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EXPERIENCE EXCHANGE

The development of a Swedish Nurse Practitioner Program – a request from clinicians and a process supported by US experience

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Abstract

High nursing turnover and a shortage of nurses in acute hospital settings in Sweden challenge health care systems to deliver and ensure safe care. Advanced nursing roles implemented in other countries have offered nurses new career opportunities and had positive effects on patient safety, effectiveness of care, and patient satisfaction. The advanced nursing position of Nurse Practitioner has existed for many years in the United States, while similar extended nursing roles and changes in the scope of nursing practice are being developed in many other countries. In line with this international trend, the role of Nurse Practitioner in surgical care has been proposed for Sweden, and a master's programme for Acute Nurse Practitioners has been in development for many years. To optimize and facilitate the introduction of this new nursing role and its supporting programme, we elicited the experiences and support of the group who developed a Nurse Practitioner programme for a university in the US. This paper describes this collaboration and sharing of experiences during the process of developing a Swedish Nurse Practitioner programme. We also discuss the challenges of implementing any new nursing role in any national health care system. We would like to share our collaborative experiences and thoughts for the future and to open further national and international dialogue about how best to expand the scope of practice for nurses in acute hospital care, and thereby to improve patient care in Sweden and elsewhere.

Key words

Nurse Practitioner, Education, Implementation, Collaboration, Surgical care

1 Introduction

Nurses constitute the largest proportion of professionals in acute hospital care. Ensuring and delivering safe care requires highly skilled, experienced nurses working in direct patient care. However, high nursing turnover and the shortage of

nurses in acute hospital settings in Sweden and internationally challenge health care systems to deliver and ensure safe care. Limited career opportunities have been suggested as one reason for high turnover ^[1, 2]. Internationally, the implementation of advanced nursing roles in the health care team has offered nurses improved career opportunities ^[3-5], and has had positive effects on patient safety, effectiveness of care, and patient satisfaction ^[6, 7]. The United States has for many years offered certification to Advanced Nurse Practitioners ^[8], while many other countries are developing an extended nursing role, changing the scope of nursing practice.

In 2002 the International Council of Nursing (ICN) ^[9] took the initiative to facilitate global communication between Nurse Practitioners (NPs) through the International Nurse Practitioner/Advanced Practice Network, using the following definition and criteria:

“A Nurse Practitioner/Advanced Practice Nurse is a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A master’s degree is recommended for entry level”.

This definition not only allows but recommends a national adaptation of the role. During the implementation of the qualification of APNs throughout the world, different role titles, legal obligations, and scopes of practice have developed in more than 50 countries ^[9, 10].

1.1 Advanced Practice Nursing – development in an international perspective

In the 1960s, Loretta Ford, a public health nurse in rural Colorado US found pediatric health care lacking in America. She created a model that combined clinical care and research to give public health nurses the preparation necessary for them to help children and their families. Individuals who participated in this training became known as Pediatric Nurse Practitioners. At the same time in Canada, the Advanced Practice Nurse (APN) was introduced in the primary care setting. The province of Quebec was the only Canadian area to report implementing the role in specialty practice ^[5].

Thirty years later, in the United Kingdom (UK) the Royal College of Nurses introduced the first educational programme for the role of Nurse Practitioner (NP). The first Advanced Nurse Practitioner programme was introduced in the UK in the early 1990s. The first NP was accredited in 1996.

Initial projects for the NP role in Australia and New Zealand were developed in response to healthcare changes and a lack of access to affordable healthcare. In New Zealand the Minister of Health initiated an effort to identify the barriers to improving nursing services and to devise strategies to remove these barriers ^[11]. The ministerial taskforce considered the role of NP central to improving patient services and providing highly skilled and coordinated care to particular patient groups across the primary health care and hospital interface.

Almost all countries that initiated the NP role did so in primary care, and it took some time before the role was used in specialty practice settings or acute care. In the US the adult Acute Care Nurse Practitioner (ACNP) role was developed in the early 1990s in response to the need to provide more comprehensive care to acutely or critically ill or injured patients. Although there were initial barriers such as nurse and physician discomfort and uncertainty about the role, many providers ultimately embraced it with enthusiasm. The role provided a solution for gaps in care that occurred when physicians were unable to provide timely medical decision making, transitions to other levels of care, or discharge to sub-acute settings or home. Surgeons were early adopters of this collaborative role as they were often sequestered in the operating room for most of the day and therefore unavailable to focus their efforts on the complex and rapidly changing needs of their recently operated patients. While house staff rotated monthly and had varied professional interests, ACNPs were consistent members of the team practicing in their area of expertise. The role of the ACNP grew rapidly in the 1990s due to house

staff shortages and reductions in reimbursement as well as increasing pressure for reduced length of hospital stay and the need for expert development of quality and safety initiatives. Once prescribing privileges were granted in all 50 states, the ability of the ACNP to manage patient care across the continuum improved dramatically. Since 2000, the practice of ACNPs has continued to move into more rural areas and outside of hospital confines to wherever patients with acute care needs are found ^[12].

In many European countries, Nurse Practitioners have been available in the health care system for many years, although the level of education may vary between countries or within a country over time. The more formal NP role has recently been initiated in some countries for many of the same reasons as in other parts of the world in order to improve quality and continuity of care ^[13, 14]. To date, APN programmes have been introduced in the Netherlands, Finland, and Sweden. The primary care NP role was introduced in the county of Skaraborg, Sweden, where more skilled and independent nurses were vitally needed to provide more and better care to patients. Subsequently, in 2003, the University of Skövde initiated a programme to prepare APNs for work in primary care. Lindblad *et al.* ^[15] describe the importance of adapting the international role of the NP to meet the needs of the patients and healthcare issues specific to each country. They report that both the NPs and the general practitioners (GPs) they collaborated with were uncertain of the NP role and met resistance from other GPs and nurses not involved in the training. The biggest issue identified was the APN's assumption of authority traditionally allocated to the GP, which resulted in some confusion about the GP's role in healthcare following the adoption of the new APN role ^[15].

1.2 The problems in surgical care in Sweden

Clinicians in Sweden identified a problem in achieving optimal care in acute surgical units. Surgical care is part of the complex organization of acute hospital care in Sweden. In recent years, in addition to many medical advances, the field has undergone many organizational changes. The number of inpatient beds has decreased, the length of stay is shorter, the proportion of elderly patients with multiple illnesses is rising, and patients are both admitted and discharged seven days a week ^[16]. Health care is evolving towards greater specialization, and surgical wards are increasingly dedicated to the most severely ill patients, often with complex care needs that will become even more complex in the future. More patients with accompanying comorbidities are accepted for elective surgery at older ages than previously, with an increased risk for post-operative complications.

Delivery of high-quality evidence-based care requires a high level of expertise among nurses in terms of both medical and nursing care ^[17]. However, surgical wards in Sweden are still largely staffed by recent graduates and inexperienced nurses. The current organization offers few career paths to nurses, and many nurses work only one or two years in the surgical specialty. Consequently, inexperienced nurses in the surgical ward have no experienced colleagues to consult when faced with difficult decisions and assessments involving acutely ill and newly operated patients. Moreover, attending physicians are only available on the ward for a limited time during the day, since they are also charged with duties in the operating room and outpatient clinic. Because of time constraints, work on the ward tends to receive less priority from physicians. As a result, continuity of care, care planning, and patient information on the ward is less than optimal ^[18, 19], and even medical assessments (e.g., pain assessment and management) and prescriptions (e.g., nutrition therapy) suffer from delays and need to be improved ^[20, 21].

1.3 Nurse Practitioner – a solution to the problem?

In line with the international trend, the Nurse Practitioner role was proposed as a solution to these problems in surgical care in Sweden. Initially, the expanded nursing function was requested by several surgical clinics and by physicians who had experienced the benefits of the role during a clinical exchange with the Hospital of the University of Pennsylvania, Philadelphia, Pennsylvania, US. A Master's degree for Nurse Practitioners (in surgical care) has since been under development in Sweden through collaboration and exchange of experience between the School of Nursing at the University of Pennsylvania and the Department of Medical and Health Sciences at Linköping University, and several surgical clinics in

Sweden. This paper describes this collaboration and sharing of experiences during the process of developing a Swedish Nurse Practitioner programme.

The development of the NP role marks the beginning of a new paradigm in acute hospital care in Sweden. We found that sharing the earlier experiences of other countries was most valuable for optimizing and facilitating the introduction of this new nursing role. This paper describes the development of the Swedish Nurse Practitioner programme. We also discuss the challenges of introducing a new nursing role into the health care system.

2 The development of a Nurse Practitioner Programme in Sweden

2.1 Background to the development

Discussions related to the NP role began as early as 2007 when Swedish surgeons involved in a clinical exchange program at the Hospital of the University of Pennsylvania in Philadelphia, PA, USA, observed the role and were interested in understanding how nurses were prepared to provide specialty care. The Trauma Critical Care service at the hospital employed several nurse practitioners who provided comprehensive care to critically ill trauma and surgical patients. As the surgeons had more interactions with the nurse practitioners, the more interested they became in how this role could be translated into the Swedish healthcare system. Following the initial dialogue and expression of interest from Swedish physicians, a team of physicians and senior nurses visited Philadelphia and the Hospital of the University of Pennsylvania to further explore the role and to gain an understanding of the educational requirements needed to prepare nurses in advanced practice. In 2008, a team of physicians and nurse practitioners visited Linköping University to host a symposium on Advanced Practice Nursing.

Since that time, the program development process in Sweden began. Once the decision was made to seriously explore how the nurse practitioner role could be implemented in Sweden, larger teams of nurses, nurse leaders, and physicians visited and observed experienced NPs functioning and practicing. Subsequent to that, a contract was entered whereby the University of Pennsylvania would customize its existing Acute Care Nurse Practitioner curriculum to provide concentrated coursework and clinical observational experiences for a semester to eight Swedish clinical nurse specialists in surgical care who were chosen to attend courses on site at the nurse practitioner programme in Philadelphia.

Since the Swedish surgical specialist nurses could only attend classes for one semester, the faculty of the acute care nurse practitioner program identified the most important coursework that students should engage in that would assist them in understanding the level of knowledge required, the scope of practice and competencies associated with the role; especially related to diagnosis and management of patient illnesses, and the amount of responsibility and accountability the role holds [6, 22, 23]. In addition to the didactic portion of the program, the Swedish students engaged in clinical observation. Biweekly seminars were held to allow students an opportunity to debrief regarding their clinical experiences and to explore how they could envision the role being applied in their healthcare system and specific surgical practice. Scope of practice, cognitive and psychomotor skill development and implementation were explored using student clinical observations as the framework. Literature exploring the role of Acute Care NPs and the outcomes they obtain were analysed [6, 7, 24, 25, 28, 29]. Lastly, seminars focusing in on initiating a new nurse practitioner role were held. Robust discussions occurred around how to educate staff nurses, how to represent oneself to physician colleagues and how to educate patients about the role and responsibilities of a nurse practitioner. Strategies and tools to gain acceptance of a new role were provided. The responsibility of these students to be proponents and champions for this new role as it develops in Sweden was discussed and strategies for success were examined.

Teachers in training and responsible staff from the Swedish hospitals involved also visited the programme and the clinics to grasp the scope of practice and to study the curricula of the NP programme. Cooperation with clinical leaders and

teachers at the University of Pennsylvania has continued throughout the first Swedish programme with video seminars and a visit by a group of their teachers to Sweden. The visit included meetings with health-care leaders, health professionals in various occupations and several educators. Lectures on topics of interest to advanced practice nurses and on the role of the nurse practitioner were provided to a variety of audiences.

2.2 An overview of Swedish educational levels for nurses

A registered nurse in Sweden is required to complete a three-year Bachelor of Science in Nursing degree (180 credits). A clinical nurse specialist must complete additional 60-75 postgraduate credits and pass the professional examination, which can be combined with the examination for a master's degree, for a Post graduate Diploma in Specialist Nursing. Sweden has a tradition of education for clinical nurse specialists that offers a choice of 11 specialties at an advanced level and awards a protected professional title with a European one-year master's degree (see Table 1).

Table 1. Overview of the Swedish (post)graduate Nurse Education

Academic degree	Registered title	ECTS*	Regulation of practice (national)
Bachelor	Registered Nurse	180	A protected professional title.
One year master	Clinical nurse specialist in: Anesthesia care Theatre care Prehospital emergency care Medical Care Oncology care Paediatric care Surgical care Mental health care Elderly care Psychiatry	60	A protected professional title. Some of these educations are optional (e.g. anesthesia care, theatre care) to work in these areas. Others are recommended.
One year master	Clinical nurse specialist in primary health care	75	Optional to be responsible for child vaccination program and subscription of medicines
One year master	Midwife	90	Optional education to be allowed to work in antenatal care and delivery
Two year master	No clinical title	120	No clinical work is regulated for this education.
Doctoral degree	No clinical title	240	No clinical work is regulated for this education.

*ECTS - European Credit Transfer and Accumulation System

2.3 The development of the Nurse Practitioner programme in surgical care

The Nurse Practitioner in Surgical Care, a two-year master's programme requiring 60 credits in addition to a Post graduate Diploma in Specialist Nursing, was initiated at Linköping University in 2012^[30], and the students will graduate in 2014. To be eligible for the programme, candidates must be surgical nurse specialists with a one-year master's degree (see Table 1).

The curriculum for the new programme was developed in collaboration with the surgical departments in Southeast Sweden. A close clinical approach was central and was combined with necessary theoretical education for performing the tasks of an NP. The programme includes 30 credits in medical science and 30 credits in nursing science, of which 15 credits are allocated to a scientific thesis. The programme consists of five part-time courses (see Table 2) that run over two years. During the clinical practice component, each student is mentored by a specialist surgical physician at the clinic.

During the development of this programme, initiators from the surgical clinics and from the university have had discussions with representatives from the National Board of Health and Welfare and the Swedish Association of Local

Authorities and Regions to elicit their opinions about introducing a new type of nurse into the health care team. Discussions included questions regarding formal licence and professional title. All parties were positive and interested, but no decisions about a new official title for these nurses were made; at this point these nurses hold a general academic title (120-credit master's degree), but have no protected professional title.

Table 2. Overview of the Courses Included in the Swedish Acute Nurse Practitioner Programme [surgical care]

Course name	Description	Credits
Advanced surgical care	Focuses the new nursing role	7.5
Physiology, pathology and clinical pharmacology in surgical care	Pharmacology and medical science	7.5
Scientific methods	Qualitative and quantitative scientific methods	7.5
Clinical skills for advanced nurse in surgical care	Clinical training at wards and simulation training center, combined with clinical assessment theory.	22.5
Master thesis, Advanced specialist in surgical care	Individual master thesis in the area of surgical care.	15

2.4 The pedagogical foundation of the programme—problem-based learning

At the Faculty of Health Sciences at Linköping University, problem-based learning has been applied as a pedagogical method since 1996. This method focuses on student participation in both theoretical and practical learning through assessing individual students' learning needs. The method was first developed and implemented at McMaster University, Hamilton, Ontario, Canada. PBL is based upon the aims of increasing students' abilities to reason clinically and of promoting independent learning and problem solving. The method is student-centred, guided by a tutor or facilitator, and based on realistic patient cases^[31]. This pedagogical approach is also applied in the new nurse practitioner programme. The students are obliged to search for evidence-based knowledge and to evaluate their own learning according to criteria in the curricula.

To support and stimulate the students' development and professional competence the teaching/learning design used in the new programme offers seminars, case-seminars, and study groups complemented by lectures, delivered usually by physicians and surgeons, in addition to clinical skills training in a simulations centre. This is the practical basis for teaching students to process reality-based problems.

In the clinical courses the students prepare an individual learning plan according to the curricula, which is assessed by the mentor and the teacher. This plan is evaluated and revised each semester and meant also to be used as a tool in evaluating the students' progress.

3 Expectations for the future

The development of a nurse practitioner programme in Sweden was initially suggested by surgical clinicians and heads of surgical departments in a few hospitals in the southeast region of Sweden. We expect that this expanded nursing role will provide nurses in Sweden with greater skills and independence that will allow them to play a key role in inter-professional care delivery. Through higher skills in advanced nursing care and medicine, nurse practitioners will expand their areas of expertise and perform duties that currently fall in the traditional domain of physicians in Sweden. Despite the expected advantages, implementation of this role is expected to both encounter obstacles and evince shortcomings.

3.1 Initial obstacles and shortcomings to be solved

Several problems must be solved in the introduction of new NPs to clinical practice. First, current healthcare records were developed for only two categories of healthcare providers (i.e. physicians or nurses) with completely different authoriza-

tions. Second, NPs may have to struggle for acceptance by other physicians and nurses. Although there has been wide support and acceptance from the physicians and nurses in the NP trainees' own departments (likely an effect of intense internal information), there is still a need to disseminate information about NPs to other departments and institutions. Despite open seminars with invited guests from the University of Pennsylvania, lectures and articles in national and local publications, NP trainees are still met with suspicion by physicians from other departments. Of note, smaller hospitals seem to have fewer problems with the introduction of NPs. This could be because communication spreads more easily and informally in a smaller facility.

Another challenge to the introduction of NPs is the possibility (or suspicion) that NPs could incur new costs for employers already struggling in bad economic times; it is therefore important to persuade those economically responsible that this investment will pay off in the future. In the beginning, it will be difficult to prove the efficiency of NPs through better outcomes for patients such as patient satisfaction, fewer unplanned readmissions, and lower morbidity and mortality rates. Studies from the US, Canada, England, and Australia, however, show that care provided by nurse practitioners is high quality and cost effective, and that it results in improved patient satisfaction^[32-35]. National studies will be needed to prove the benefits of NPs to care-related and patient-reported outcomes in Sweden.

3.2 The implementation of nurse practitioner in clinical practice

On their introduction to clinical practice, the first group of NPs will need to explore their new role through trial and error, since there are no other experienced NPs to guide them. The support of their mentors, their heads of departments, nurse managers, and other facilitators in the organization is therefore very important. Clinicians, representatives of various health care professions, and unions in Sweden are engaged in dialogue concerning the benefits and the risks of implementing nurse practitioners. Mentorship through NP groups or organizations, NP's within the hospital or graduates of the NP programme or with NPs in similar roles in other countries prove valuable, as linear can provide role models and allies within the struggle for acceptance and implementation of this new role can provide needed support to one another. When an experienced NP mentor is not readily available, learning from a fellow NP, even if thousands of miles away, may be just as beneficial to personal role development.

On one hand, it is obvious that nurse practitioners can help lower the workload of physicians and nurses. This may help to meet increasing needs in health care. We postulate that the introduction of nurse practitioners into the inter-professional team on the surgical ward in Sweden will reinforce professional knowledge and change the team's organization, which in turn should strengthen collaboration in the team and therefore benefit both patient safety and quality of care. When NPs are independent in the management of complex, acute problems and questions from staff nurses, surgeons may be able to spend more time in the operating theatre.

On the other hand, there is a fear that some physicians may suffer an erosion of skills if they rely on NPs. The impact on future physician-patient relations has also been raised. Some fear that physicians will be called in only for the more difficult cases, leading to less patient contact. However, sub specialization occurs in all fields of surgery and specialist surgeons tend to narrow their skills to become high-volume producers of a limited number of surgical procedures. The challenge is therefore whether nurses should have the competence to care for all patients during evening and night shift or have the ability to care for acute surgical patients. We argue that both roles are needed, and the additional and specialized knowledge of the nurse practitioner is necessary to provide optimal care.

We believe a solution to the high nursing turnover and shortage of acute care surgical nurses in Sweden is further academic training for nurses who, as nurse practitioners, will be a model in surgical wards to inspire other nurses towards further education and expanded clinical skills. It has been shown internationally that acceptance of this new role increases with the level of education required^[36, 37], and a high academic level is in fact necessary for Swedish NPs to be able to meet international standards^[8, 9, 11]. It is also necessary that nurses with a high level of experience in advanced nursing work in direct patient care in acute hospital settings to ensure the delivery of high quality, evidence-based patient care. The particular role

NPs may play in Sweden is currently among the most controversial topics in this area. For the implementation of the new nursing role to succeed we believe the role and the scope of practice for NPs in Sweden needs to be further defined, guided by the ICN definition^[9], and international experience. During their education, NP students are encouraged to continue to develop independently in their new professional role. We believe that, using the skills acquired through problem-based learning in the NP programme^[31], the new NPs need to take responsibility for the development of their individual role in clinical practice.

3.3 A plan for long term success of the NP role is needed

In order to overcome the obstacles mentioned above, the NP programme needs to expand rapidly. There is an obvious urgency to increase the small number of NPs in appointed hospitals to overcome the internal challenges to their scope of practice. There is also a need to broaden the number of departments involved to include, for example, orthopaedics, urology, gynaecology, and emergency medicine, all of which have discovered the need for future NPs.

More universities need to initiate NP education, and collaboration between these institutions is mandatory to expand and strengthen incipient NP programmes to include several different subspecialties. Such new programmes might have a common base with the existing surgical programme and combined with a specific component that takes into account the particular needs of the respective subspecialty. Also, new information technology can help to create new educational opportunities nationally and internationally for a number of hospitals affiliated to universities. This development will require close collaboration between universities and hospitals to plan the education of all nurses regardless of the academic degree they pursue. Such collaboration will also strengthen the new role, especially before formal regulatory adjustments have been made by the government agencies.

Although challenges will exist in implementation of the NP role in Sweden, a long term strategy to support this implementation in the health care system would ensure its success^[3]. First, the different departments and hospitals must express to the universities their need for nurses with this expanded training. To demonstrate this need, health care providers in Sweden need continuous information and a practical functioning model as an example. Secondly, in collaboration with hospitals, universities should then initiate the programme and increase the number of training opportunities not only for NPs but also for the clinical nurse specialists whose training is prerequisite to that of the NP. Currently, the great shortage of clinical nurse specialists may limit the number of applicants for the new NP programme. Despite a number of national investigations into the future postgraduate programme for nurses in Sweden^[17], we believe a clear long-term strategy and design for the education of clinical nurse specialists is still lacking. Lastly a national NP network is needed and the already existing international NP network should be supported and strengthened. The national network should also work with government agencies to lobby for official acceptance of these changed and expanded nursing roles and new nursing career opportunities.

3.4 The impact of the NP role for patient care – a need for national evaluation

International studies report that NPs provide high quality, cost effective care that results in improved patient satisfaction. However, implementation of such care needs also to be evaluated by national research, and in this Swedish project, several studies are under way and more are planned. It is likely that the results from studies of NPs in Swedish acute care will be consistent with international studies, but care systems are organized differently in different countries and nation-specific evidence is required.

3.5 Recommendations of educating and utilizing the new role

Although it would be ideal to develop a perfectly crafted program from its initiation, it is unrealistic to expect that to occur. Colleagues from the University of Pennsylvania have recommended a number of items to be considered as the education and implementation of this new role progresses. Recommendations arranged in the categories of education, clinical/role development and outcome evaluation are summarized in Table 3.

Table 3. Recommendation of Items to be Considered in the Education and Implementation of the New Role

<p>Education:</p> <ul style="list-style-type: none"> • Emphasis on the diagnosis and management of acute and critical illness • Define clinical expectations and hours spent in the provision of direct patient care • Encourage NP students to actively participate within the health care team • Clinical simulation experiences • Emphasis on evidence-based practice • Clearly defined curricular elements • Continuing exchange program
<p>Clinical / Role Development:</p> <ul style="list-style-type: none"> • Title protection, licensure, institutional credentialing and privileging • Marketing and education of role • Development of broad scope of practice • Mentoring program [ongoing with US] • Provide link between practice and education. • Promote clinical rotations in settings without NPs [to allow further spread of the role] • Support from physicians and leaders
<p>Assessment:</p> <ul style="list-style-type: none"> • Evaluate care provided by NPs compared to MDs • Evaluate outcomes specific to NP practice • Evaluate satisfaction of RNs, MDs and patients • Evaluate access to healthcare system • Evaluate economic impact of NP role implementation

4 Summary

This paper summarizes the initial steps in developing an academic Nurse Practitioner programme in Sweden. However, development of the programme is not the main goal of the project, but marks the important starting point for the implementation of the NP role in clinical practice. Our vision is, through expanding the scope of practice for nurses in acute hospital care, to improve care for patients in Sweden. For this project to succeed a long-term-strategy is required, combined with continued international and national collaboration at different levels. In this process it is vital to strengthen an already established dialogue with national authorities about the further development and the implementation of this new nursing role. Through sharing the background of this project, our experiences, and our thoughts for the future, we hope to open up further collaboration and sharing of experiences in support of improving patient care and offering nurses a greater variety of career opportunities.

Conflict of interests

The authors declare no conflict of interest.

Authors' information

This paper was produced and written by a group of researchers, clinicians, and educators at several institutions of higher learning [Uppsala University, Uppsala, Sweden; Linköping University, Linköping, Sweden; University of Pennsylvania, Philadelphia PA, US] and health-care leaders and health professionals in various occupations at several hospitals [Uppsala University Hospital, Uppsala, Sweden; Linköping University Hospital, Linköping, Sweden; the Hospital of the University of Pennsylvania, Philadelphia PA, US]. The collaboration has been on-going for several years with the main goal of initiating a Nurse Practitioner programme in Sweden.

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