differs around the world (Evans et al. 2013). In Sweden, where this study was undertaken, the national requirements are that at least one of the team members in the ambulance must be a registered nurse, preferably with a one-year additional education leading to a specialist degree in prehospital emergency care (Lindström et al. 2015). This study involves nurses holding a specialist degree in prehospital emergency care and the participants will be referred to as ambulance nurses.
The study included all ambulance nurses that graduated during the years 2015 and 2016, from the 11 universities in Sweden that provide the one-year additional education to become a specialist nurse in prehospital emergency care. Home addresses of the ambulance nurses were obtained via registration offices at the 11 universities. A total of 396 participants were identified, and 395 letters and one email were sent in January 2018.
The letters contained information about the study, the questionnaire, a pre-paid return envelope and a personal code to a web version of the questionnaire in case the ambulance nurses preferred to answer the questionnaire electronically. The one email contained the same information about the study and a link to the questionnaire. A reminder was sent three weeks later to all non-responders. Five envelopes were returned due to being undeliverable and two questionnaires were returned with an explanation that the recipient had never worked in the EMS, leading to a total n=389 eligible participants.

Questionnaire
The statements in the questionnaire were developed and validated for content in a Delphi study by Hörberg et al. (2017a). The questionnaire included eight demographic questions and 70 statements about support in the EMS, covering the following content areas: Practical support (14 statements), Theoretical support (nine statements), Support for theoretical knowledge (seven statements), Experience-based support (five statements), Support in terms of an introduction period (six statements), Support from colleagues and work environment (13 statements), Support from management and organisation (12 statements) and "Other" support (four statements).
The participants were asked to think about their own first year and grade each statement according to perceived importance on a seven-grade Likert type scale (1=not important to 7=very important).

Statistics
Regardless of questionnaires being answered using the paper version or electronically, all data were registered in the survey tool software Survey&Report© version 4.2 (Artologic.net, Växjö, Sweden).
In agreement with Norman (2010) the Likert scale type gradings were attributed as numbers, not labels, and treated as interval data. Descriptive statistics, frequencies, mean and standard deviation (SD) were computed. The dependent variables were found to be normally distributed and an independent t-test was used to compare means regarding, gender, level of prior EMS experience and geographic region. To explore whether there were any differences regarding prior EMS experience, the Benner (1982) version of the skills acquisition theory was used as a basis for dichotomising the self-assessed years of experience into two groups; less experience (<3 years of prior EMS experience) and experienced (>3 years of prior EMS experience). Geographic region was calculated on the urban and rural group, where a difference in geography was notable. Professionals working in ambulances in or near a large city region have shorter transportation times to hospital than those in rural areas. In rural areas, the ambulance stations more often have a single ambulance and therefore the chances of acquiring an additional ambulance, if needed, is reduced compared to EMS in or near a large city region.

To determine the equality of variance of the measured groups, Levene's Test of Equality of Variances was used. The level of statistical significance was set to $p<0.05$. For data analysis, the statistical software package for Mac, SPSS version 24 (SPSS Inc., Chicago, IL, USA) was used.

Ethical considerations

The study was approved by the regional ethics committee in Stockholm (2015-87 31/5). Information about the study was sent along with the questionnaire and it was highlighted that participation was voluntary. Confidentiality was guaranteed and participants were informed that they could leave the study at any time. Informed consent was considered achieved by answering the questionnaire.

Result

Two hundred and thirty (n=230) questionnaires were returned fully completed, giving a response rate of 59% (Table 1). One hundred and five participants identified themselves as men and 125 as women.

Table 1. Information on participants.

Demographics	**Number (percent)**
Eligible participants	389 (100%)
Returned questionnaires	230 (59%)

Demographic distribution of returned questionnaires		**230 (100%)**	
Gender	Men (M)	105 (45%)	
	Women (W)	125 (55%)	
Age	20-30	60 (26.4 %)	M:20/W:40
	31-40	113 (48.9%)	M:61/W:52
	41-50	44 (19.4 %)	M:22/W:22
	> 50	13 (5.3 %)	M:2/W:11
Geographic region	Urban*	39 (16.3 %)	M:24/W:15
	Middle range city	112 (49.3%)	M:55/W:57
	Rural*	79 (34.4%)	M:26/W:53
Years of EMS experience	< 1	10 (4.8%)	M:3/W:7
	1-3	54 (23.8%)	M:19/W:35
	3-5	94 (40.1%)	M:42/W:52
	> 6	72 (31.3%)	M:41/W:31

One hundred and seventy-four (76%) questionnaires were returned via mail and fifty-six (24%) were completed via the web version.

Twenty-eight of the 70 statements regarding desirable support in the EMS were rated with mean values > 6.00. In 14 of these statements, SD was < 1.00 (Table 2). These 14 support statements will henceforth be considered as being the most important during the first year in the EMS. Mean values of all 70 statements are presented in Appendix 1.

Table 2. Result of the 14 most important statements regarding support for new professionals in the EMS, mean value>6.0 and SD<1.0

Area of content

Support in terms of:	Statement:	Mean	Std. Deviation
Introduction period	Have a structured introduction period	6,73	0,71
Colleagues and work environment	Get peer support debriefing in extreme situations	6,71	0,68
Colleagues and work environment	Have a trustworthy colleague	6,68	0,65
Theoretical support	Have access to applicable medical guidelines	6,68	0,69
Colleagues and work environment	Be respected and accepted by the colleagues at the ambulance station	6,59	0,68
Colleagues and work environment	There is an open climate at the ambulance station	6,56	0,68
Management and organisation	Trust in the ambulance station manager	6,50	0,77
Management and organisation	The organization is characterized by professionalism	6,50	0,82
Practical skills training	Practice methods to get a structured way to work (e.g. according to the ABCDE-principle)	6,50	0,89
Management and organisation	The organization is characterized by equally	6,50	0,90
Colleagues and work environment	Have an experienced colleague	6,47	0,89
Experience-based support	Participate in courses along with experienced colleagues	6,43	0,87
Experience-based support	Get feedback on the own actions from the receiving unit	6,40	0,97
Management and organisation	The organization provides time for professional development activities	6,20	0,95

The statistical significance ($p<0.05$) of what ambulance nurses consider to be important support in the context of EMS based on gender, years of prior EMS experience, and geographic region is highlighted and presented in Table 3.

Table 3. Statistical significance in important support for new professionals in the EMS, based on Gender, Years of prior EMS experience and Geographic region.

	Gender			Years of EMS experience			Geographic region		
Statement	**Male**	**Female**	**p-value**	**< 3 yrs**	**> 3 yrs**	**p-value**	**Urban**	**Rural**	**p-value**
Have a structured introduction period	6,67	6,68	0,246	6.75	6,72	0,752	6,77	6,68	0,579
Get peer support debriefing in extreme situations	6,70	6,73	0,716	6,70	6,72	0,891	6,59	6,82	0,108
Have a trustworthy colleague	6,55	6,79	**0,007***	6,69	6,68	0,943	6,62	6,87	**0,016***
Have access to applicable medical guidelines	6,59	6,76	0,063	6,72	6,67	0,624	6,31	6,75	**0,027***
Be respected and accepted by the colleagues at the ambulance station	6,43	6,73	**0,001***	6,53	6,61	0,447	6,41	6,75	**0,019***
There is an open climate at the ambulance station	6,46	6,64	**0,046***	6,67	6,51	0,086	6,41	6,65	0,137
Trust in the ambulance station manager	6.31	6,65	**0,002***	6,63	6,45	0,073	6,36	6,58	0,151
The organization is characterized by professionalism	6,33	6,63	**0,008***	6,52	6,49	0,819	6,13	6,68	**0,013***
Practice methods to get a structured way to work (e.g. according to the ABCDE-principle)	6,36	6,62	**0,035***	6,61	6,46	0,246	6,49	6,53	0,812
The organization is characterized by equally	6,38	6,60	0,076	6,52	6,49	0,871	6,15	6,73	**0,010***
Have an experienced colleague	6,31	6,61	**0,013***	6,67	6,40	**0,008***	6,38	6,48	0,630
Participate in courses along with experienced colleagues	6,27	6,58	**0,008***	6,44	6,43	0,977	6,38	6,57	0,228
Get feedback on the own actions from the receiving unit	6,31	6,48	0,200	6,39	6,41	0,895	6,36	6,52	0,457
The organization provides time for professional development activities	6,08	6,31	0,061	6,23	6,19	0,767	6,28	6,24	0,816

The mean values of the 14 most important support statements ranged from 6.73-6.20.
The important support statements concerned the following content areas: Support from colleagues and work environment, Support from management and organisation, Experience - based knowledge, Support in terms of an introduction period, Practical support, and Theoretical support. None of the 14 highest rated statements concerned support in terms of theoretical

knowledge or 'Other' support. The mean values in all the 70 statements were higher in the women's responses compared to the men's, although not all were statistically significant.

Support from colleagues and work environment

Five of the 14 most important support statements were about support from colleagues and the work environment: *Have an experienced colleague, Have a trustworthy colleague, Be respected and accepted by the colleagues at the ambulance station, There is an open climate at the ambulance station, Get peer support debriefing in extreme situations*. To have an experienced colleague was graded higher among women than men (p=0.013) and by EMS professionals with less than three years of prior EMS experience compared to those with more than three years of experience (p=0.008). To have a trustworthy colleague was graded higher among women than men (p=0.007) and by those working in rural areas compared to those working in urban areas (p=0.016). There was also a statistically significant difference in gender regarding being respected and accepted by colleagues, where women graded this higher than men (p=0.001), and professionals working in rural areas graded it higher compared to those working in urban areas (p=0.019). Women graded the support of having an open climate at the ambulance station higher than men (p=0.046).

Support from management and organisation

Four of the highest rated statements were about support from management and organisation, *Trust in the ambulance station manager, The organisation is characterised by professionalism, The organisation is characterised by equality* and *The organisation provides time for professional development activities.* Support in terms of trust the ambulance station manager was graded higher by women than men (p=0.002), and that the organisation was characterised by professionalism was graded higher both by women compared to men (p=0.008) and by professionals working in rural areas compared to those working in urban areas (p=0.013). Professionals working in rural areas also graded support in terms of the organisation being characterised by equality higher than those working in urban areas (p=0.010).

Experience-based knowledge

In the content area; Experience-based knowledge, two statements were graded among the 14 most important: *Participate in courses with experienced colleagues* and *Get feedback one's own actions from the receiving unit.* Regarding these two support statements, there was a statistically significant difference in support in terms of being able to participate in courses with experienced colleagues, where women graded this higher than men (p=0.008).

Support in terms of an introduction period

In this area of content one statement was considered among the most important: *Have a structured introduction period.* To have a structured introduction period was also graded the highest of all support statements in the questionnaire. There was no statistical significance in gender, years of prior experience or geographic region for this statement.

Practical support and Theoretical support

In the two content areas, Practical support and Theoretical support, only one statement each was graded among the most important. *Practice methods to develop a structured way to work (e.g. according to the ABCDE principle)* and *Have access to applicable medical guidelines.* To practice methods to develop a structured way to work was graded higher among women than men (p=0.035). To have applicable medical guidelines was graded higher by those working in rural areas compared to those working in urban areas (p=0.027).

Discussion

Equality, acceptance, professionalism, trust and respect seemed to be aspects of support that was considered to be important. Since most of the 14 statements in the results were about the climate in the organisation, it seems that the way new professionals are treated and welcomed into the EMS practice are more important to the professionals themselves than for example to have practical skills training.

The importance of being treated as a respected member of the new community, i.e. being part of a professional practice, has other important implications than merely for the professionals to feel welcome. Lave and Wenger describe participation and sense of belonging as key to development of new knowledge. It is by being a legitimate participant in a community that people learn and the community develops (Wenger 1998). In a previous study about the experience of being new to the EMS, professionals described a macho and unsupportive culture and an experience of being bullied into the new profession (Hörberg et al. 2017b). Unfortunately, similar experiences have been described in other contexts where one barrier to support for new professionals is the attitudes of the experienced professionals (Ebrahimi et al. 2016). Experienced professionals describe their new colleagues as incompetent, not trustworthy, and as unable to assess patients correctly or fast enough (Harenčárová 2017, Ebrahimi et al. 2016). Professionals who did not get support themselves when they were new perceive supporting new colleagues as unnecessary, which may be reflected in the way they treat their new colleagues (Ebrahimi et al. 2016). Unsupportive behaviours by experienced peers such as rude remarks and unjust criticism may lead to new professionals' confidence being undermined, interfering with professional development (Rush et al. 2014). It seems important that organisation managers are aware of the silent cultures and climate in their own organisations and they should actively work to implement a welcoming atmosphere on all levels, where the new professionals are treated with respect. Ideal structures for learning in practice can be created through a common ground, mutual trust, pride in the purpose of the work and a shared set of ideals (Wenger 1998).

In traditional EMS training, skills training and training via simulation have been suggested to increase professionals' competence in a patient-safe manner (Abelsson et al. 2014). Another study by Knox et al. (2015) concluded that, according to the professionals, the most important support for continuous professional competence is practical training scenarios, simulation practice and practice with manikins. However, the above-mentioned research mainly involved experienced professionals. We do not believe our study results diminish the evidence that suggests the positive effects of practice through simulation. However, even though *Practice through simulation* was considered important in this study (Appendix 1.) it was graded as less important than for example an *Open climate at the ambulance station* or *Have a trustworthy colleague*. These findings suggest that new, inexperienced professionals and experienced professionals may differ in how their professional development should be supported.

This result adds to the field of knowledge about the development of EMS professionals' competence in that other aspects than merely simulation and practical skills training are important.

Of the 14 most important support statements, *A structured introduction period, Support in creating ways to work structurally* and *Have applicable medical guidelines* may be considered to reflect a novice professional's desire to create a sense of control. In the Dreyfus stage model of skills acquisition by Benner (1982) novice nurses are described as lacking experience and therefore they rely on rules and written guidelines to guide their performance. Our study results support the notion that new professionals need applicable guidelines during the first year of practice.

Furthermore, to *Get feedback on one's own actions from the receiving unit* was among the highest graded support statements. When new and inexperienced, feedback can be seen as a way for the new professional to get confirmation on cognitive and technical performance, and when received from a credible source and constructively, feedback can change clinical performance and promote professional development (Archer 2010). The need and perceived benefits of feedback in the EMS have been stressed before (Wihlborg et al. 2016, Cash et al. 2017) but unfortunately it seems difficult to implement on a general level (Cash et al. 2017). The awareness of the positive impact of feedback on patient safety and professional development may need to be further highlighted.

The mean values of all the 70 statements were higher in the women's responses compared to the men's and although not all mean differences were statistically significant, this general difference between the genders was an interesting result. Even though differences between genders have been described as decreased during the last years, traits such as expressivity, warmth and concern for the welfare of others are still considered female traits while competence, instrumentality and independence are considered male (Elizabeth et al. 2016). To the best of our knowledge there is a lack of research in the EMS that focuses on gender. One study by Blau et al. (2014) explored differences in job satisfaction and emotional labour between men and women in the EMS. However, in their study no statistical significance in differences between gender was found. The reason for the statistical difference shown in our study may be difficult to assess. One reason could be that women are believed to have higher levels of concern about risks than men (Hajli and Lin 2016). Being more concerned about possible risk may lead to higher grading in considered importance of support. Another possible reason for the gender difference in this study could be that men and women express their opinions differently. More research addressing gender differences in the EMS is needed to determine whether or not there is actually a difference in opinion or a difference in how opinions are expressed between genders in the EMS.

In the EMS, experience has been described as one of the most important tools for managing challenging situations. Surprisingly, only in one of the 14 statements, to *Have an experienced colleague*, was there a significant difference between professionals with more experience (>3 years) and those with less experience (<3 years). However, two of the 14 most important supports were about learning from the experience of others, *Participate in courses with experienced colleagues* and *Have an experienced colleague.* This may suggest that one's own experience may have little impact on the perceived importance of support during the first year and that learning from the experience of others may be an important way of supporting new professionals.
In formal education, content is often decontextualised and taught independently of practice. It is then assumed that the educated professional will be able to perform appropriately in any situation. According to Harenčárová (2017), 60% of the EMS professionals reported uncertainty related to inadequate understanding of the situation. In the EMS, the encountered situations can be extremely varied and knowing how to handle everything is a challenge that causes stress and anxiety for many new EMS professionals (Hörberg et al. 2017b). Adding to the challenge of extremely varied situations and high demands on knowledge, is the argument that professional knowledge cannot be acquired just through formal education or by doing (Dall'Alba and Sandberg 2006). The considered importance of working with an experienced colleague and participating in courses with experienced colleagues indicate a need to learn from colleagues' experiences and "war stories". Working with an experienced colleague may also create a sense of security that may further facilitate development. Reflection in and on action has been suggested to be a key to the translation of formal knowledge acquired from education

to professional knowledge and skills (Dall'Alba and Sandberg 2006, Schön 1987). Reflective ability and organised reflection seminars in the EMS may also lead to an increased sense of security and competence in the professionals and may thereby increase patient safe actions (Wihlborg et al. 2016). However, a prerequisite for the ability to reflect is trusting other colleagues and feeling secure in the new environment.

Conclusion

Organisations can support new professionals by creating an open climate and a welcoming culture where the new professionals feel trusted and treated with respect in their new EMS community. Creating an open climate in the organisation may also facilitate reflection on and in action, together with experienced colleagues. Working with an experienced colleague may be a way to bolster the new professional's sense of belonging and participation in the new community.
New professionals also strive to create a sense of control and also like to receive confirmation that they have made the right decisions. A structured introduction period, support in creating ways to work structurally, having applicable medical guidelines, and receiving feedback on actions may further support new professionals.
Future studies are needed on formal support with a focus on culture and climate within an organisation. A next step could be to implement and evaluate the effects of formal support in the EMS, based on the results of this study.

Limitations

There are some limitations that need to be considered in this study. First, 41% of the eligible participants did not participate and there is no way of knowing why some of the respondents chose not to participate due to the study design. However, the non-response analysis showed no explicatory difference concerning gender or examined university between respondents and non-respondents. Cross sectional studies give a snapshot of a reality and can therefore be difficult to reproduce. It may also be difficult to assess whether any difference in result in a reproduced cross sectional study relate to attitudes being changed over time or due to other participants agreeing to participate. With cross sectional survey studies, there is a risk of response bias such as the risk of participants not wanting to give socially unacceptable or embarrassing answers. Even though this study was not considered to measure and socially unacceptable issues, we cannot with certainty know that the participants did not experience the statements as such.
Another possible limitation is that this study has a Swedish perspective and the EMS professionals were ambulance nurses. We acknowledge that ambulance nurse is not a standard level of education around the world and this may affect generalizability in other study settings. The questionnaire used in this study was developed for this study, and developed out of a prior, published Delphi study (Hörberg et al 2017). The content validity of the statements used was thereby assessed by an expert group and validated for purpose and that the questions could be understood. However, further validation need to be performed to use to questionnaire in a larger and/or international setting. Despite these limitations, we believe our study give a picture of what ambulance nurses in Sweden consider to be important support.

Authors' contributions
Study design was performed by, AH, SK, MS and VL. Data collection was completed by AH and VL. Analysis was performed by AH, SK, MS, MJ and VL. Manuscript was prepared by AH, SK, MJ, MS and VL. All authors have read and approved the final version.

Acknowledgements
The authors would like to thank Academic EMS in Stockholm and all the devoted professionals who answered the questionnaire.

Funding
This study was funded by Stockholm City Council via Academic EMS in Stockholm, and Ambulance service in Stockholm (AISAB).

Conflict of interest
The authors declare no conflict of interest.

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Svenska Jordbruksverket (2018), Vol. 2018 http://www.jordbruksverket.se/etjanster/etjanster/etjansterforutvecklingavlandsbygden/alltomlandet/sahardefinierarvilandsbygd.4.362991bd13f31cadcc256b.html.

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Appendix 1. Result of a cross-sectional survey study about important support during the first year in the EMS. Participants n=230, response rate 59%. Highest rated statements in bold.

	Statements	Mean	Std. Deviation
	Support from practical skills exercises		
9.1	**Practice methods to get a structured way to work (e.g. according to the ABCDE-principle)**	**6,50**	**0,89**
9.2	Practice through simulation	5,97	1,24
9.3	Practice situations that occur rarely	5,74	1,34
9.4	Practice situations that occur frequently	5,51	1,33
9.5	Practice in collaboration with police and rescue service	5,67	1,23
9.6	Practice ways to lead the work at the scene of an accident	6,02	1,12
9.7	Practice with the radio communication equipment	5,84	1,29
9.8	Practice with the medical equipment in the ambulance	6,13	1,25
9.9	Practice techniques for immobilization	5,99	1,12
9.10	Practice techniques for removing people from vehicles	5,66	1,37
9.11	Practice techniques to maneuver the stretcher	5,24	1,58
9.12	Driving and parking exercises	5,41	1,43
9.13	Have practical skills tests	5,47	1,50
9.14	Get a structured run-through of the medications used in the EMS	6,27	1,10
	Support from theoretical knowledge		
10.1	Be able to visit and auscultate at different intra-hospital wards	4,89	1,73
10.2	Have access to lectures on medical conditions in adults	5,71	1,25
10.3	Have access to lectures on medical conditions in children	6,07	1,09
10.4	Have access to lectures on child birth	5,80	1,18
10.5	Have access to lectures on how to lead the work at the scene of an accident	5,60	1,21
10.6	Get access to lectures about psychiatric conditions	5,37	1,38
10.7	Get a structured run-through of the EMS medical guidelines	6,21	1,02
10.8	Get access to concept educations such as AMLS, PHTLS, PS, PEPP	6,08	1,23
10.9	Have written tests on theoretical knowledge	5,20	1,48
	Theoretical support		
11.1	**Have access to applicable medical guidelines**	**6,68**	**0,69**
11.2	Have access to written ethical guidelines	5,03	1,45
11.3	Have access to written guidelines on when and how to contact a physician	5,83	1,32
11.4	Have access to written guidelines about how to report deviations	5,27	1,37
11.5	Have access to written guidelines regarding how to manage conflicts	4,82	1,44
11.6	Have access to internet-based instruction films on the ambulance´s technical equipment	5,29	1,49
11.7	Have access to instruction films about how to realign a fracture	5,26	1,48
	Support for experience-based knowledge		
12.1	**Participate in courses along with experienced colleagues**	**6,43**	**0,87**
12.2	Participate in group discussions about authentic patient situations	6,27	1,04
12.3	Participate in group discussions about ethics	5,68	1,41
12.4	Participate in group discussions about threats and violence	6,07	1,12
12.5	**Get feedback on the own actions from the receiving unit**	**6,40**	**0,97**
	Support from an introduction period		
13.1	**Have a structured introduction period**	**6,73**	**0,71**
13.2	Have an individually fitted introduction period	6,14	1,20
13.3	Have a supervisor with formal supervisor competence during the introduktion period	5,56	1,55
13.4	Work with the same supervisor during the introduction period	5,27	1,47
13.5	Work with the same ambulance team (supervisor and his/her colleague) during the introduction period	4,71	1,65
13.6	Get regular feedback on the own development during an introduction period	6,28	1,01
	Support from colleagues and work environment		
14.1	**Have an experienced colleague**	**6,47**	**0,89**
14.2	Work with the same colleague during the first year	3,21	1,65
14.3	Work with another RN	5,38	1,68
14.4	**Have a trustworthy colleague**	**6,68**	**0,65**
14.5	**Be respected and accepted by the colleagues at the ambulance station**	**6,59**	**0,68**
14.6	**There is an open climate at the ambulance station**	**6,56**	**0,68**
14.7	**Get peer support debriefing in extreme situations**	**6,71**	**0,68**
14.8	Have one person in the organization to contact with logistics questions during off-hour	5,89	1,23
14.9	Have a mentor to support personal development	5,30	1,49
14.10	Have a mentor to support professional development	5,39	1,42
14.11	Have a mentor to talk to about conflicts	5,37	1,43
14.12	Have a mentor to contact about practical issues	5,18	1,50
14.13	Have a mentor to contact about routines	5,07	1,53
	Support from management and organization		
15.1	Get feedback on the own professional development from the ambulance station manager	5,77	1,23

15.2	Get feedback on the own professional development from the organization director	3,99	1,73
15.3	**Trust in the ambulance station manager**	**6,50**	**0,77**
15.4	Trust in the organization director	5,35	1,53
15.5	Have confidence in the organization	6,18	1,01
15.6	The organization is characterized by ethical considerations	6,13	1,10
15.7	**The organization is characterized by professionalism**	**6,50**	**0,82**
15.8	**The organization is characterized by equally**	**6,50**	**0,90**
15.9	The organization has clear competence descriptions of what is expected of each role in the team	6,14	1,07
15.10	**The organization provides time for professional development activities**	**6,20**	**0,95**
15.11	The organization accepts that new professionals need more time to perform patient assessments	6,20	1,11
15.12	The dispatch center accepts that new professionals need more time to perform patient assessments	5,52	1,69
	Other support		
16.1	Being exempt from life-threatening assignments with the highest level of priority	1,76	1,44
16.2	Receiving an extra unit when being given life-threatening assignments with the highest level of priority	2,67	1,78
16.3	Being exempt from introducing new colleagues	5,82	1,66
16.4	Have access to an interpreter service	4,63	1,82

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Arkitektkopia AB, Bromma, 2018