

Value of research-based master's degree theses

Competence building for the future in anesthesia, critical care, and operating room nursing

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Abstract

Background: New types of expertise in advanced nursing is required to meet the rapid changes in health services and technologies. To meet these challenges, different master's degree programs are evolving, which will provide systematic introductions to analytical thinking and research-based argumentation and will lay the foundation for evidence-based nursing.

Aim: The aim of this study was to investigate topics and methods in research-based master's degree theses in anesthesia, critical care, and operating room nursing (AIO) to explore their contribution to best practices within nursing specialization in anesthesia, intensive care, and operating theater nursing in Norway.

Method: By using thematic analysis we examined 78 research-based master's degree theses produced over 5 years, representing the entire period of a university program in anesthesia, intensive care, and operating theater nursing.

Findings: The master's theses covered different topics, ranging from topics within best practice, competence building and teamwork. A variety of methods were used to suggest improvements in the clinical field. This means that the value of the research topics chosen can be studied from different angles and help identify the complexity of the phenomena of interest.

Conclusion: Master's degree thesis represents new, updated, and valuable knowledge for educational institutions, career development, hospital management, and clinical practitioners to guide future advanced and best practice both nationally and internationally.

Keywords: *master's degree program; master thesis; evidence-based nursing; advanced nurse practitioner*

Introduction

The anesthesia, critical care, and operating room (AIO) nurses' work environment is dynamic, complex, and at times highly stressful; it involves ongoing exposure to the complexities of interprofessional team functioning. This requires advanced educational programs in close collaboration with the clinical field. Today there is a lack of master's (and doctoral competence) in AIO nursing to meet future needs (1).

According to a European Specialist Nurses Organization position statement (2), the term "advanced nurse practitioners" refers to nurses with post bachelor or educational backgrounds who are highly experienced in a specialized health discipline. Their professional roles help to offer European citizens the highest standard of care also underlined by WHO (3). We now see a transformation of health care toward an international approach, giving advanced nurse practitioners a leading role in clinical situations due to their high competency and knowledge. These nurses are now expected to perform nursing care and treatment more independently (2). However, the definition of advanced nurse practitioners and clinical nurse specialists remains unclear across Europe and needs clarification. The European Specialist Nurses Organization (ESNO) defines a nurse specialist as "a nurse prepared beyond the level of generalist nurse and authorized to practice as a specialist with advanced expertise in a branch of a nursing field" (2).

Background

The education of nurses at the master's degree level has a long and interesting history. At the beginning of the 20th century, nurses were striving to advance their competencies through advanced education. During the latter part of the 20th century, master's degree programs were developed, aimed at promoting advanced practice. However, there is still much diversity in the level of education required to become a specialized nurse. According to a review by Dury et al. (4), most respondents placed the level of specialist education for nurses between the first cycle (bachelor's degree) of the Bologna process (5) and the second cycle (master's degree). The professional demands on the health-care system must lay the ground for future nursing education (6).

The rapid changes in health services and technologies require new types of expertise in nursing; namely, more nurses with specialized and advanced expertise are needed to take care of patients. To meet these challenges, different master's degree programs are evolving, which will provide systematic introductions to analytical thinking and research-based argumentation and will lay the foundation for evidence-based

(EB) nursing. According to the Norwegian Counsel of Nursing's Political Platform for Nursing Education (7), there is an urgent need for master's degree-level education to ensure clinical competence and functionality for nurses in the future. This is in line with Nieminen, Mannevaara, and Fagerström (8), who argue that such clinical competence should improve the quality of health and care services. A Norwegian White Paper (9) stated that higher education must be adjusted for the future to meet the needs of clinical fields, also stated by Benner et al. and Gerarg et al. (10,6). This also means that cooperation between higher education and practical fields is important with regard to relevance, quality, and follow-up evaluation.

In a literature review, Cotterill-Walker (11) concluded that there are positive gains for nurses studying at the master's degree level related to professional and personal qualities. The added value of master's degree program is found in the scientific language and critical thinking skills including the application of evidence-based practice (12). However, there is a need to develop better measurable and observable criteria against which the skill-based outcomes in nursing care can be evaluated (13–15). According to Hellesø and Fagermoen (16), examining such master's degree programs in nursing is regarded important for analyzing how education meets the needs of clinical practice. In addition, we believe there is a need to discover how new knowledge from master's degree theses can be developed further and implemented to improve the evidence-based practice. A master's degree is also the foundation for a PhD, which gives further opportunity to research and further develop ones' own knowledge fields. As a result of a governmental policy, there is a lack of AIO nurses with master's degree-level competence. Today, there is also a lack of PhD competence in AIO nursing to meet future needs (9).

Eriksson (17) underlined that caring is seen as something natural and has a specific meaning and context in AIO nursing. The ethical motive in all caring processes involves alleviating suffering and is highly relevant for the patients who master's degree students will meet in practice. Eriksson (17) also emphasized the importance of a close link between theory and practice, described as a bridge to develop new knowledge in nursing. The theoretical framework of bridge building (18) is based on a continuum where inductive and deductive methods are included in learning processes. The aim is to understand the connection between theory and practice to develop a synthesis where insight in the professional skills is the essence. In our master's degree program, such competence is a major focus, and the thesis must reflect this integration of skills necessary for best practice.

The theory–practice gap mentioned by Eriksson (18) refers to the idea of a significant divide and tension between the theoretical ideas from academic nursing and the realities of practice. Zieber and Wojtowicz (19) pointed to the importance of moving nursing away from this classic tension, toward a perspective where theory and practice are integrated as part of a single reality. What is important is the way nurses bring together theory and practical reality.

Benner (20) described knowledge development from novice to expert nurse as being like movement along three axes: from abstract to concrete; from seeing parts to

seeing a whole; and from being distant to being close. Education and experience in the AIO nursing master's degree program help contribute to this development. The above-mentioned theory helps define what an organization may consider reaching levels of competence within specialized nursing that will improve practice. Benner emphasized that staff departments have a significant role in creating environments in which new and updated knowledge in nursing can be nurtured.

Norwegian model of a master's degree program in AIO nursing

Education within advanced AIO nursing varies around the world. In Norway, this involves postgraduate master's degree programs (120 European Credit Transfer and Accumulation System [ECTS] credits), full-time study over 2 years following completion of a Bachelor of Science in nursing, and 2 years of work as a registered nurse. The education is organized within the limits of a national curriculum (21), which also includes the possibility of placement as an exchange student. Academic and clinical aspects are integrated to enable students to develop the ability to apply knowledge to practice in relation to their theoretical understanding (Figure 1). Therefore, clinical practice for students should account for a minimum of 50% of the program.

The master's degree program we refer to was established in 2014. The clinical practice is strictly supervised (1:1 and in groups), with multiple evaluations, and gives a total of 40–45 ECTS credits. To bridge the aspects learned at the university, effective orientation and guidance processes are needed. The master's degree thesis at our university generates 30 ECTS of the 120 required. This thesis in AIO nursing is described as an independent work representing the students' specialization within nursing. The goal is to educate reflected and well-qualified nurses with advanced competences and skills in clinical practice. The chosen design for the thesis must contain scientific and systematic methods (20 ECTS) for gathering and analyzing data within a research ethical framework (Master's in Specialized Nursing). This ensures that students find, read, critically reflect on the themes chosen, and discuss within and between professional disciplines to improve treatment and care. Moreover, the thematic focus must be clinically directed, chosen by input and discussion from the clinical field, and must contribute to new knowledge. The 2 female authors of this article are specialized nurses within the AIO specialization and have long practical experience within hospital and university as supervisors.

Based on the above-mentioned considerations, the aim of this study was to investigate topics and methods in research-based master's degree thesis in AIO nursing to explore their contribution to best practices within each nursing specialization.

Methods

We used a descriptive and explorative design based on the titles and abstracts (topic, research questions and methods) searching for important information according to

the aim of the study. All completed theses from 2014–2020 were included, representing the total period following the introduction of the specialized program in nursing at the University. In particular, we explored thematic approaches, methods, contribution to new knowledge, and further research.

Analysis

We performed a thematic analysis (22) as it offers an accessible and flexible approach to analyze qualitative data. As such, we considered our data consisting of titles/topics/research questions and methods from the abstracts of 78 master's degree theses (2014–2020). We worked systematically through the entire data set to be familiar with the data raising critical questions. By looking for patterns of meaning and issues of potential interest in the data, we moved backward and forward, reading the data in an active way, individually and together in the team, generating codes, and finally defining and naming three themes aiming to capture important issues regarding the aim of the study (Table 1).

Table 1 Overview of the structure of analysis and themes

Structure of analysis	Theme 1	Theme 2	Theme 3
Questions	What do we already know and in which thematic areas is new knowledge needed?	How is today's practice experienced by patients and HCPs and what improvements are suggested?	How is clinical practice evaluated statistically and what improvements are suggested?
Learning	Existing research, critical evaluation of existing research to uncover knowledge gaps	HCPs' and patients' experiences of different aspects in clinical practice	Registry data and statistically evaluated clinical practice
Methods	Systematic reviews EB procedures	Qualitative approaches	Quantitative approaches
Examples	Review on the effect of preoperative warming blankets – anesthesia nurse's preventive function	Professional development nurses' experiences with a joint procedure bank for knowledge-based professional procedures	Early mobilization of patients in intensive care: is today's practice knowledge-based?

HCPs: healthcare professionals; EB: evidence based

Findings

Totally, 78 research-based masters' thesis were examined which represented the entire period of the master program. The master's theses covered different topics, ranging from topics within best practice, competence building and teamwork. All three methodological approaches are identified in each specialization. Topics are more related to the uniqueness of each specialisation. All studies indicated important contribution to practice. A variety of methods were used to suggest improvements in the clinical field.

We found that research questions and the methods chosen represented three different methodological approaches, corresponding to three different types of new knowledge described in the following (Table 1):

Theme 1 Types of knowledge from SR

Through performing SR, students learned to critically evaluate existing research to uncover new knowledge and knowledge gaps. Within this theme twenty-one master's theses using evidence based clinical procedures are now published and represent an important contribution to standardize methods within existing specializations. Eight systematic reviews, which integrate research evidence about a specific research question, have been completed and summarize what we already know about specific phenomena. Taken together, these studies include competence building within quality improvements and patient safety by evidence-based procedures (Table 2).

Theme 2 Types of knowledge from qualitative studies

Through performing qualitative studies, students learned to reveal HCPs' and patients' experiences of different aspects in clinical practice. Thirty-eight master's theses using qualitative approaches have been completed (Table 3).

These studies deal with describing the dimensions of meaning and searching for best practice within each specialization. Experienced specialized nurses were used as informants sharing their experiences. Focus was among others on skill acquirement, safety routines, teamwork, and roles. Overall competence building within quality improvements and patient safety were in focus.

Theme 3 Types of knowledge from quantitative studies

Through performing quantitative approaches, students learned to use registry data and statistically evaluate clinical practice. Eleven master's theses using quantitative approaches have been identified (Table 4).

Among these studies the focus was on incidence, size and measurable phenomena like safety routines, competence building, and caring strategies to improve practice. Available register data and different questionnaires were used focusing on the objective and quantifiable. These theses contribute with outsider knowledge about quality improvements and patient safety with the intention to generalize the findings.

Discussion

The overall aim of this study was to investigate topics and methods in research-based master's degree theses in AIO nursing to explore their contribution to best practices within each nursing specialization.

According to our findings (Appendixes 1–3), all master's theses are considered highly valuable for advanced nursing and require learning from existing research to find new knowledge and bridge knowledge gaps (19,21). They also contribute with learning from the experiences of health-care professionals and patients in terms of different aspects of clinical practice, to be able to improve them, and learning from registries and statistically evaluated clinical practices with the intention of generalizing and improving them.

Our descriptive approach indicates that a variety of methods were used by the students to improve the knowledge needed to improve theory and to suggest improvements in the clinical field to meet future demands (6,10,16). This means that the research topics chosen could be studied from different angles and identify more of the complexities of the phenomena of interest. All studies contributed to specific knowledge within each specialization and demonstrated how new knowledge can be achieved and implemented.

Our master's degree students are unique in that they all have experience as nurses (minimum 2 years), but most of them have never worked behind the "closed doors" of the specialized world they are now entering. Viewing these arenas as novices enables them to ask new questions and see connections that experienced specialized nurses no longer see. These "why" and "how" questions are many, and they represent the very essence of our students' theses. The overall aim of the theses (from this university's master's degree curriculum) is to improve the quality of care and treatment. Figure 1 illustrates the progression of the master's degree thesis through specialization, including the movements from novice to expert.

Benner (21) emphasized that an organization must consider levels for competence within specialized nursing to improve practice. Moreover, she stressed that staff departments have a significant role in creating environments in which new or updated knowledge in nursing can be nurtured (13). If there are no procedures for integrating this new knowledge into daily clinical practice, we fear this barrier might undermine scientific work. The following discussion is organized according to the methodological approaches of the master's degree and their contribution in practice.

Types of knowledge from SR

Such procedures are specific for activities so that healthcare professionals can easily find recommendations for use in daily work. In recent years, the health service in Norway has issued thousands of clinical guidelines. We suggest that better coordination and sharing of expertise nationally and internationally can prevent duplicating work and improve quality. There is a great need for new clinical procedures and revision of existing procedures within existing specializations. The Agree II (23) reports are systematically developed guidelines which assisted the students in reaching decisions about appropriate health care in any disease area. These guidelines provide a straightforward methodological strategy and the steps therein are followed in the development of all procedures to secure quality. The steps include—among others—a broad systematic literature review and quality check, and consensus meetings with specialists from relevant disciplines in the clinical field. However, there are some barriers arising regarding coordination, quality checking and revision of national expert consensus processes. This could affect the ability to make full use of the new procedures to improve the clinical field (6,10,16).

As far as we know, there has been little research using SR in the AIO nursing field. Therefore, the starting point is often to describe and explore what we already know about

specific phenomena. Systematic reviews are therefore considered basic for EB practice in nursing (24,25). As demonstrated in several systematic reviews among the master's theses studied (Table 2), these take different forms (scoping, integrative, qualitative synthesis), and use different guidelines and checklists that give reproducible and verifiable results. Such reviews represent important starting points as they offer summaries of knowledge and help in identifying knowledge gaps. In addition, they constitute important platform for developing own knowledge base (9) as they indicate areas for further research in practice.

Types of knowledge from qualitative studies

Despite some features common to qualitative research design, the master's degree theses represent a wide variety of approaches. As shown in Table 3, the students have tended to focus on one or two broad domains of inquiry to gain new in-depth knowledge. The main aim in these studies was to analyze, often by means of qualitative content analysis (26), and extract as much information as possible from small samples exploring clinical challenges and dilemmas, and to suggest clear strategies to improve practice.

Types of knowledge from quantitative studies

As nursing phenomena are complex, there is often a need to use different approaches in studying them. As such, quantitative methods and results shown in Table 4 will contribute with a breadth of knowledge from descriptive statistics, giving information about numbers, frequencies, and distributions (27). This information helps obtain valuable and broader understanding within different specializations. As indicated, important registry data were already available and contributed with important knowledge to support quality improvement processes at different organizational levels in practice.

The bridge between theory and practice

Education in advanced nursing reflects the need for safe, high quality and efficient health care (28) and must respond to the societal needs (6,28). Figure 1 illustrates how the theoretical and clinical parts of the educational process alternate, and how, gradually, more weight is being given to the master's degree thesis. This is the product, integrating theoretical and clinical knowledge into new understanding that are disseminated to the clinical field to improve patient quality care and practice development. The transition from novice to expert (20) and bridging the gap between theory and clinical practice (18) are included in the model to highlight the different steps or movements in this process. It is important and motivating for the students, and for education as such, to know that all the energy and hard work that is put into a thesis bring relevant, new knowledge to the clinical field.

During the progression from novice to expert, several movements are needed to develop new knowledge in clinical practice (Figure 1). This means that the educational

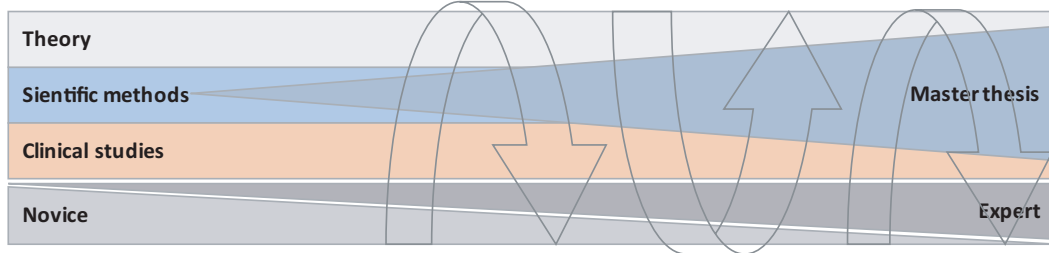


Figure 1 Master thesis program progression through the specialisation. Curved arrows represent movements between theory and practice.

institution and clinical practice must work together to reach a common understanding. Each party to this process brings important knowledge that needs to be linked and further developed to give direction to EB practice. Moreover, we suggest that combined and adjusted positions between hospitals and universities for master- and PhD-students will be an important resource in this matter. As we see it, this master's degree level of education will contribute to strengthened and sustained thinking behind lifelong learning and learning organizations.

Benner's (20) systematic way of approaching competence building through various levels gives a solid structure to the process for all concerned (23). This approach also stresses that professional competence drives the decision-making and the reflected actions that underpin clinical skills. The development of professional competence in AIO nursing is essential because specialized nurses need to be able to apply decision-making quickly and efficiently in the face of life-threatening illness (23).

We believe that academic competence in research methods and theory of science and nursing obtained through the master education, are required to understand the theoretical aspects within any specialist field in nursing. Moreover, it is important to understand and generate new evidence-based knowledge and to be able to initiate new clinical research projects and implement them in the clinical field. This is central to the academic level embedded in our master's degree program. This implies that health trusts and educational institutions should cooperate closely on developing educational models, and pedagogical approaches to maintain master-degree level of skills (12). We also believe that offering our students a degree course (120 ECTS) in line with international (Bologna) standards will help in recruiting younger students looking for a nursing career. A master's degree is also the foundation for a PhD, which gives further opportunity to research and further develop one's own knowledge fields. The Bologna framework also offers increased opportunities for graduate and postgraduate studies and research across Europe and inter-collaborative research between countries (29). We need specialized, knowledgeable, and confident nurses with the ability to work independently and in interprofessional teams. Moreover, they must be able to adapt new EB practices effectively and take an active role in evaluation to better meet the complex needs of patients. We emphasize that this will benefit patients, health-care systems, and their economies, and enhance nurses' job satisfaction. As Lis, Hanson, Burgermeister,

and Banfield (30) underline, it is essential that graduate nursing students have the knowledge and skills needed to be agents of change (6). Furthermore, they should be able to contribute to the rapid rate of change in health-care systems. Already, several of these master's degree theses have been published in national (31,32) and international scientific journals (13,33–35), contributing to the clinical field: e.g., pre-operative warming, hypothermia, non-technical skills, pediatric pre-medication, and teamwork. Such master's degrees prepare nurses for the future and empower students with the expertise required in today's health-care systems to improve the delivery of care (6). We hope that this article will promote discussions on how standards of clinically related master's degree programs can help the implementation of research findings both nationally and internationally. Critical thinking and independent practice must lay the foundation for best practices performed by well-educated and proud advanced nurse practitioners.

Implications for research and practice

Our master's degree program offers a novel approach for nursing programs in academic settings to improve theory building, education, and best practice. The program must be based on a systematic integration of clinical and theoretical approaches and requires close collaboration with clinical practice. Close follow-up of students in theoretically and in clinical practice is a factor for success.

Specialist nursing is about caring, and nursing is a scientific discipline. This means that new knowledge and new models should be explored using a variety of research methods which is desirable to maximize the breath of evidence for best practice. More research is needed to investigate the benefits of a master's degree program in AIO nursing with special focus on implementation of findings.

What this paper adds

We contribute with new insight regarding how knowledge about, and use of, research methods leads to scientific advances in best practice. Moreover, this study highlights the importance of research based master's theses and illustrates how different methodological approaches will contribute with new knowledge important for each specialization in the future. This study highlights the crucial connection between theory and practice to develop a synthesis where insight in the professional skills is the essence.

Methodological considerations

We suggest that our thematic approach produces an insightful analysis according to the aim and research questions. The strengths of this study are that all master's degree theses were available for this research. Studies have been critiqued thoroughly to secure trustworthiness and relevance to clinicians. This means that both researchers questioned the same areas in each thesis. We interpreted the findings critically in the context of existing literature and the theoretical framework presented. However, we are aware that interpretation always involves multiple meanings and that our interpretation might

be influenced by personal history (24). To secure transparency, the analytic steps and findings can be followed through table, figure, and appendixes.

Our master's degree programs are described and illustrated in detail. The limitation of this study is that we did not perform any in-depth analyses. As the analysis was made solely on abstracts, some information may be missed. We believe that our program is transferable to other educational institutions that are interested in developing a similar master's degree program at the same level. Moreover, we suggest that our findings have national and international relevance as master's programs in different fields of nursing are in a developing phase, which means that new knowledge must be developed and implemented continuously.

Conclusions

As relatively little research is performed because of the lack of research qualifications in AIO nursing, master's degree theses in this field represent an important step forward to improving the knowledge base and clinical practice. The results represent new, updated, and valuable knowledge to best practice for educational institutions, hospital management, and the clinical field to guide future advanced and EB nursing practice. We hope that this our recommendations, focusing on advanced AIO nursing and education, will contribute to implementation of future standards of patient care within each specialization.

Conflict of interest

No conflict of interest is declared by the authors.

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Appendix 1 Examples of the 29 themes and methods studied, **using systematic review approach** indicating the contribution to practice

Specialty	Theme	Method
A	Review on the effect of preoperative warming blankets – anesthesia nurse's preventive function.	SR
A	Effect of alveolar recruitment maneuver during general anesthesia	SR
I	Interdisciplinary simulation training of crisis resource management principles in emergency departments	SR
I	Deactivation of implantable cardioverter defibrillator: patients and healthcare professionals' perspectives.	SR
I	Factors affecting relatives' consent regarding organ donation, and interaction with intensive care nurses, a meta synthesis	Qual. synthesis
A	The effect of muscle relaxants on measurement of sleep depth during general anesthesia.	SR
O	Can bladder scanning replace sterile intermittent catheterization?	SR
O	Perioperative communication in the operating team.	SR
A	Low-flow anesthesia – recommendations for safe use. A knowledge-based professional procedure for low-flow inhalation anesthesia.	EB
A	Extubation.	EB
I	IABP – recommendations for observation, control and care. A knowledge-based professional procedure.	EB
I	Ventilation of obese patients during laparoscopy.	EB
O	Retained instruments or sponges after surgery – Recommended control procedures. A knowledge-based professional procedure for surgical counting.	EB
O	Hypothermia in patients undergoing abdominal or thoracic surgery in the postoperative ward.	EB
I	Prevention and treatment of constipation in patients undergoing intensive care.	EB
A	Intraosseous needle in the sternum. A knowledge-based professional procedure. The role and responsibility of anesthesia and intensive care nurses.	EB
I	Arterial catheters in adults – observation and treatment.	EB
I	Non-pharmacological prevention of delirium in the patient under intensive care.	EB
O	Skin preparation prior to fracture treatment in the surgery department.	EB
A	Preoxygenation.	EB
I	Knowledge-based recommendations for admission, observation, and care of patients with a right-sided pVAD (Impella).	EB
I	Safe patient handover during day, evening, and night shifts in the intensive care unit.	EB
I	Early mobilization of adult patients under intensive care – a knowledge-based procedure.	EB
A	Intranasal Dexmedetomidine as premedication for children – high quality nursing as the basis for successful sedation.	EB
A	Securing the respiratory tract and prevention of complications by rapid sequence induction.	EB
O	How can the operating theatre nurse contribute to a more effective management of trauma patients during emergency tracheotomy in trauma centers?	EB
O	Recommended treatment of sharp and prickly instruments during surgical procedures to avoid puncture damage.	EB
A	Deep extubation of children.	EB
A	Practicing cricoid pressure: how do anesthesia nurses learn and practice this?	EB

O: operating room nursing; A: anesthesia nursing; I: intensive and critical care nursing; EB: evidence-based (procedures); SR: systematic review; ICU: intensive care unit.

Appendix 2 Examples of the 38 themes using a **qualitative approach**

Speciality	
I	Professional development nurses' experiences with a joint procedure bank for knowledge-based professional procedures.
I	Intensive care nurses' experiences related to postoperative pain relief, observation, and knowledge when Plexus brachialis blockade is used in surgery of the arm.
I	The role of the intensive care nurse in the interdisciplinary team in respiratory weaning.
I	Specialist nurse's contribution to parents with a newly tracheotomized child to make them feel safe.
O	Needle stick injuries in the operating room – a qualitative study of the experience of operating room nurses and surgeons.
O	Operation theatre nurses' experiences with errors due to surgical positioning in the perioperative course.
O	Norwegian operating theater nurses' descriptions of their role and responsibilities in the operating theatres.
A	Teamwork in robotic-assisted surgery: experiences from the anesthetic team staff members.
A	Patient safety in relation to medication management – a qualitative study of the experiences of anesthetic nurses.
A	Anesthesia nurses' timing of Oxy Norm administration using “target controlled infusion” during laparoscopic cholecystectomy.
A	Anesthesia nurses' pre-, peri- and post-operative experiences with intranasal Dexmedetomidine as premedication for children undergoing anesthesia.
I	What perspectives on quality do medical patients emphasize after the introduction of triage teams in emergency rooms?
I	The active and passive intensive care nurse in the mobile intensive team (MIT).
I	Newly educated intensive care nurses' experiences with stress and coping.
I	Caring for children in the general intensive care unit – intensive care nurses' experiences.
I	Health-care professionals' experience in guiding cardiac transplant patients to activity and exercise: a qualitative study.
O	«Safe surgery – in the proper sense» What has helped shape the operating nurses' care of the patient?
O	Surgical positioning of the operating patient.
O	Intensive care nurses' and anesthesiologists' experiences with team communication when receiving a new critically ill patient.
I	The importance of continuity of care: the experiences of intensive care nurses
O	Reprocessing surgical instruments in the operating department – a qualitative study of the experience of the operating theater nurses and technicians.
A	The anesthesia nurse's role in the interprofessional team when a deteriorating newborn child is on the asphyxia table.
I	Stress triggers in intensive care nurses' working day in the intensive care unit.
A	A study on anesthesia nurses' experiences with own competence in trauma care and the perceived benefit from the hospitals' competence development programs.
O	Operation theatre nurses' experiences using SPLINTS as a guide to improving nontechnical skills.
I	Debriefing TALK. How do intensive care nurses experience the need for / addressing debriefing of difficult situations?
I	Advanced heart–lung rescue at the intensive care unit: the technical and nontechnical skills of the intensive care nurses.

(Continued)

Appendix 2 *(Continued)*

Speciality	
I	Intensive care nurses' experiences in relation to critically ill patients who have cardiac arrest, when CPR status is not set.
I	The role of the intensive care nurse in the standby team at SUS. What is the role of the intensive care nurse in the standby team and how can this role be improved?
I	Implementation of a debrief system in the ICU to learn from errors.
I	Postoperative pain assessment.
I	Patients' experiences of information received upon discharge from hospital, after undergoing uncomplicated STEMI with PCI performed.
I	Intrahospital transport of intensive care patients.
O	Operation room nurses' experiences of retrieving organs during organ transplantation.
O	Introduction of the TALK debrief tool in the operating theater.
A	Patient transfer from the operating theater to the postoperative ward.
A	How do anesthesia nurses learn in everyday clinical practice?
I	The right expertise at the right time in the right place.

O: operating room nursing; A: anesthesia nursing; I: intensive and critical care nursing; ICU: intensive care unit.

Appendix 3 Examples of the 11 themes using a **quantitative approach**

Speciality	Themes
I	Early mobilization of patients in intensive care: is today's practice knowledge-based?
O	Noise in the operating room.
I	Hypothermia in patients undergoing abdominal or thoracic surgery in the postoperative ward. Operating room nurses' experiences.
I	Identifying insufficient knowledge among nurses regarding prevention, detection, and treatment of sepsis in the emergency room and intensive care unit.
O	Postoperative wound infections in caesarean section – a quantitative study.
A	Assessment of perioperative fluid therapy in large open abdominal surgery.
I	Importance of multidisciplinary outpatient consultation for patients before receiving atrial fibrillation therapy.
I	Postoperative urinary retention – an incidence and risk factor analysis in a general postoperative unit.
I	Patient satisfaction in the postoperative unit. How satisfied are the patients with their stay?
I	Prevalence of late complications such as radial occlusion following trans radial access by coronary angiography and use of single compression roll.
I	Implementation of clinical debrief in the ICU.

O: operating room nursing; A: anesthesia nursing; I: intensive and critical care nursing; ICU: intensive care unit.