

PLEASE NOTE! THIS IS PARALLEL PUBLISHED VERSION /  
SELF-ARCHIVED VERSION OF THE OF THE ORIGINAL ARTICLE

This is an electronic reprint of the original article.  
This version *may* differ from the original in pagination and typographic detail.

**Author(s):** Sulosaari, Virpi; Blaževičienė, Aurelija; Bragadóttir, Helga; Bäckström, Josefin; Heikkilä, Johanna; Hellesø, Ragnhild; Hopia, Hanna; Lenk-Adusoo, Margit; Norlyk, Annelise; Urban, Reet

**Title:** A comparative review of advanced practice nurse programmes in the Nordic and Baltic countries

**Year:** 2023

**Version:** Published version

**Copyright:** © 2023 The Authors. Published by Elsevier Ltd.

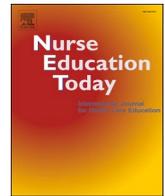
**License:** CC BY 4.0

**License url:** <https://creativecommons.org/licenses/by/4.0/>

**Please cite the original version:**

Sulosaari, V., Blaževičienė, A., Bragadóttir, H., Bäckström, J., Heikkilä, J., Hellesø, R., Hopia, H., Lenk-Adusoo, M., Norlyk, A., & Urban, R. (2023). A comparative review of advanced practice nurse programmes in the Nordic and Baltic countries. *Nurse Education Today*, vol. 127, 105847.  
doi: 10.1016/j.nedt.2023.105847.

URL: <https://doi.org/10.1016/j.nedt.2023.105847>



## Research article

## A comparative review of advanced practice nurse programmes in the Nordic and Baltic countries

Virpi Sulosaari<sup>a,\*</sup>, Aurelija Blaževičienė<sup>b</sup>, Helga Bragadóttir<sup>c</sup>, Josefin Bäckström<sup>d,e</sup>,  
Johanna Heikkilä<sup>f</sup>, Ragnhild Hellesø<sup>g</sup>, Hanna Hopia<sup>f</sup>, Margit Lenk-Adusoo<sup>h</sup>, Annelise Norlyk<sup>i</sup>,  
Reet Urban<sup>h</sup>

<sup>a</sup> Health and Wellbeing, Turku University of Applied Sciences, Joukahaisenkatu 3, 20520 Turku, Finland

<sup>b</sup> Department of Nursing, Lithuanian University of Health Sciences, Kaunas, Lithuania

<sup>c</sup> Faculty of Nursing, School of Health Sciences, University of Iceland, Landspítali University Hospital, Iceland

<sup>d</sup> Department of Medical Sciences, Uppsala University, Uppsala, Sweden

<sup>e</sup> Department of Health, Education and Technology, Luleå University of Technology, Luleå, Sweden

<sup>f</sup> School of Health and Social Studies, JAMK University of Applied Sciences, Finland

<sup>g</sup> Institute of Health and Society, University of Oslo, Norway

<sup>h</sup> Department of Nursing and Midwifery, Tartu Health Care College, Estonia

<sup>i</sup> Department of Public Health, Health, Aarhus University, Denmark



## ARTICLE INFO

## Keywords:

Advanced practice nurse (APN)  
Clinical nurse specialist (CNS)  
Nurse practitioner (NP)  
Postgraduate nursing education  
Competence  
Nordic and Baltic countries

## ABSTRACT

**Background:** Advanced practice nurses (APNs) programs are career-development opportunities significant for nursing workforce retention as well as for the quality of patient care. Inconsistency regarding policy, education, titles, scope of practice, skills and competencies have been identified as major challenges in developing advanced practice nursing in Europe. APN roles and education are under development in the Nordic and Baltic countries. However, there is a lack of information on the current state in this region.

**Objective:** The purpose of this paper is to compare APN programs in the Nordic and Baltic countries to identify their commonalities and differences.

**Design and methods:** This descriptive comparative study reviewed seven master's level APN programs in six Nordic and Baltic countries. Data was extracted from the programme by the expert teachers or leaders of the programmes ( $N = 9$ ). Competencies recommended in the European Tuning Project (ETP) and the International Council of Nurses (ICN) guidelines on advanced practice nursing, were used to evaluate the programs. The same informants provided additional information on the current state of APN education in the country.

**Results:** The admission requirements were similar in the six countries but in two, clinical work experience is an entry requirement. There are two commonly identified APN roles: clinical nurse specialist (CNS) and nurse practitioner (NP). Most of the programs included all the EPT and ICN competencies. The main differences regarded prescribing competencies. All programmes included clinical training, but the methods on how it is implemented varies.

**Conclusion:** The findings indicate that APN programs in the Nordic and Baltic countries correspond with the recommendations of the European Tuning Project and ICN guidelines. This is an important message for administrators, policymakers, and politicians, as well as the nursing community, on providing opportunities for APNs to practice to their full potential within each country as well as cross-country.

**Tweetable abstract:** "APN programmes in the Nordic and Baltic countries correspond with international guidelines. Special attention is needed in future on the clinical training of APNs".

\* Corresponding author.

E-mail addresses: [virpi.sulosaari@turkuamk.fi](mailto:virpi.sulosaari@turkuamk.fi) (V. Sulosaari), [aurelija.blazeviciene@lsmuni.lt](mailto:aurelija.blazeviciene@lsmuni.lt) (A. Blaževičienė), [helgabra@hi.is](mailto:helgabra@hi.is) (H. Bragadóttir), [josefin.backstrom@neuro.uu.se](mailto:josefin.backstrom@neuro.uu.se) (J. Bäckström), [johanna.heikkila@jamk.fi](mailto:johanna.heikkila@jamk.fi) (J. Heikkilä), [ragnhild.helleso@medisin.uio.no](mailto:ragnhild.helleso@medisin.uio.no) (R. Hellesø), [hanna.hopia@jamk.fi](mailto:hanna.hopia@jamk.fi) (H. Hopia), [margitlenkadusoo@nooruse.ee](mailto:margitlenkadusoo@nooruse.ee) (M. Lenk-Adusoo), [an@ph.au.dk](mailto:an@ph.au.dk) (A. Norlyk), [reeturban@nooruse.ee](mailto:reeturban@nooruse.ee) (R. Urban).

<https://doi.org/10.1016/j.nedt.2023.105847>

Received 31 March 2023; Accepted 9 May 2023

Available online 13 May 2023

0260-6917/© 2023 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

Shifting demographic and epidemiological trends in the population have resulted in a change of healthcare demands on higher patient acuity, more patients with complex healthcare needs, and an ageing population living longer with multiple chronic conditions (Lee et al., 2020). To meet the changing population needs, healthcare systems worldwide are under transformation and face restructuring of care (International Council of Nurses [ICN], 2020). Registered nurses are well positioned to contribute to and lead the transformative changes that are occurring. Nurses are fully contributing members of the interprofessional team that is transforming in the face of change of healthcare demands through higher patient acuity, and increased health care in the shift from episodic and health care provider-based care to team-based, person-centred care (Salmond & Echevarria, 2017). In a resource-constrained healthcare system, it is critical to reprofile professionals' roles to promote equitable access to high-quality healthcare services.

Registered nurses represent the largest group of the healthcare workforce (World Health Organisation [WHO], 2020). Promoting the continuing education of registered nurses and the effective accomplishment of their potential can support the realisation of holistic person-centred healthcare services (Delamaire and Lafortune, 2010; Glarcher and Lex, 2020; Ordóñez-Piedra et al., 2021). According to OECD's health workforce policies, education programmes must be adapted to encourage continuous professional development and optimise the practice of different healthcare providers, as well as to ensure their competencies to provide quality healthcare in a more team- and patient-centred way (OECD, 2016).

Responding to changes in the healthcare system requires a new or enhanced set of knowledge, skills, and attitudes towards person-centred care, care coordination, data analytics and quality improvement (Kuiper et al., 2016; Salmond & Echevarria, 2017). There is evidence that postgraduate education in advanced level nursing for roles such as advanced practice nurse (APN) has the potential to make the healthcare system more patient-centred by providing patients with high-quality, cost-effective care (OECD, 2016, Glarcher and Lex, 2020, Ordóñez-Piedra et al., 2021). Thus, the preparation of APNs for practice with enhanced skills sets and fostering the role of APNs in a variety of educational, clinical and research settings are necessary steps to fulfil the potential of advanced practice nursing (Fitzgerald et al., 2012).

The development of the role of APNs and their education is supported by the International Council of Nurses' (ICN) definition of the APN. The ICN defines an APN as a *'generalist or specialised nurse who has acquired, through additional graduate education (minimum of a master's degree), the expert knowledge base, complex decision-making skills and clinical competencies for Advanced Nursing Practice.'* (ICN, 2020) The characteristics of the advanced practice are shaped by the context in which nurses are credentialed to practice. According to ICN, the two most commonly identified APN roles are clinical nurse specialist (CNS) and nurse practitioner (NP). Even though the definition from ICN on what level APNs should get their education and training at is a valuable step in developing global standards for the APN role, as common identified standards for APNs is lacking.

In European countries, graduate nursing programmes as well as licensure for APN roles differ, restricting APNs and students from moving from one country to another. As identified in a [Position paper on synergy between Directive 36, Bologna and European qualifications framework \(2008\)](#) put forward by the European Federation of Nurses Associations (EFN), the European Nursing Student Association (ENSA), the European Specialist Nurses Organisation (ESNO) and the International Council of Nurses (ICN), there is an equal need to agree on the competencies of master's level educated nurses and those at bachelor's degree level. In this study, we reviewed master's level educational programmes preparing nurses for an advanced nursing role in the Nordic and Baltic countries.

## 2. Background

Nursing as a profession has evolved to meet patient and healthcare service needs, including the development of advanced practice nursing (Lee et al., 2020). According to an OECD (2016) report, many countries have developed advanced nursing education programmes that focus on either nurse practitioners (NPs) or clinical nurse specialists (CNS). However, categorising the two is challenging in many countries, such as the Nordic and Baltic countries, as the education programmes and the work roles have characteristics of both roles as defined by ICN (ICN, 2020). Because the role of APNs in the health care system is country-specific, their higher education training may vary. In Europe, there is no consensus on the APN curriculum or role preparation. Moreover, not every country recognises or supports advanced practice within their regulatory nursing profession (Lee et al., 2020).

Thus, European countries are at different stages of implementing APN roles. Inconsistency regarding policy, education, titles, roles, scope of practice, skills and competencies has been identified as a major challenge in developing advanced practice nursing in Europe, for example in critical care (Egerod et al., 2021). Moreover, there are also mixed views on specialist nursing, for example the ESNO has published a common training framework in which specialist nurses are defined as APNs (ESNO, 2015). However, in Finland, for example, there is a difference between specialist nurses and two advanced practice roles, CNS and NP. Specialist nurses have a professional specialisation education (not a master's degree) and the two APN roles are based on master's degree education (Finnish Ministry of Social affairs and Health, 2021; Jokiniemi et al., 2022). In Sweden, there has only been a few APN master's programmes and positions for APNs in the current Swedish healthcare system are lacking (Bergström and Lindh, 2018). In Iceland, on the other hand, there has been a requirement now for almost three decades whereby to become licensed as a clinical nurse specialist, a nurse must hold a master's degree as a minimum and have at least two years of training in the CNS role post master's degree; this being the only acknowledged APN role (Oddsdóttir and Sveinsdóttir, 2011).

According to ICN (2020), those who work in advanced practice roles must be able to demonstrate expertise in the four pillars of advanced practice: clinical, research, education and management/leadership. Advanced nursing practice with research-based thinking is much needed for nurses to participate in decision-making and to refocus and help European health systems to cope with challenges for the benefit of their economies, patients and societies (Cabrera and Zabalegui, 2021). While a CNS is often more focused on non-clinical activities, such as quality development, leadership, interdisciplinary education and research, an NP is an autonomous clinician providing direct patient care (ICN, 2020). However, there are countries where the CNS and NP are integrated and the title used is Advanced Practice Nurse (ICN, 2020). Thus, the nomenclature for advanced or extended nursing practice varies internationally as do roles, terms, titles and training (Bryant-Lukosius et al., 2004; Dury et al., 2014; ESNO 2015). Many unprotected titles exist across Europe for similar nursing roles (Pulcini et al., 2010; International Council of nurses ICN, 2020) and there is an ongoing debate on how to distinguish one role from another, thus hindering the development of advanced practice nursing (Elsom et al., 2006). Globally, the barriers of APN roles are also limited accessibility to advanced practice nursing programmes and accreditation, poor financial and working conditions, and a lack of control of quality of care (Heale and Rieck Buckley, 2015).

In general, according to the European Tuning Project (2018) survey, master's degree programmes at the postgraduate level focus on competence areas such as leadership or management of health care services, research methods in health, general nursing studies, nurse education and pedagogy, clinical nursing specialties/public health, inter-professionalism and multidisciplinary (Gobbi & Kaunonen, 2018). Master's level graduates must develop academic knowledge and independence to apply scientific theory and methods in an academic and

professional context. If the programme aims to develop advanced practice competencies, then specialist practice should also be included (Gobbi and Kaunonen, 2018). Core competencies for APNs include advocacy, management, leadership, collaboration, communication, consulting, education, ethics, evidence-based practice, expert clinical judgment, professional autonomy, quality management and research (Sastre-Fullana et al., 2014, 2017). Similarly, many of the programmes use Hamric et al. (2005) to guide the curriculum. The model identifies several core competencies: direct clinical practice, expert coaching and advice, consultation, research skills, clinical and professional leadership, collaboration, and ethical decision-making (Hamric et al., 2013).

Nevertheless, there is a lack of harmonisation of master's degree programmes in Europe and clinical nursing positions for APNs varies among and within countries, making mobility and collaboration among APNs in Europe difficult (Fitzgerald et al., 2012). Only some countries in Europe have similar APN-specific educational programmes and variation exists in requirements, regulation and scope of practice (Heale and Rieck Buckley, 2015; Maier et al., 2017). Thus, APN practice is always shaped by the country (ICN, 2020). Countries in the Nordic and Baltic region share similarities in terms of culture and health care systems in the European context; therefore, a collaborative development of nursing education through transnational partnership would be beneficial.

An Advanced Nursing Practice Education Network of the Nordic and Baltic countries (APN-EDU) funded by the Nordplus Higher Education Programme was established in 2019 with the objective of developing advanced practice nursing education in the Nordic and Baltic countries (with the exception of Latvia). The first step in the development process was constructing a shared understanding of the APN core competencies and existing programmes. Therefore, we conducted this study to provide an overview of higher education on advanced practice nursing in the Nordic and Baltic countries. The aim is to identify the current state of APN programmes in six countries (Denmark, Finland, Estonia, Iceland, Lithuania and Norway), and to gain a profound understanding of graduate-level APN education, more specifically by analysing the similarities and differences between the network's higher education institutions by conducting a comparative review of the programmes.

### 3. Method

#### 3.1. Study design

The paper presents a descriptive-comparative analysis of data extracted from selected master's level APN education programmes at six higher education institutions (HEI). Institution is used as an umbrella term to cover universities and universities of applied sciences. These are all higher education providers in the Nordic and Baltic countries. The data is from six countries, Denmark, Estonia, Finland, Iceland, Lithuania and Norway. Although there is an HEI from Sweden in the network, no APN programme at the master's level existed at this time in the Swedish network university. In Sweden there is currently a lack of formal legislation for APN roles and education (Bergström and Lindh, 2018). Thus, APN programmes at master's level exist at only two universities in Sweden. Other HEIs have previously initiated such programmes, of which some have been altered to master's programmes without claiming a specific focus on the APN role, while others have existed previously but were eventually cancelled. To our knowledge, no APN programmes or roles exist in Latvia. From Finland, two institutions participated in the study. The information from the two institutions were collated into one, representing Finnish APN programmes.

Research questions

The research questions were as follows:

1. What are the admission requirements and the length of the APN programmes in the Nordic and Baltic APN programmes?
2. What does clinical training in the APN programmes in the Nordic and Baltic countries include?

3. To what extent do the APN programmes in the Nordic and Baltic countries include the general APN competencies described in the European Tuning Project (Gobbi and Kaunonen, 2018) and the ICN guidelines on advanced practice (ICN, 2020)?

#### 3.2. Data collection and analysis

An international research team comprised of academics, who all led the advanced nursing education in each of the network institutions, participated in the study. The data collected includes information on admission requirements, the study credits of the programme (European Credit Transfer System, ECTS), the opportunity for further education at the doctorate level, the amount of clinical training integrated into the programme, and the APN competencies described in the programme.

The original data was collected from December 2020 to January 2021 and updated in August 2022. A worksheet to collect the data was developed by the research team based on the APN competencies described in the European Tuning Project (Gobbi and Kaunonen, 2018) and ICN (2020) guidelines on advanced practice. A data collection template was divided into three sections. The first section included information about admittance requirements, such as required pre-education and prior working experience. The second section included formal programme aspects such as total ECTS of the programme, the final conditions for completing the programme, opportunities for continuing education at the doctoral level, and how much clinical training is included in the programme. The third section contained a list of APN competencies which the respondents identified as existing in their APN programme. The research team had a consensus meeting to ensure common understanding on how to fill in the template. After completion, the gathered information was collated into one file. Similarities and differences in the data on the programmes were summarised by two researchers. All the team members then read the comparable material, and clarified, if necessary, the details of their programme and supplemented the summary until agreement was reached. The same team members reviewed and updated the information in August 2022.

### 4. Ethical considerations

All participating institution members were part of the Nordic and Baltic network. The study was part of this collaboration and was based on public information. Therefore, approval to conduct the study was not needed from the participating institutions.

### 5. Results

#### 5.1. The APN programmes

A prerequisite for admission to the APN programme is a bachelor's degree in nursing or midwifery. Two of the institutions also require previous work experience as a nurse or midwife (Table 1). In Lithuania the basic nursing education is provided both in an applied university and an academic university; the prerequisite for APN education is the academic university education. The majority of the APN programmes comprised 120 ECTS, while only two comprised 90 ECTS.

In all except one programme, the master's thesis accounts for 30 ECTS. The thesis can be empirical research, a literature review or a developmental project. In all cases the thesis aims to advance research-based thinking and skills. In principle, the APN master's degree allows nurses to enter a PhD programme in all countries; however, there might be some bridging courses required, such as on research methodology.

#### 5.2. Clinical training and specialist nursing focus of the programmes

All programmes include clinical training (Table 2). However, the methods on how the clinical training is implemented varies from a distinct practical module (15 ECTS) included in the obligatory

**Table 1**  
Admission requirements, ECTS<sup>a</sup> of the overall programme, master thesis and access to PhD programme.

Country	Institution type	Admission requirements for APN programme		ECTS of the master's programme	ECTS of the master's thesis	Access to PhD programme
		Pre-education	Prior working experience required			
DK	University	210 ECTS BSc in nursing	2 years	120 ECTS	30 ECTS	Yes
EST	University of Applied Science	210 ECTS BSc in nursing 270 ECTS BSc in midwifery	No	90 ECTS	15 ECTS	Yes, possible in related scientific fields as there are no doctoral programmes in nursing sciences
FIN	University of Applied Sciences (NP)	210 ECTS BSc nursing 270 ECTS BSc in midwifery	2 years	90 ECTS	30 ECTS	According to legislation, a holder of a master's degree in healthcare is eligible to apply for PhD programme in nursing science. However, universities make independent decisions if bridge studies are required.
ISL	University	240 ECTS BSc nursing	No	120 ECTS	30 ECTS	Yes
LTU	University	240 ECTS BSc in nursing at university level	No	120 ECTS	30 ECTS	Yes
NOR	University	180 ECTS BSc in nursing	2 years	120 ECTS	30 ECTS	Yes

<sup>a</sup> The acronym ECTS stands for European Credit Transfer System (also known as the European Credit Transfer and Accumulation System). One ECTS credit is 27–30 hours of student's work.

programme (Estonia) to non-direct clinical training through course assignments implemented in the clinical field (Finland). In Finland, the admission requirement on work experience in the clinical field forms an important part of developing the clinical skills. In Iceland the clinical training of APNs is primarily done after graduation, as two years of supervised full-time-equivalent clinical work in the specialty area is required for the CNS licence.

### 5.3. Core competencies of the APN programme curriculum

Most of the programmes corresponded to the APN competencies described in the European Tuning Project (Gobbi and Kaunonen, 2018) and ICN (2020) guidelines (Table 3). There were differences regarding two competencies. First, APNs are not allowed to make a medical diagnosis in countries other than Estonia (to a limited extent) and Lithuania. However, they can identify, assess and analyse changes in the patients' health condition and implement relevant measures/interventions. They also assess if the patients have a tentative diagnosis/differential diagnosis. Second, medical prescribing was not included in the programme in Iceland and Norway. In Finland, nurse prescribing education is a separate programme; however, the completion of the programme can be recognised in the master's degree programme. In one institution, part of the nurse prescriber education is integrated into the APN programme.

## 6. Discussion

There were both differences and commonalities in the compared APN programmes. The main differences were related to admission requirements and the amount and implementation of clinical training within the programme. Despite these differences, the core competencies addressed in the curriculums of the compared programmes were almost identical and in line with the APN competencies described in the European Tuning Project (Gobbi and Kaunonen, 2018) and ICN (2020) guidelines.

The differences in the admission requirements reflect the differences in the undergraduate nursing programmes in these countries, or at least in these programmes. Although the Nordic and Baltic countries are known for ambitious nursing programmes, there are fundamental differences in both the bachelor's and the master's programmes between countries. Whether APN masters programmes lead to entry into PhD programmes or not should be of concern within nursing, and for

administrators and policymakers, as there is a lack of PhD-qualified nurses globally (Dobrowolska et al., 2021; Hodgson et al., 2021). This is especially challenging in countries where a dual model of higher education exists, for example in Finland. The dual model refers to an education system in which scientific and applied universities/university colleges exist. For example in Finland, nurse practitioner education takes place at universities of applied sciences. There is currently no programme for clinical nurse specialist in the country; however, most employers require a master's degree in nursing science for positions in health care. A master's degree in nursing science can only be completed at scientific university. The path to doctoral studies is therefore easier for nurses graduating from scientific universities. As a consequence, only a few candidates with a master's degree from a university of applied sciences have been accepted for a PhD programme.

In order to meet the demands of future health care, it is critical to develop health care professionals' education and roles that promote equitable access to high-quality healthcare services (OECD, 2016; Salmond & Echevarria, 2017; ICN, 2020). The need for a more effective division of labour among health care specialists with different competencies has been emphasised by the OECD (2016). Postgraduate education for nurses is one solution, because clinical nursing education at master's level provides nurses with higher-level decision-making competencies, enabling a more reasonable division of responsibility spheres among health care professionals (ICN, 2020). Task shifting, when based on robust evidence and implemented effectively, can make a significant contribution to health outcomes and to the sustainability of health systems (Maier and Aiken, 2016; Expert Panel on Effective Ways of Investing in Health (EXPH), 2019).

Along with enhancing nursing practice, master's-level clinical nursing education facilitates personal and professional development and enhances the commitment and intention of nurses to remain in nursing practice by providing clinical career opportunities (Price and Reichert, 2017). Thus, the National Academy of Medicine (2021) conclude in their report that eliminating restrictions on the scope of practice of advanced practice registered nurses so that they can practise to the full extent of their education and training will increase the types and amount of high-quality health care services. These services can be provided to those with complex health and social needs and improving both access to care and health equity. This, however, requires that APN programmes need to reflect on the needs of the healthcare sector and public health to adequately equip nurses for these advanced roles.

The length of the programmes varied from 90 ECTS (Finland and

**Table 2**  
Clinical training in the programmes and programme focus.

Country	Clinical training included to the programme	Generic and/or specialised programme
DK	Clinical training is not included as a separate module but there is a 20 ECTS course that includes 36 h of clinical training in a simulation lab and five days in a chosen clinical context.	Generic programme
EST	15 ECTS (390 h) module in accordance with chosen clinical branch	Programme consists of both a generic module and a specialised module in four different areas from which the student can choose: intensive care, mental health, clinical nursing or health nursing
FIN	Two-year work experience required in clinical field prior to entering the programme. Clinical training as a course is not included. Studies consist of assignments that are implemented in the clinical field. Courses on assessment of care need and clinical examination constitute practical training (skill labs, simulation).	Both generic programme (Advanced Practice Nursing) and specialist programmes (for example Advanced Practice - Mental health, Palliative Care or Cancer Care)
ISL	4 ECTS (or more depending on specialty area, 1000 h in intensive care) is included in the programme. To become a licensed clinical nurse, specialist two-year post-master's degree graduation training under the supervision of a practising clinical nurse specialist is required.	Generic programme with two-year full-time-equivalent postgraduate clinical work in the specialty area under the supervision of a CNS is required for the CNS licence.
LTU	Clinical training included in different modules (60 ECTS) take place in different health care settings, depending on the specialised module chosen.	The programme consists of both a generic module and a specialised module in three different areas from which the student can choose: primary care, anaesthesiology, and intensive care or acute care.
NOR	Clinical training is not included as a module, but 416 h of clinical training is included as part of different courses of the programme and take place in different health care settings.	Specialist programme. Advanced practice – geriatric nursing (note: general programmes exist in other Norwegian universities)

Estonia) to 120 ECTS (Denmark, Iceland, Lithuania, Norway). To strengthen the role of nurses in the present as well as in future health care services, clinical competence of APN need to be emphasised (ICN, 2020). There was a significant difference between the compared programmes on how clinical training is implemented. According to the experts of the Tuning Project (2018), clinical practice should be a defining feature of APN programmes, which is determined in certain credits (Gobbi & Kaunonen, 2018). It is important that clinical practice should be a component of APN programmes, as it enables the achievement of direct patient care competence at advanced level. This can be implemented in different ways, for example by integrating clinical skills practice as part of the education at universities (skills lab, simulation and objective structured clinical examination), clinical experience prior to and during the education, or clinical training following the completion of the APN programme, as has been the requirement in Iceland for decades. Albeit in varying degrees and volumes, clinical training needs to be an identifiable part of the programmes. Based on our analysis, this is not currently the case in all the evaluated programmes. All participating programmes enable the integration of theory and practice, both in direct patient care and in the development of nursing care, as well as in mentoring and teaching colleagues. It could be argued that there is a strong bridge between theory and clinical practice in all of the reviewed programmes. However, further development is needed.

Both APN roles are needed according to ICN (2020); however, the identification of similarities and differences in actual job descriptions varies depending on regulations and the health care system of the country. Our findings indicate that there is no significant difference in the competencies of the APN programmes analysed. All the programmes, regardless of the country, follow to a certain extent the ICN (2020) recommendations. As the present study did not focus on the details of specific nursing specialty competencies, there is a possibility that different programmes address clinical nursing issues at different levels and to different extents. The main differences in comparison on the ICN (2020) recommendation is whether prescribing competencies are integrated, and whether medical diagnosis is possible for nurses. The competencies related to limited prescription rights are not directly included in evaluated programmes, but there are many issues that support the acquisition of this competence, such as comprehensive and holistic health assessment at the advanced level.

In some countries like Estonia, Finland, Iceland, Lithuania and Sweden, registered nurses and midwives working in primary care can apply for a limited medication prescription licence after passing an advanced pharmacology course (separate from the APN programme). In Estonia, those who have completed the APN programme since 2020 also have limited prescription rights, whereas in other countries participating in this study, initiatives are being undertaken to ensure the successful completion of the APN programme includes restricted prescription rights. Nurses' prescribing of medication has been increasing successfully in European countries in recent years (Maier, 2019), supporting the inclusion of medication prescription in APN programmes.

One of the significant differences in the comparison of the APN programmes is related to narrower clinical specialisation. In the ICN (2020) recommendation, CNS and NP roles were proposed to make a difference in the two main roles. The NP role was seen as more generic and the CNS role more specialised in the clinical field of nursing. We could not identify this difference in our study. The Norwegian programme places an emphasis on geriatric patients with comprehensive health care needs. Programmes in other countries place less emphasis on specialisation in narrow clinical disciplines, although most programmes also include special clinical fields of study, such as intensive care nursing (Iceland, Estonia) and mental health (Estonia). In Finland, both types of programmes exist: generic programmes and programmes with a narrower clinical focus.

Along with direct patient care competencies, another critical area of competence is the development of nursing practice and leadership of quality development based on scientific-theoretical knowledge (National Academies of Sciences, Engineering, and Medicine, 2021; WHO, 2020), as well as leading interdisciplinary teamwork and teaching and mentoring colleagues in the implementation of innovative best practices and techniques. One indicator of advanced competence level is the ability to use the latest research results in one's daily work and the ability to integrate evidence-based knowledge into one's daily practice and to lead a multidisciplinary team in implementing innovations. The findings of our review indicate that in all programmes, evidence-based practice and development competencies are ensured, with a master's thesis completed at the end of programme. In all except one programme there is a 30 ECTS master's thesis, comprising a substantive part of the entire programme. In Denmark, Iceland, Lithuania and Norway, a research-based master's thesis is carried out, and in Estonia the thesis comprises a development project. However, despite the form of the master's thesis, in all countries it is focused on developing research- and evidence-based knowledge.

This review identified the same challenge of inconsistent titles and definitions of APNs, their roles and job titles, as is identified in many previous studies and documents (Pulcini et al., 2010; Dury et al., 2014; ESNO 2015, ICN, 2020). Master's-level clinical nursing education is not always referred to as advanced practice nursing education for a nurse practitioner role. For example, in Iceland the programme is identified as

**Table 3**  
Recommended APN areas of competencies and compliance of the six analysed APN programmes.

Core Competency area	Areas of autonomy and extended role	DK	EST	FIN	ISL	LTU	NOR
Quality management and safety	1) quality improvement	X	X	X	X	X	X
	2) clinical audit and/or other quality assessment method	X	X	X	X	X	X
	3) leadership to facilitate and manage change	X	X	X	X	X	X
Leadership	4) change management models and theories						
	5) teaching others	X	X	X	X	X	X
Education	6) mentorship, supervision, coaching	X	X	X	X	X	X
	7) self-development, scholarship	X	X	X	X	X	X
	8) research and development of evidence-based practice	X	X	X	X	X	X
Research							
Advocacy	9) advocacy of health and social services	X	X	X	X	X	X
	10) development of health care policies						
	11) role of the APN	X	X	X	X	X	X
Communication and collaboration	12) interdisciplinarity and multiprofessionality within and outside the health sector	X	X	X	X	X	X
	13) comprehensive health assessment	X	X	X	X	X	X
	14) complex care (case) management, care coordination	X	X	X	X	X	X
Direct holistic evidence-based care	15) chronic disease management						
	16) care monitoring and evaluation	X	X	X	X	X	X
Case management	17) improvement of physical, functional and psychological well-being of patients with acute or chronic conditions	X	X	X	X	X	X
	18) improvement of health promotion practices						
Health promotion	19) rehabilitative care						
	20) specialty-specific procedures						
	21) education, guidance of patients, families	X	X	X	X	X	X
	22) admission and discharge planning (health care settings and other services)						
Ethical decision-making		X	X	X	X	X	X
		X	X	X	X	X	X
		X	X	X	X	X	X
		X	X	X	X	X	X
		X	X	X	X	X	X
Clinical diagnostic, therapeutic treatment	23) ordering diagnostic tests	X	X	X	X	X	X
	24) making medical diagnoses	–	X <sup>a</sup>	–	–	X	–
	25) prescribing (therapeutic) treatments	X	X <sup>b</sup>	X	X	X	X
			X <sup>c</sup>				
	26) prescribing medications	–	X <sup>c</sup>	X	X	X	–

<sup>a</sup> Only in ambulance.

<sup>b</sup> Only the theoretical studies.

<sup>c</sup> To a limited, nationally regulated extent.

a master's programme emphasising the role of CNSs. Despite this, the primary focus of all the reviewed programmes is to provide opportunities for advanced clinical competence in direct patient care, as well as to enhance nurses' abilities to think critically and enhance broader and more holistic views on nursing practice. Moreover, the programmes aim to enhance nurses' skills to apply research into practice, to promote the quality of services, and to train and mentor colleagues in order to develop nursing care.

## 7. Limitations

This study has a few potential limitations. The comparative review was based on information from selected institutions providing APN education. Therefore, it is possible that there are existing programmes or programmes under development that have different characteristics. The included institutions did not represent all programmes providing education preparing for the APN role in the participating countries. We could not include Sweden in our analysis as there were only a few programmes in existence, and none in the network member institution. However, some information on Swedish programmes has been published elsewhere (Bergström and Lindh, 2018). Even though the competencies evaluated in our study were identified as almost identical between the programmes, there are some fundamental differences in the content and training, as the programmes are located in different types of schools (universities, universities of applied sciences and university colleges). However, to the best of our knowledge a comparable study has not been published previously, underpinning the significance of this

review. This paper provides a valuable element to the discussion and development of APN education in the Nordic and Baltic region as well as globally.

## 8. Conclusions

This study provides an overview on the current situation of APN education in the Nordic and Baltic countries. Although varying in some aspects, such as type of admission requirements, length and clinical training, the programmes met the recommended competencies for APN programmes in nursing as described in the European Tuning Project and ICN guidelines on advanced practice. Our findings indicate that special attention should be given to the type of programme and whether it leads to entry into PhD programmes and the development and requirements of the clinical training to ensure competent APNs focusing on direct patient care. Thus, in the development of APNs and their roles, collaboration between universities, clinical services, administrators, policymakers and politicians is crucial. Nurses are not only the largest group of health care professionals worldwide, but also among the most valuable. Therefore, nursing education at all levels should be a priority in every country.

## CRedit authorship contribution statement

All authors: the conception and design of the study, MLA VS, RU: acquisition of data, analysis and interpretation of data, MLA VS, RU: Writing- Original draft preparation, ALL: drafting the article and revisions.

## Funding

Nordplus programme supported network meetings (NPHE-2022/10010). However, this study was conducted independently by the researchers.

## Declaration of competing interest

None.

## References

- Bergström, P., Lindh, V., 2018. Developing the role of Swedish advanced practice nurse (APN) through a blended learning master's program: consequences of knowledge organisation. *Nurse Educ. Pract.* 28, 196–201. <https://doi.org/10.1016/j.nepr.2017.10.030>.
- Bryant-Lukosius, D., Dicenso, A., Browne, G., Pinelli, J., 2004. Advanced practice nursing roles: development, implementation and evaluation. *J. Adv. Nurs.* 48 (5), 519–529. <https://doi.org/10.1111/j.1365-2648.2004.03234.x>.
- Cabrera, E., Zabalegui, A., 2021. Bologna process in European nursing education. Ten years later, lights and shadows. *J. Adv. Nurs.* 77 (3), 1102–1104. <https://doi.org/10.1111/jan.14727>.
- Delamaire, M., Lafortune, G., 2010. Nurses in Advanced Roles: A Description and Evaluation of Experiences in 12 Developed Countries. In: OECD Health Working Papers, No. 54. OECD Publishing, Paris. <https://doi.org/10.1787/5kmbrcfms5g7-en> Accessed 31.7.2022.
- Dobrowolska, B., Chruściel, P., Markiewicz, R., Palese, A., 2021. The role of doctoral-educated nurses in the clinical setting: findings from a scoping review. *J. Clin. Nurs.* 30 (19–20), 2808–2821. <https://doi.org/10.1111/jocn.15810>.
- Dury, C., Hall, C., Danan, J.L., Mondoux, J., Aguiar Barbieri-Figueiredo, M.C., Costa, M. A., Debout, C., 2014. Specialist nurse in Europe: education, regulation and role. *Int. Nurs. Rev.* 61 (4), 454–462. <https://doi.org/10.1111/inr.12123>.
- Egerod, I., Kaldan, G., Nordentoft, S., Larsen, A., Herling, S. F., Thomsen, T., Endacott, R., & INACTIC-group (2021). Skills, competencies, and policies for advanced practice critical care nursing in Europe: a scoping review. *Nurse Educ. Pract.*, 54, 103142. <https://doi.org/10.1016/j.nepr.2021.103142>.
- Elsom, S., Happell, B., Manias, E., 2006. The clinical nurse specialist and nurse practitioner roles: room for both or take your pick? *Aust. J. Adv. Nurs. : Q. Publ. R. Aust. Nurs. Fed.* 24 (2), 56–59.
- European Commission (2019). Task Shifting and Health System Design. Report of the Expert Panel on Effective Ways of Investing in Health (EXPH). [https://ec.europa.eu/health/system/files/2019-11/023\\_taskshifting\\_en\\_0.pdf](https://ec.europa.eu/health/system/files/2019-11/023_taskshifting_en_0.pdf) Accessed 31.7.2022.
- European Federation of Nurses Associations (EFN), European Nursing Student Association (ENSA), European Specialist Nurses Organisations (ESNO) & International Council of Nurses (ICN), 2008. Position Paper on Synergy Between Directive 36, Bologna and European Qualifications Framework. [http://www.efnweb.be/wp-content/uploads/2011/11/EFN\\_Position\\_Statement\\_SynergyMRPQ-Bologna-EQF\\_EN\\_final102008.pdf](http://www.efnweb.be/wp-content/uploads/2011/11/EFN_Position_Statement_SynergyMRPQ-Bologna-EQF_EN_final102008.pdf) (Accessed 31.7.2022).
- European Specialist Nurses Organisation (ESNO), 2015. Position Statement of the European Specialist Nurses Organisation (ESNO) in specialist nursing as advanced practice nursing towards 2030. <https://sciencemagazine.com/pdf/10.2478/pielxxiw-2020-0032>. (Accessed 31 July 2020).
- Finnish Ministry of Social Affairs and Health, 2021. Clinical nursing specialties Proposals regarding the competence development of clinical nurse specialists [Finnish]. [https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/163719/STM\\_2021\\_36\\_rap.pdf?sequence=1&isAllowed=y](https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/163719/STM_2021_36_rap.pdf?sequence=1&isAllowed=y). (Accessed 1 March 2023).
- Fitzgerald, C., Kantrowitz-Gordon, I., Katz, J., Hirsch, A., 2012. Advanced practice nursing education: challenges and strategies. *Nurs. Res. Pract.* 2012, 854918 <https://doi.org/10.1155/2012/854918>.
- Glarcher, M., Lex, K.M., 2020. Advanced nursing practice in Austria under consideration of outcome measurement. *Zeitschrift für Evidenz, Fortbildung und Qualität im Gesundheitswesen* 155, 11–16. <https://doi.org/10.1016/j.zefq.2020.06.012>.
- Gobbi, M., Kaunonen, M., 2018. Tuning Educational Structures in Europe. Guidelines and Reference Points for the Design and Delivery of Degree Programmes in Nursing. <https://www.calohee.eu/wp-content/uploads/2018/11/WP-4-Del.-1.4-Guidelines-and-ReferencePoints-for-the-Design-and-Delivery-of-Degree-Programmes-in-Nursing-FINAL-28NOV18.pdf> (Accessed 31 July 2022).
- Hamric, A.B., Hanson, C.M., Tracy, M.F., O'Grady, E.T., 2013. *Advanced Practice Nursing: An Integrative Approach*, 5th edition. Saunders, St Louis.
- Hamric, A.B., Spross, J.A., Hanson, C.M., 2005. *Advanced Practice Nursing: An Integrative Approach*. Saunders, US.
- Heale, R., Rieck Buckley, C., 2015. An international perspective of advanced practice nursing regulation. *Int. Nurs. Rev.* 62 (3), 421–429. <https://doi.org/10.1111/inr.12193>.
- Hodgson, N.A., Ladden, M., Madigan, E., Mishan, A., Montalvo, W., 2021. Emerging roles for research intensive Ph.D. prepared nurses as leaders and innovators: views from funders/sponsors. *J. Prof. Nurs. : Off. J. Am. Assoc. Coll. Nurs.* 37 (1), 207–211. <https://doi.org/10.1016/j.profnurs.2020.10.003>.
- International Council of Nurses (ICN), 2020. Guidelines on Advanced Practice Nursing. [chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.icn.ch/system/files/documents/2020-04/ICN\\_APN%20Report\\_EN\\_WEB.pdf](https://www.icn.ch/system/files/documents/2020-04/ICN_APN%20Report_EN_WEB.pdf) (Accessed 31.7.2022).
- Jokiniemi, K., Heikkilä, A., Meriläinen, M., Junntila, K., Peltokoski, J., Tervo-Heikkinen, T., Mattila, E., Mikkonen, S., 2022. Advanced practice role delineation within Finland: a comparative descriptive study. *J. Adv. Nurs.* 78 (6), 1665–1675. <https://doi.org/10.1111/jan.15074>.
- Kuiper, R., Pesut, D.J., Arms, T.E., 2016. *Clinical Reasoning and Care Coordination in Advanced Practice Nursing*. Springer Publishing. <https://www.springerpub.com/clinical-reasoning-and-care-coordination-in-advanced-practice-nursing-9780826131836.html>.
- Lee, G., Hendricks, J., Deaton, C., 2020. Advanced nursing practice across Europe: work in progress. *Eur. J. Cardiovasc. Nurs.* 19 (7), 561–563. <https://doi.org/10.1177/1474515120917626>.
- Maier, C.B., 2019. Nurse prescribing of medicines in 13 European countries. *Hum. Resour. Health* 17 (1), 95. <https://doi.org/10.1186/s12960-019-0429-6>.
- Maier, C.B., Aiken, L.H., 2016. Task shifting from physicians to nurses in primary care in 39 countries: a cross-country comparative study. *Eur. J. Pub. Health* 26 (6), 927–934. <https://doi.org/10.1093/eurpub/ckw098>.
- Maier, C.B., Aiken, L.H., Busse, R., 2017. Nurses in advanced roles in primary care: policy levers for implementation. In: OECD Health Working Papers No. 98. [https://www.oecd-ilibrary.org/social-issues-migration-health/nurses-in-advanced-roles-in-primary-care\\_a8756593-en](https://www.oecd-ilibrary.org/social-issues-migration-health/nurses-in-advanced-roles-in-primary-care_a8756593-en) (Accessed 31.7.2022).
- National Academy of Medicine, 2021. The Future of Nursing 2020–2030: Charting a Path to Achieve Health Equity. The National Academies Press, Washington, DC. <https://doi.org/10.17226/25982> (Accessed 31.7.2022).
- Oddsóttir, E.J., Sveinsdóttir, H., 2011. The content of the work of clinical nurse specialists described by use of daily activity diaries. *J. Clin. Nurs.* 20 (9–10), 1393–1404. <https://doi.org/10.1111/j.1365-2702.2010.03652.x>.
- OECD, 2016. Health Workforce Policies in OECD Countries: Right Jobs, Right Skills, Right Places. OECD Health Policy Studies. OECD Publishing, Paris. <https://doi.org/10.1787/9789264239517-en>. Accessed 31.7.2022.
- Ordóñez-Piedra, J., Ponce-Blandón, J.A., Robles-Romero, J.M., Gómez-Salgado, J., Jiménez-Picón, N., Romero-Martín, M., 2021. Effectiveness of the advanced practice nursing interventions in the patient with heart failure: a systematic review. *Nursing Open* 8 (4), 1879–1891. <https://doi.org/10.1002/nop2.847>.
- Price, S., Reichert, C., 2017. The importance of continuing professional development to career satisfaction and patient care: meeting the needs of novice to mid-to late-career nurses throughout their career span. *Adm. Sci.* 7 (2), 17. <https://doi.org/10.3390/admsci7020017>.
- Pulcini, J., Jelic, M., Gul, R., Loke, A.Y., 2010. An international survey on advanced practice nursing education, practice, and regulation. *J. Nurs. Sch.* 42 (1), 31–39. <https://doi.org/10.1111/j.1547-5069.2009.01322.x>.
- Salmond, S.W., Echevarria, M., 2017. Healthcare transformation and changing roles for nursing. *Orthop. Nurs.* 36 (1), 12–25. <https://doi.org/10.1097/NOR.0000000000000308>.
- Sastre-Fullana, P., De Pedro-Gómez, J.E., Bannasar-Veny, M., Serrano-Gallardo, P., Morales-Asencio, J.M., 2014. Competency frameworks for advanced practice nursing: a literature review. *Int. Nurs. Rev.* 61 (4), 534–542. <https://doi.org/10.1111/inr.12132>.
- Sastre-Fullana, P., Morales-Asencio, J.M., Sesé-Abad, A., Bannasar-Veny, M., Fernández-Domínguez, J.C., De Pedro-Gómez, J., 2017. Advanced practice nursing competency assessment instrument (APNCAI): clinimetric validation. *BMJ Open* 7 (2), e013659.
- World Health Organization (WHO), 2020. State of the world's nursing 2020: investing in education, jobs and leadership. <https://www.who.int/publications/i/item/9789240003279> (Accessed 31.7.2022).