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*Published in:*  
International Journal of Nursing Education Scholarship

*DOI:*  
[10.1515/ijnes-2019-0047](https://doi.org/10.1515/ijnes-2019-0047)

Published: 12/06/2020

*Document Version*  
Publisher's PDF, also known as Version of record

[Link to publication](#)

### *Citation for published version (APA):*

Jeffery, N., Donald, F., Martin-Misener, R., Bryant-Lukosius, D., Johansen, E. A., Egilsdottir, H., Honig, J., Strand, H., Jokiniemi, K., Carter, N., Roodbol, P., & Rietkoetter, S. (2020). A Comparative Analysis of Teaching and Evaluation Methods in Nurse Practitioner Education Programs in Australia, Canada, Finland, Norway, the Netherlands and USA. *International Journal of Nursing Education Scholarship*, 17(1).  
<https://doi.org/10.1515/ijnes-2019-0047>

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# A Comparative Analysis of Teaching and Evaluation Methods in Nurse Practitioner Education Programs in Australia, Canada, Finland, Norway, the Netherlands and USA

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## Abstract:

A scoping review of published literature and dialogue with international nurse practitioner educators and researchers revealed the education of nurse practitioner students varied within and between countries. This lack of cohesiveness hinders nurse practitioner role development and practice nationally and internationally. A rapid review of grey literature was conducted on nurse practitioner education standards in six countries (Australia, Canada, Finland, Norway, the Netherlands, and USA). Data were extracted from graduate level nurse practitioner education programs' websites from each country (n = 24). Extracted data were verified for accuracy and completeness with a nurse practitioner educator from each program. Data were analyzed using content analysis. Variations in nurse practitioner education within and between countries were explored by comparing admission criteria, curricular content, clinical requirements, teaching methods, and assignment and evaluative methods. The findings will help inform education programs and further research about nurse practitioner education internationally.

**Keywords:** curriculum, graduate education, international, nurse practitioner

**DOI:** 10.1515/ijnes-2019-0047

**Received:** April 22, 2019; **Revised:** February 8, 2020; **Accepted:** February 12, 2020

## Introduction

The combined issues of poorly distributed global health human resources, funding constraints, rising rates of chronic disease, and an aging population have reinforced the importance of primary healthcare worldwide (Kooienga & Carryer, 2015; Petterson et al., 2012; Scheffler, Liu, Kinfu, & Dal Poz, 2008; United Nations, 2015). The World Health Organization and United Nations continue to stress the need for universal, equitable, and just access to healthcare. These organizations emphasize the need for a culture shift from a nationalistic to a global citizenship perspective that maximizes the potential of primary healthcare. Traditional models of primary healthcare that rely on physicians are insufficient to meet the current health needs of people in many countries (Bryant-Lukosius et al., 2017; Petterson et al., 2012; Scheffler et al., 2008).

Evidence shows that nurse practitioners (NP) and nurses working in specialized roles provide safe and effective primary healthcare services (Bryant-Lukosius et al., 2017; Martin-Misener et al., 2015; Pulcini, Jelic, Gul, & Loke, 2010). Although implementation of NPs and other advanced practice nursing roles, such as clinical nurse specialists and nurse midwives have been explored in many countries, the full integration of these roles internationally has not occurred. Lack of role clarity, conflicting policies, and inconsistencies in education and

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scope of practice within and between nations are examples of barriers that have prevented NPs and other advanced roles from developing cross-border credibility and hindered professional mobility (Donald et al., 2010; Kooienga & Carryer, 2015; Scanlon, Smolowitz, Honig, & Barnes, 2015). This lack of national and international cohesiveness within the nursing profession impedes nursing's contribution to addressing global health workforce insufficiencies (National Nurses' Centre Consortium, 2014; Schober & Stewart, 2019).

The International Council of Nurses (ICN) defines the NP role as,

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 (International Council of Nurses, 2002, p. 1).

The authority to order diagnostic tests and x-rays, make medical diagnoses, and prescribe medications is typically included in the NP role; although, the title, education and responsibilities differ within and between countries.

In some countries, the umbrella term *advanced practice nurse* (APN) encompasses the specific role titles of NP, clinical nurse specialist, midwife, and nurse anaesthetist, while in several other countries the role title of APN is equivalent to the NP role. For the purposes of this study, we focused on NP and APN roles that are consistent with the International Council of Nurses (2002) definition of NPs and we refer to these roles as NP.

## Background

Historically, NP education program development has coincided with health care reforms to address population health needs. Some countries do not regulate NPs; therefore, they continue to practice within the registered nurse (RN) scope of practice. In countries that do regulate NPs, legislation and regulation occurs at the national or state/provincial level contributing to inconsistent regulations and scope of practice within, as well as across countries. The NP title is not universally protected, contributing to confusion regarding what constitutes the NP role (Donald et al., 2010; International Council of Nurses, 2002). These regulatory differences are linked with national and international variations in educational standards and evaluation methods (Heale & Rieck Buckley, 2015). Currently, no global educational standards for NPs exist despite the International Council of Nurses recommendation for master's level education as the minimum requirement (Pulcini et al., 2010).

Standardization of NP education programs has been long debated as an approach to promote professional mobility and enhance credibility (Kooienga & Carryer, 2015; Palese et al., 2014; Scanlon et al., 2015). However, the nature of the differences among programs has not been systematically studied. This paper aims to address this gap in knowledge by exploring NP program curricula and admission criteria from six countries at varying stages of NP integration, and to provide insight into nuances of NP education within and between countries.

## Methods

This paper details a comparative analysis of data extracted from selected graduate level NP education program websites from six countries (Australia, Canada, Finland, Norway, The Netherlands, and USA) describing admission criteria, structure and content of NP curricula, teaching, and evaluation measures within and between each country. The findings are part of a larger study that examined international published literature about NP education as a first step in exploring the feasibility of establishing international standards for NP education programs.

The study was designed and carried out by an international research team comprised of nurse academics and educators from each of the six countries. The project was developed and informed through team meetings via Skype every 6 weeks over a three-year period. The team agreed that four NP education programs per country would be included. Inclusion criteria for selection of programs were specific to each country, based on the number and type of graduate level NP education programs. For example, the USA had numerous public and private doctoral and master's programs for NP education, whereas Norway had four programs available in their country at the time of data collection.

Team members from each country were responsible for selecting four representative NP programs from their own country and extracting publicly available data from each program's website into an agreed upon template. The data extraction template requested specific information on curricular content, admission criteria, teaching methods, assignment, and evaluation methods. A definition for each variable was determined through consensus discussions within the research team to ensure consistent collection of data across countries. Data

were extracted by team members from each country and translated to English, as needed. Selected programs' directors or faculty were contacted by a team member from that country to confirm the extracted data, and to complete sections from the data extraction table that were outdated or not available on the program website. Data were collected over a one-year period from August 2017 – August 2018. All extractions were discussed during team meetings to ensure consistent interpretation of the data.

## Results/findings

A total of 24 ( $n = 24$ ) programs were included in the data extraction. Descriptive characteristics of each program were extracted from program websites and verified by program faculty (Table 1). A comparative analysis was conducted on the following key factors agreed upon by the international team members:

- a. Admission Criteria (Table 2)
- b. Curricular Content
- c. Clinical Requirements
- d. Teaching Methods and Program Delivery
- e. Assignment & Evaluative Methods

**Table 1:** Program characteristics.

Country	Year program founded	Number of required clinical hours	Minimum education level of preceptor	Language(s) of instruction	Delivery method	Program length
<b>Australia</b>						
School 1	2007	300	N/A	English	Hybrid*	Part time: 2 years
School 2	2013	300	NP or MD	English	Hybrid	Part time: 3 years
School 3	2010	300	Advanced Practice Clinician	English	On-site	Full time: 2 years Part time: 3 years
School 4	2006	300	NP or MD	English	Hybrid	Part time: 2 years
<b>Canada</b>						
School 1	2003	800	NP or MD	English	Distance	Full time: 2 years
School 2	2007	700	NP or MD	English	Hybrid	Full time: 2 years Part time: 5 years
School 3	2008	732	NP or MD	English	Hybrid	Full time: 2 years Part time: 4 years
School 4	1990s	800	NP	English	Hybrid	Full time: 2 years
<b>Finland</b>						
School 1	2010	**	N/A	Finnish & English	Hybrid	Full time: 2 years
School 2	2010	**	N/A	Finnish & English	Hybrid	Full time: 1.5 years
School 3	2009	**	N/A	Finnish & English	Hybrid	Full time: 2 years

School 4	2010	**	N/A	Finnish & English	Hybrid	Part time: 3 years
<b>Netherlands</b>						
School 1	1998	2000	NP or MD	Dutch	On-site	Full time: 2 years
School 2	1998	2000	NP or MD	Dutch	On-site	Full time: 2 years
School 3	1998	2000	NP or MD	Dutch	On-site	Full time: 2 years
School 4	N/A	2000	NP or MD	Dutch	On-site	Full time: 3 years
<b>Norway</b>						
School 1	2015	450	NP or MD	Norwegian & English	On-site	Part time: 4 years
School 2	2013	840	Nurse	Norwegian & English	On-site	Full time: 2 years Part time: 3 years
School 3	2011	416	APN, MD or Pharmacist	Norwegian & English	On-site	Part time: 4 years
School 4	N/A	400	N/A	Norwegian & English	On-site	Full time: 2 years Part time: 4 years
<b>USA</b>						
School 1	1973	616	NP, MD or PA	English	On-site	Full time: 2.5 years
School 2	2007	1000	NP, MD or PA	English	Hybrid	Full time: 3 years
School 3	1973	672	NP, MD or PA	English	On-site	Full time: 1.5 years
School 4	N/A	1000	NP or MD	English	On-site	Full time: 3 years

\*Hybrid Program: A program that utilizes a combination of distance (online) and on-site (face-to-face) learning.

\*\*In Finland, none of the programs have a set minimum number of clinical hours required for program completion; however, clinical hours are a necessary component of each program.

N/A: Information Not Available

MD: Medical Doctor

PA: Physician Assistant

**Table 2:** Admission criteria.

Admission criteria:	Australia's programs				Canada's programs				Finland's programs				Netherlands' programs				Norway's programs				USA's programs			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Nursing Registration	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X	X	X	X	X	X
Min # of Practice Hours as Nurse	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X	X				
Min # of Practice Hours in a Specialty	X	X	X	X																				
Min # of Practice Hours at Advanced Practice Level	X	X	X	X																				
Min # of Practice Hours as a Registered Healthcare Professional or Nurse									X	X	X	X												
Minimum Grade Point Average					X	X	X	X					X	X	X	X	X	X	X	X	X	X	X	X
Baccalaureate Degree in Nursing	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X	X	X	X	X	X

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Baccalaureate Degree and Registration in a Related Field or Nursing					X	X	X	X											
Graduate Degree/Certificate	X	X	X	X		X	X												
Interview					X	X	X	X											X
Statement of Interest					X	X	X	X											X
Letter(s) of Recommendation					X	X	X	X											X
Employer Support	X	X	X	X															X
Established Mentor	X	X																	X
Evidence of Professional Activity	X	X	X	X															X
Entrance Examination																			X
Statistics Course					X	X		X											X

X, Indicates which criteria were required for admission to a program.

Blank cells indicate that that criterion was not required for admission to a program.

## Admission criteria

Admission criteria (Table 2) were consistent across countries, except for Finland, regarding the need for a baccalaureate degree in nursing and current nursing registration. A baccalaureate degree in nursing or a related field was accepted in Finland as well as registration as a nurse or other healthcare professional.

The main differences found between countries were the required amount of prior nursing practice and level of academic qualifications. Canada and Norway required a minimum of two years of full-time equivalent registered nursing practice (approximately 3,640 hours) within five years of admission; whereas, Finland and USA had no minimum requirements for prior nursing practice. In Finland, three years of nursing practice or practice in a related field, for example, physiotherapy or midwifery was required for admission. Australian universities required the most experience for admission, i. e. two to three years of nursing practice in their specialty plus a minimum of one to two years of advanced practice. Australia also required advanced practice education at the degree or certificate level prior to admission to an NP program.

A cumulative grade point average of B to B+ (70–79 %) in an undergraduate degree program was required in Canada and USA, while Norway required a C average (60 %). Australia, Finland and the Netherlands do not decide admission to NP programs using previous academic performance.

## Curricular content

Curricular content was consistent within countries; however, there was great variation between countries. In Australia, Canada, the Netherlands, and USA, a larger focus was placed on advancing the clinical knowledge and skills of the NP. In Finland and Norway, more emphasis was placed on research, leadership, and implementation science. Programs in Finland and Norway all required a thesis to be completed by each student.

All countries included courses on professional practice and the NP role. Additionally, all programs included at least one course on pharmacology, pathophysiology, advanced health assessment or diagnostics and therapeutic management. However, the programs in Australia, Canada, the Netherlands, and USA either had more curricular content dedicated to these topics or a greater amount of required clinical hours.

The USA doctoral programs included more content than all other programs. Additional courses on clinical knowledge and skills were required, as well as specialised content not included in other curricula, e. g. genetics and health informatics.

## Clinical requirements

In countries that had a minimum number of required clinical hours, the total number ranged from a minimum of 300 hours in Australia to 2000 hours in the Netherlands. Across countries that required a minimum number of clinical hours, the average was 881 hours (Table 1). Canada and the USA include a practicum experience that involves an intense number of hours (e. g. 35 hours per week in the clinical setting plus 3 hours per week of seminar over 12 weeks, totaling 455 hours) at the conclusion of the NP program. NP students in Australia, Finland, the Netherlands and Norway acquire their clinical hours more evenly throughout the course of the program. In the Netherlands, a large accumulation of clinical hours is achieved due to the allocation of government funds as a salary-stipend for NP students to practice fulltime for the entirety of their program. Clinical

hours are a necessary component of each program in Finland; however, there is no minimum required number of hours.

Settings for clinical practice also differed between countries. Programs in Australia and the Netherlands required NP students to complete clinical hours within their workplace. One program in Norway allowed students to complete clinical hours within their workplace. Clinical placements in Finland would generally take place in one organisation, within one practice setting, and with one preceptor throughout the entirety of a program. In Canada and the USA, clinical placements within a student's workplace are discouraged and a broad range of practice settings are experienced throughout the program. For instance, in Canada, one student might experience multiple practice settings such as emergency departments, community health clinics, maternity centres, nurse practitioner led clinics, and a solo physician practice.

## Teaching methods and program delivery

Each country reported a wide range of teaching methods, including face-to-face (seminars, lectures, case studies), student-led seminars, clinical and laboratory simulations (standardized patient simulations, skills training, Objective Structured Clinical Examinations (OSCE)), online learning (online bulletins, e-learns, chat rooms, teleconferences), independent learning, group work and learning through hands-on clinical placements. Teaching and learning methods were consistent across countries.

Program delivery methods varied within and across countries. Half of the programs required students to attend all courses on-site, one program delivered content entirely by distance, whereas the remaining 11 programs used a hybrid approach of both online and on-site teaching (Table 1).

## Assignment & evaluative methods

The assignment methods used to evaluate NP students between and within the countries were largely similar. Evaluation methods used in all six countries included OSCEs, case studies, capstone projects, a major research paper or thesis, multiple-choice and/or short answer exams, presentations and reflection papers.

Grading methods and policies regarding failures were not reported by 58 % of the NP education programs that were included in this study. Many evaluative methods were described as pass/fail, in which no percentage or letter grade was awarded to students. This pass/fail grade is typically given for OSCEs and evaluation of skills labs, clinical placements and practicums. A grade of 70 % was considered the minimum grade to pass a course for those programs that provided this information. Failing a course more than once or two failures in the program resulted in automatic withdrawal from the program.

## Discussion

### Admission criteria

Within countries, admission criteria did not vary significantly; however, between countries large discrepancies were found. Apart from the Netherlands, an inverse relationship was noted between the amount of nursing experience required prior to admission and the number of clinical hours required throughout an NP program. For example, Australia required the greatest amount of nursing experience with applicants required to have two to three years of nursing practice in their specialty, a minimum of one to two years of advanced practice nursing, and an advanced practice nursing post-graduate certification to be considered for admission; thus, students were required to complete only 300 clinical hours once in the program. The USA, which had the second-highest number of clinical hours (apart from the Netherlands) required no prior nursing experience to be considered for admission to an NP program. The Netherlands was the exception to this inverse relationship with stringent admission criteria as well as the greatest number of required clinical hours, supported by a student stipend.

### Curricular content

Curricular content within each country is developed to prepare NPs for the role they will take within that country. Curricular content varies, as the scope of practice and roles of NPs within each country differ (Blackwell & Felber Neff, 2015). Therefore, curricular content was similar within countries, but varied across countries.

Curricular content further exemplified the variation between countries with a greater focus on research and leadership i. e. Finland and Norway and those countries that focused on clinical practice i. e. Australia, Canada, the Netherlands, and the USA. For example, each program in the USA required multiple courses in advanced health diagnostics and assessment, pathophysiology as well as a large number of clinical hours to prepare students for roles as clinical healthcare practitioners.

## Clinical requirements

Countries early in NP role development generally prefer work-based placements i. e. clinical placements that take place in settings where the student NP practices as a nurse. Work-based placements, currently used in Australia and the Netherlands, aid in finding preceptors as well as adequate number of clinical placements for students (Clark, Kent, & Riesner, 2018). However, they also pose limitations of singular learning and a lack of educational diversity. Bias of staff members who are reluctant to poorly grade or fail a colleague, or who may have unreasonable expectations could also be an issue with this approach to clinical placements (Claeys et al., 2015). Work-study placements result in greater specialization but limit the practice settings in which NPs can work after program completion – this also applies to programs where clinical placements take place within one organisation or practice setting throughout, such as in Finland. On the other hand, providing multiple diverse placements to students provides different challenges for the administration of programs including coordination, recruitment of setting and preceptor, and ensuring suitability and quality.

Ultimately, NP programs implement the clinical requirements and placement strategies that are feasible for the current healthcare system and situation in their country. Canada and the USA, the two countries with the longest history of NP education, have transitioned their programs from diploma to graduate level, and from a health setting focus to a broader, population-based focus. This population-based focus provides opportunities for a variety of settings and preceptors. The broader foundation of a population-based focus also has the potential to create a workforce with greater flexibility to mould its practice based on the changing needs of society (National Organization of Nurse Practitioner Faculties, 2012).

## Teaching methods and program delivery

Teaching methods varied based on program delivery; however, all programs required some in-person skill demonstration in addition to hands-on clinical placements. While Australia, Canada, Finland and the USA (Table 1) offered hybrid models for program delivery, with various combinations of online and in-person teaching methods, the Netherlands and Norway programs required students to attend classes in person. Data did not indicate rationale for each countries' chosen program delivery method and trends were not noted within countries. Nonetheless, it was found in the supporting literature that the lack of NP-qualified faculty and available preceptors have resulted in the need to use creative approaches to educate NPs (Alton, Luke, & Wilder, 2018). As the disparity between available NP educators and the need for qualified NPs increases, it is expected that new and innovative teaching methods will increase (Clark et al., 2018). Program delivery processes and their relationship to teaching methods require careful balancing to produce the required number of NPs who are qualified to delivery high quality care.

## Assignment & evaluative methods

Due to the variability in information about courses provided on NP program websites, within and between countries, it was not possible to compare how NP students were evaluated. This is nonetheless a finding in itself. The lack of accessible information regarding evaluation methods likely indicates the minimum standards required to pass or fail a student are determined by each program. This may impede standardization of NP education internationally. Although national NP education guiding principles and essential components, along with accreditation or other program review bodies exist in some countries, it remains the responsibility of curriculum committees in individual programs to determine the evaluation methods and standards for passing courses.

## Limitations

Due to funding and time limitations and the use of publicly available information, the study was restricted to six countries that were known to have variations in NP education and four programs per country. However, this is the largest review to date that uses online and faculty-reported data to examine NP education programs internationally. The authors acknowledge that Hong Kong, the United Kingdom, Ireland, and New Zealand, as well as other countries also have graduate-level NP education programs and their inclusion could have contributed important findings.

## Conclusion

Due to the differences in NP education within and between countries, it is premature to prescribe a strict set of international educational standards. Nonetheless, guiding principles and essential components are used increasingly in education of nurses and other healthcare professionals and assist in curriculum development (Hawkins et al., 2015; Powell & Carraccio, 2018; Schumacher & Risco, 2016), and therefore should be considered for NP education. International guiding principles and essential components or curricular core competencies for NP education have the potential to create common outcomes and assessment and evaluation processes (Hawkins et al., 2015). Further international collaboration is required to inform development of guiding principles and essential components and how they can be used to advance NP education and practice across countries with different healthcare systems and at different stages in the integration of NP roles. Comprehensive monitoring and regulation of NP scope of practice and education within countries, international protection of the NP title, and political will to support the role may need to come first.

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