HARLOW CONSULTING

NMC Nursing & Midwifery Council

Review of Minimum Education and Training Standards in Nursing and Midwifery – Desk Based Research

Benchmarking report

September 2021

Contents

Tables

Figure

Executive Summary

Background, aims and objectives

The standards for nursing and midwifery education and training in the UK are aligned with the EU Directive 2005/36/EC 'on the recognition of professional qualifications' ("the Directive") which establishes minimum EU wide standards for the education and training of nurses responsible for general care and midwives.

The EU requirements have been incorporated into the NMC's pre-registration education standards for many years but the requirement to comply with the EU Directive ceased when the transition period for the UK's departure from the EU ended on 31 December 2020.

Harlow Consulting was commissioned by the NMC to evaluate the evidence on the impact and effectiveness of the EU Directive, to enable the NMC to critically explore whether the requirements of the Directive are necessary to achieve the standards of proficiency to be admitted to the register.

Methodology and approach

The research was conducted using two methods:

1. A review of international evidence on the impact and effectiveness of EU Directive 2005/36/EC including academic research and grey literature
2. An international benchmarking review of approaches taken to pre-registration education and training by comparable health professional regulators

This report presents the findings from the internationall benchmarking review. Its purpose is to compare key elements of the education standards of comparable health regulatory bodies in the UK (those for medical doctors, dentists, pharmacists, and physiotherapists) alongside the standards published by international regulators of nursing and midwifery (from Ireland, Sweden, Spain, Canada, Australia, New Zealand, USA, The Philippines).

The comparator professions were chosen to represent the approaches to pre-registration education taken by four other healthcare regulators. The countries were selected to cover a range of factors and variables: EU and non-EU countries of a similar size and education landscape; countries with and without occupational licensing; countries with a high input into the UK workforce.

This report also collates and summarises any recent research into the impact and efficiency of different education standards on the following pre-defined parameters set by the NMC:

Themes (EU requirements for pre-registration education programmes)	Regulatory outcomes
1. Selection, admission, and progression 2. Entry to shortened midwifery programmes 3. Recognition of prior learning (RPL) 4. Content (including specific clinical proficiencies for midwifery) 5. Practice hours and use of simulation 6. Programme length and number of academic theory and practice hours	1. Public protection and safety 2. Effectiveness and quality of care for people who use services 3. People with different protected characteristics (including nurses, midwives, nursing associates, students and people who use services) 4. The experiences and perceptions of nurses, midwives, nursing associates and students 5. The number and supply of nurses, midwives and nursing associates 6. Effectiveness, availability and quality of education programmes

This research employs a rapid evidence assessment to identify, assimilate and report on evidence within the short timescales for this study (Dec 2020 – March 2021). A series of open searches of academic databases were conducted to locate relevant articles and research papers, to which exclusion criteria were applied to identify a core of 77 articles, and 107 grey literature sources which were reviewed and included in this report.

Approaches taken to pre-registration education by comparable health professions

Table 1: Comparison of programme length and theory/practice hours of comparator professions (UK and EU Directive)

	UK				EU Directive			
	Pre-education programme length		Theory and practice hours		Pre-education programme length		Theory and practice hours	
	Years	Hours	Theory	Practice	Years	Hours	Theory	Practice
Doctors	5+2*	5,500	Not specified	Not specified	5	5,500	Not specified	Not specified
Dentists	5+1**	5,000	Not specified	Not specified	5	5,000	Not specified	Not specified
Pharmacists	4+1***	Not specified	Not specified	90****	4+0.5*****	Not specified	Not specified	Not specified
Physiotherapists	3	Not specified	Not specified	Not specified	3	Not specified	Not specified	Not specified
Nurses	3	4,600	2,300	2,300	3	4,600	33% (1,533 hours)	50% (2,300 hours)
Midwives	3	4,600	40% of total learning time	2,300 50% of total learning time	3 OR 2 OR 1.5******	4,600 OR 3,600 OR 3,000 ******	Not specified	1/3 of total learning time (3-year course)

*5 years of education + 2 years' foundation training

**5 years of education + 1 year foundation training (NHS dentists)

***4 years of education + 1 year foundation training

****90 hours of supervised practice specifically related to prescribing during the foundation training year.

*****4 years of education + 6 months training placement

******3-years of education (4,600 hours). However, EU Directive makes allowance for shortened courses of 2-years (3,600 hours) or 1.5 years (3,000 hours), available for registered nurses.

In line with the EU Directive, pre-registration education for doctors and dentists in the UK consists of 5 years of undergraduate training (5,500 total learning hours for doctors; 5,000 for dentists). In addition to the 5-year degree, both medical and dentistry graduates must also undertake a period of postgraduate foundation training to register for practice. This review has found no evidence from other regulators that they are seeking to make changes now that the EU Directives no longer applies.

Pre-registration education for pharmacists in the UK consists of a 4-year MPharm degree and 52 weeks' of post-graduate foundation training. Pre-registration education for physiotherapists consists of a 3-year undergraduate degree and there is no period of foundation training. For both pharmacy and physiotherapy, total learning hours are not specified.

Regarding practice hours, neither the EU Directive nor the education standards published by respective national regulators (GMC, GDC, HCPC) specify a set number of practice hours, or a balance of theory to practice hours, for the education of the comparator professions (doctors, dentists, physiotherapists). Decisions regarding hours are made at the discretion of individual higher education providers. The only exception to this is the General Pharmaceutical Council, whose standards state that a minimum of 90 hours of prescribing practice must be completed by pharmacy students in the foundation training year.

The EU Directive does not make any mention of simulation except for midwifery education. The Directive is also less prescriptive in its definition of clinical practice for comparator professions (compared to nursing), which invites greater potential in the use of simulation for professions such as doctors and dentists. Simulation is commonplace as a teaching tool across all above-mentioned health professions, especially in medicine and dentistry. However, education standards across these health professions make no explicit statement on whether simulation may count as practice hours. GMC's definition of 'experiential learning in the clinical setting' also encompasses 'both real and simulated' experiences.

Approaches taken to pre-registration education in other countries

EU countries

Table 2: Comparison of programme length and theory/practice hours of comparator EU countries (nursing and midwifery)

Country	Nursing				Midwifery			
	Pre-education programme length		Minimum theory and practice hours		Pre-education programme length		Minimum theory and practice hours	
	Years	Hours	Theory	Practice	Years	Hours	Theory	Practice
United Kingdom	3	4,600	2,300	2,300	3	4,600	40%	50%
Ireland	4 (144 weeks)	4,600	63 weeks	81* weeks	4 (144 weeks)	4,600	58 weeks	81 weeks**
Sweden	3	4,600	2,300	2,300	1.5***	3,000	40%	50%
Spain	4	4,600	2,300	2,300	2****	3,600	40%	50%

*45 weeks of supernumerary clinical instruction and 36 weeks of internship clinical placement

**45 weeks of supernumerary clinical placement and 36 weeks of internship clinical placement

***1.5-year postgraduate midwifery training, to be completed only after completion of 3-year nursing degree.

****2-year postgraduate midwifery training, to be completed only after completion of 4-year nursing degree.

Pre-registration nursing and midwifery education in **Ireland**, **Sweden** and **Spain** is determined by the requirements of the EU Directive and, for midwifery, also by the International Confederation of Midwives' (ICM) Global Standards for Midwifery Education.

	Nursing	Midwifery
Course length	Minimum 3 years (4,600 hours)	Minimum of 3 years (4,600 hours) or either 2 years (3,600 hours) or 1.5 years (3,000 hours) if already a qualified nurse.
Clinical hours	2,300 hours	50% of learning hours
Use of simulation	Restrictions placed on the use of simulation because of the way the Directive defines clinical practice as 'in direct contact with a healthy or sick individual.'	Simulation is permitted only for certain specific scenarios (performance of episiotomies, breech births and initiation into suturing)
RPL	RPL is permitted but precise rules are not specified	RPL is not permitted as the Directive makes no mention of RPL, although qualified nurses are permitted to enter shortened courses through recognition of formal qualification/s.

In **Ireland,** the allocation of clinical practice hours for both **nursing** and **midwifery** exceeds the minimum requirements of the EU Directive. Pre-registration education for nurses and midwives in Ireland involves a combined total of 81 weeks of clinical practice (out of a total course length of 144 weeks, over 4 years). This includes 45 weeks of supernumerary clinical placements as well as a 36-week paid clinical internship which students complete in their final year.

Although the clinical internship for midwifery education in Ireland has been the subject of recent research, this review did not identify any recent studies which linked the clinical internship to improved patient safety or student learning outcomes. Research into the midwifery clinical internship has focused on student experiences, reporting that student midwives typically experience high levels of stress during the internship.

Both **Ireland** and **Spain** also offer 4-year degree courses in **nursing** (although total learning hours in both countries does not exceed the EU requirements of 4,600 hours). However, this review has identified no published research to suggest that 4-year courses lead to improved learning outcomes for students, or improved health outcomes for patients, compared to 3-year courses.

Non EU countries

Outside of Europe, there are more variations in the characteristics of pre-registration education for nursing and midwifery.

Table 3: Comparison of programme length and theory/practice hours of comparator non-EU countries (nursing and midwifery)

Country	Nursing				Midwifery			
	Pre-education programme length		Minimum theory and practice hours		Pre-education programme length		Minimum theory and practice hours	
	Years	Hours	Theory	Practice	Years	Hours	Theory	Practice
United Kingdom	3	4,600	2,300	2,300	3	4,600	40%	50%
America	4	Not specified	Not specified	Average is typically c.700	2	Not specified	Not specified	1000+
Australia	3	Not specified	Not specified	800	3	Not specified	40%	50%
Canada	4	Not specified	Usually 50:50 but not specified	Usually 50:50 but not specified	4	Not specified	40%	50%
New Zealand	3	Not specified	Not specified	1,100	3 or 4*	4,800	1,920	2,400
Philippines	4	Not specified	Not specified	2,346	4	Not specified	Not specified	2,346

* Total learning hours equate to 4 academic years, but some institutions deliver their courses over 3 extended academic years.

Clinical hours

Some of the most significant differences for **nursing** education, in countries outside of the EU, relate to the number of clinical practice hours: they are generally lower than the hours mandated by the EU Directive. However, there is a lack of evidence to suggest that a lower number of clinical practice hours impacts on patient health or student learning outcomes. Although recent American research has concluded that there is no observable correlation between the minimum number of clinical practice hours and student performance on the national nursing registration (NCLEX) examination, this review found no evidence which points to an ideal number of hours or optimum balance of theory to practice hours.

For **midwifery**, the ICM's Global Standards for Midwifery Education ensure a higher degree of consistency between countries, stipulating that 50% of midwifery curricula must be spent in clinical practice.

Simulation

Outside of Europe, most countries' standards make no explicit statement on simulation. However, the extent and use of simulation in nursing and midwifery education, in non-EU countries, varies considerably and diverges noticeably from EU practice.

- For **nursing** education, in the **USA**, up to **50% of clinical practice can be substituted for simulation.** Conversely, in **Australia** and **New Zealand**, standards state that **practice hours in nursing must be exclusive of simulation.**
- For **midwifery** education, in **New Zealand**, simulation may account for up to **240 hours of practice placements**, whereas in **Australia**, standards for midwifery state that **simulated practice is not permitted in place of practice hours.**

Although the role of simulation in **nursing** education represents a growing area of research (less so for midwifery education), there is limited empirical research on the effectiveness of substituting clinical hours for simulation. The one exception is an American study, published in 2014, which measured the effect of replacing either 25% or 50% of students' total clinical hours with simulation on 10 nursing programmes. The study found no meaningful difference in the overall performance of students who experience simulated clinical teaching, compared to those who receive traditional clinical experiences.

Table 4: Comparison of use of simulation, RPL and shortened courses of comparator non-EU countries (nursing and midwifery)

Country	Nursing		Midwifery	
	Simulation	RPL/Shortened courses	Simulation	RPL/Shortened courses
United Kingdom	Limited by EU Directive	Up to 50% of programme can be substituted for RPL	Limited by EU Directive	1.5/2-year courses for registered nurses
America	50% of practice hours can be replaced by simulation	Shortened BSN for graduates in non-nursing field	Extent of use unspecified	Accelerated bridge courses available for CPMs only.
Australia	Exclusive of practice hours.	Granted at institution's discretion	Exclusive of practice hours	18-month Graduate Diploma available for registered nurses
Canada	Extent of use unspecified	Shortened BSN for graduates in non-nursing field	Extent of use unspecified	Shortened courses for graduates in a similar health field with experience in labour and delivery.
New Zealand	Exclusive of practice hours	RPL granted for qualifications, life or work experience. No credit granted for third-year clinical experience papers	May account for 240 hours of clinical practice	Shortened courses for registered practitioners of other health professions; Up to 200 practice hours may be credited as RPL without approval of the Midwifery Council.
Philippines	Extent of use unspecified	Not specified	Extent of use unspecified	Not specified

RPL and shortened courses

Outside of the EU, although RPL is generally permitted for **nursing** programmes, education standards rarely set out precise rules around the modules, learning outcomes or proportion of a course that can be accredited. Decisions regarding RPL are typically made by education institutions. For **midwifery,** RPL is rarely offered and, where it is, this is only for direct-entry midwifery courses and usually consists of shortened programmes for registered nurses.

The principal exception is **New Zealand**, where national standards for both **nursing** and **midwifery** education set out specific guidelines for RPL. For **nursing**, RPL may be granted for prior qualifications, work and life experience, but no credit can be granted for clinical experience papers in the third year of the course. For **midwifery**, up to 200 practice hours may be credited as RPL by Higher Education Institutions without the approval of the Midwifery Council. In **New Zealand**, shortened **midwifery** courses are not limited to nurses and can be undertaken by registered practitioners of other healthcare professions. Similarly, in **Canada**, shortened **midwifery** courses are offered to graduates of similar health fields with experience in labour and birth delivery.

Although other countries have different policies towards RPL and shortened courses, this review found no evidence which linked differing approaches to improved health or learning outcomes.

1. Background and methodology

1.1 Introduction

1.1.1 Context, aims and objectives

Up until 31st December 2020, nursing and midwifery training was governed by the EU Directive 2005/36/EC 'on the recognition of professional qualifications' ("the Directive")[1] which establishes minimum EU wide standards for the education and training for nurses responsible for general care (adult nurses in the UK) and midwives. It also sets out requirements for a number of other health professions including medical doctors, dentists and pharmacists.

These requirements in the EU Directive form the basis of automatic recognition of qualifications for these professions between Member States. The NMC's standards comply with the requirements set out in the EU directive and they form part of the NMC's pre-registration nursing and midwifery education standards.

Since the requirement to comply with these standards ceased when the transition period for the UK's departure from the EU ended on 31 December 2020, the EU related requirements will be reconsidered within the NMC's legislation.

The EU requirements have been incorporated into the NMC's pre-education standards for many years, therefore they cannot be removed or changed until the NMC undertake a public consultation exercise on any possible changes.

To inform any potential future consultation, Harlow Consulting was commissioned in November 2020 to help the NMC evaluate the evidence for retaining the EU requirements in its current education standards.

1. The overall aim of this study is to develop the NMC's understanding of whether the requirements of the EU directive are necessary to achieve the standards of proficiency to be admitted to the register.

In response to the above, Harlow Consulting is delivering two services:

1. A review of existing international evidence including academic research and grey literature (such as policy papers and stakeholder evidence).
2. An international benchmarking review of approaches taken to pre-registration education and training by comparable health professional regulators.

The present report constitutes the **second of these two services.** The purpose of the International benchmarking review is to collate and analyse information pertaining to key features of pre-registration education standards for comparable health professional regulators – including regulators of similar health professions in the UK, as well as international regulators of nursing and midwifery – paying particular attention to the NMC's themes for investigation (see section 1.2)..

The comparable professions in scope for this study are:

- Medical doctors
- Dentists
- Pharmacists
- Physiotherapists

These professions were selected on the grounds of: each being represented by a different regulator; all requiring a similar level of educational attainment (i.e. a degree); three professions being also included in the EU Directive (medical doctor, dentist, pharmacist) and one as a comparator (physiotherapist).

The international regulators for nursing/midwifery in scope for this study are those from the following countries:

- Ireland
- Sweden
- Spain
- Canada
- Australia
- New Zealand
- USA
- Philippines

The countries were selected to cover a range of factors and variables: EU and non-EU countries of a similar size and education landscape; countries with and without occupational licensing; countries with a high input into the UK workforce.

USA – Cautionary note:
This review took a national, rather than state-based, approach to nursing and midwifery education. However, since nursing and midwifery is regulated at the state level in USA, there are a small number of states for which nursing and midwifery is not directly comparable to the UK. Time constraints have, however, prevented exploration of the similarities and differences of nursing and midwifery education on a state-by-state basis.

This review also takes account of the fact that there exist three registered midwifery roles in the USA (Certified Professional Midwives (CPM), Certified Midwives (CM) and Certified Nurse-Midwives (CNM)) which vary considerably in educational requirements, scope of practice and the states they are licensed to practice in. For comparative purposes, this review takes broad overview of all three roles, exploring differences and similarities between the roles and UK midwifery.

Philippines – Cautionary note:
It must be remembered that, while this review compares the education standards for both nursing and midwifery in the Philippines, the scope of practice of midwives educated in the Philippines is limited compared to midwives in the UK. This means that the education standards for Philippine midwives are not directly analogous to standards in the UK. Caution must therefore be exercised when drawing comparisons against midwifery in the Philippines.

This report will draw out and highlight key similarities and differences between the education standards of comparable health professionals and international regulators of nursing/midwifery, as well as making note of any gaps in the standards or areas in which the standards are not specific.

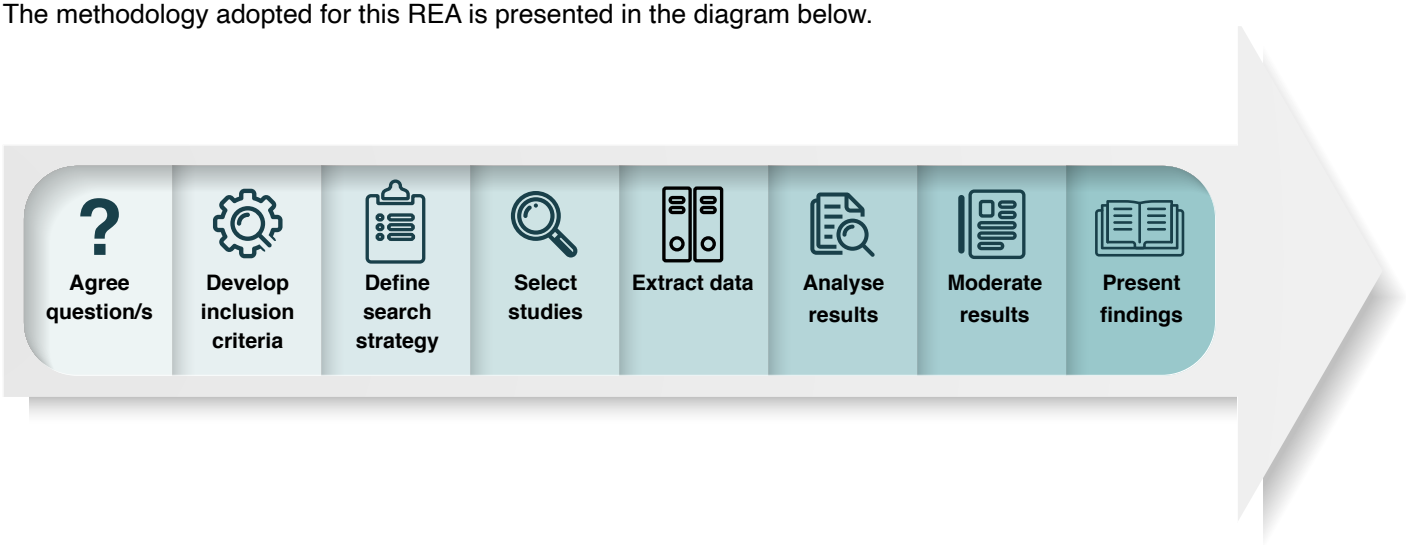
As well as gathering important factual information relating to the standards for each of the regulators listed above, this report will also summarise and synthesise recent evidence on the effectiveness and impact of the different standards on the outcomes listed above. Again, any gaps in the literature, or areas for which little research has been conducted, will be highlighted and reported.

1.2 Methodology and scope

This research was undertaken via a rapid evidence assessment (REA) to identify, assimilate and report on evidence within the short timescales for this study (December 2020 – March 2021).

An REA involves a systematic approach to identifying relevant studies and selecting the most appropriate ones based on specific criteria. A qualitative assessment is then undertaken to determine the quality of the sources identified using pre-defined parameters including methodological quality. The 'rapid' nature of an REA means that the approach is less broad and deep than a systematic review, which can take many months or over a year. An REA involves interrogating a limited number of databases and setting strict inclusion and exclusion criteria to tightly define its scope. Data extraction typically involves recording key bibliographical information and abstracts. Critical appraisal of sources is then conducted using this information.

The methodology adopted for this REA is presented in the diagram below.



The **research objectives and questions** were set out in the invitation to tender for this study and are listed in Table 5.

Table 5: Research objectives and questions

Objectives	1. To explore what evidence exists regarding the effectiveness and impact of the EU minimum education and training requirements on the following outcomes: ▪ Public protection and safety ▪ Effectiveness and quality of care for people who use services ▪ People with different protected characteristics (including nurses, midwives, nursing associates, students and people who use services) ▪ The experiences and perceptions of nurses, midwives, nursing associates and students ▪ The number and supply of nurses, midwives and nursing associates ▪ Effectiveness, availability and quality of education programmes 2. To explore what existing evidence exists in relation to the effectiveness and impact of alternatives to the EU minimum education and training requirements on the outcomes above. 3. To explore the standards for pre-registration education that exist in other countries, sub-national regions, and for other UK health professionals, and the evidence on the efficacy of these on outcomes above.
Questions	1. Are the requirements of the EU directive necessary to achieve the standards of proficiency to be admitted to the register? 2. Do the requirements of the EU directive have any influence on the outcomes above? 3. Are there alternative requirements that could be incorporated into the NMC's pre-registration nursing and midwifery education standards that would potentiate the education of students to achieve the standards of proficiency, and the impact of any alternative requirements on the factors listed above?

This report pertains to objectives 2 and 3, above.

Scope and inclusion criteria

This research is concerned with pre-registration education of nurses and midwives, only; this may be at undergraduate or post-graduate level. Post-registration training or ongoing learning – in the form of CPD – is not being considered within this evidence review.

Table 6 sets out the inclusion criteria agree with the NMC at project inception to set the scope and boundaries for the review.

Table 6: Inclusion and exclusion criteria

	Inclusion Criteria	Exclusion Criteria
1	English language	Papers not in English
2	Peer-reviewed journal articles, conference presentations, PhD theses/dissertations, government reports; NMC consultation findings	Books, PowerPoint presentations and posters, press articles, other media
3	The paper reports on an empirical study or systematic review/ commentary/discussion article addressing the topic	Protocols, single case studies
4	Published 1 January 2015 – 1st October 2020	Published prior to 2015
5	Nursing and midwifery	Other healthcare professions (except in the case of the international benchmarking

Notes:

- Sources were restricted to the English language because of the additional time and cost that would be involved in translation
- Books, PowerPoint presentations, posters, press articles and other media were excluded to limit the scope to the most reliable and robust material
- Protocols and single case studies were excluded because generalisablity is not possible from these types of sources
- The date of 2015 was set by the NMC in the invitation to tender for this commission

It should be noted however that where the review identified high-profile and/or often cited sources that did not meet the inclusion criteria, these were included on an 'exceptions' basis. An example is 'The NCSBN National Simulation Study: A Longitudinal, Randomized, Controlled Study Replacing Clinical Hours with Simulation in Prelicensure Nursing Education' cited in this report and the evidence review report because we consider it a landmark study.

Search strategy and study selection

Academic articles:

Multiple databases were used to search for relevant and credible sources of evidence, including Google Scholar, Semantic Scholar, JSTOR and PubMed. Content on these databases is regularly updated, with information coming from many different sources. The risks of identifying/using sources which may contain errors, or omission of key sources are mitigated as much as possible through the use of more than one database, rather than sole reliance on a single one.

Search terms included combinations of terms such as: "simulation in [profession]"; "practice learning [profession]"; "practice hours [profession] education"; "academic theory hours in [profession] education"; "undergraduate [profession]"; "protected characteristics [profession]"; "effectiveness [profession] education"; "experience [profession] education", "Directive 2005/36/EC".

A filter was applied to all sources returned in the searches to isolate those published from 2015 onwards. These studies were archived in Mendeley[2].

Grey literature:

Google searches were performed to identify standards, regulations and other factual information published by official sources such as regulators, and representative bodies of the professions.

For the grey literature, inclusion/exclusion criterion 4 was not applied as some of the latest up to date factual information (e.g. standards and regulations) was published pre-2015. Criterion 3 did not apply.

Sources were categorised by type: Standards/Regulations; Article; Newsletter/circular; NMC literature; report or policy paper; website; miscellaneous.

Data extraction, analysis and moderation

For the academic sources, after duplicates were removed, titles and abstracts were reviewed by two reviewers against the inclusion criteria and screened for relevance against the outcomes listed under the first objective for this study and against the NMC's priority areas for this research (Table 7).

Table 7: Themes and outcomes for investigation

Themes (EU requirements for pre-registration education programmes)	Regulatory outcomes
1. Selection, admission, and progression 2. Entry to shortened midwifery programmes 3. Recognition of prior learning (RPL) 4. Content (including specific clinical proficiencies for midwifery) 5. Practice hours and use of simulation 6. Programme length and number of academic theory and practice hours	1. Public protection and safety 2. Effectiveness and quality of care for people who use services 3. People with different protected characteristics (including nurses, midwives, nursing associates, students and people who use services) 4. The experiences and perceptions of nurses, midwives, nursing associates and students 5. The number and supply of nurses, midwives and nursing associates 6. Effectiveness, availability and quality of education programmes

Bibliographical details of these sources were then entered into a filterable spreadsheet database, along with the themes addressed as well as the professions and nations covered.

Analysis/quality assessment

For academic articles, a second stage involved accessing the full text articles of the sources for full review and data extraction. A quality assessment for trustworthiness was based on a hybrid framework that draws on NICE guidance on examples of checklists that can be used to assess risk of bias or quality of studies. The following information was recorded for each source and used in the quality review:

- Study type (e.g. systematic review, meta analysis, RCT)
- Number of studies/population
- Characteristics and setting
- Intervention
- Comparison
- Outcomes and analysis methods
- Results
- Number of citations

An assessment based on GRAD (Grading of Recommendations, Assessment, Development and Evaluations) rating of 'certainty' was then assigned to each source. GRADE is a transparent framework for developing and presenting evidence, published by the British Medical Journal (BMJ). It is typically used as a systematic approach for making clinical practice recommendations. The gradings are listed in Table 8.

Table 8: GRADE certainty ratings

Grading	Description
Very low	The true effect is probably markedly different from the estimated effect
Low	The true effect might be markedly different from the estimate effect
Moderate	The authors believe that the true effect is probably close to the estimated effect
High	The authors have a lot of confidence that the true effect is similar to the estimated effect

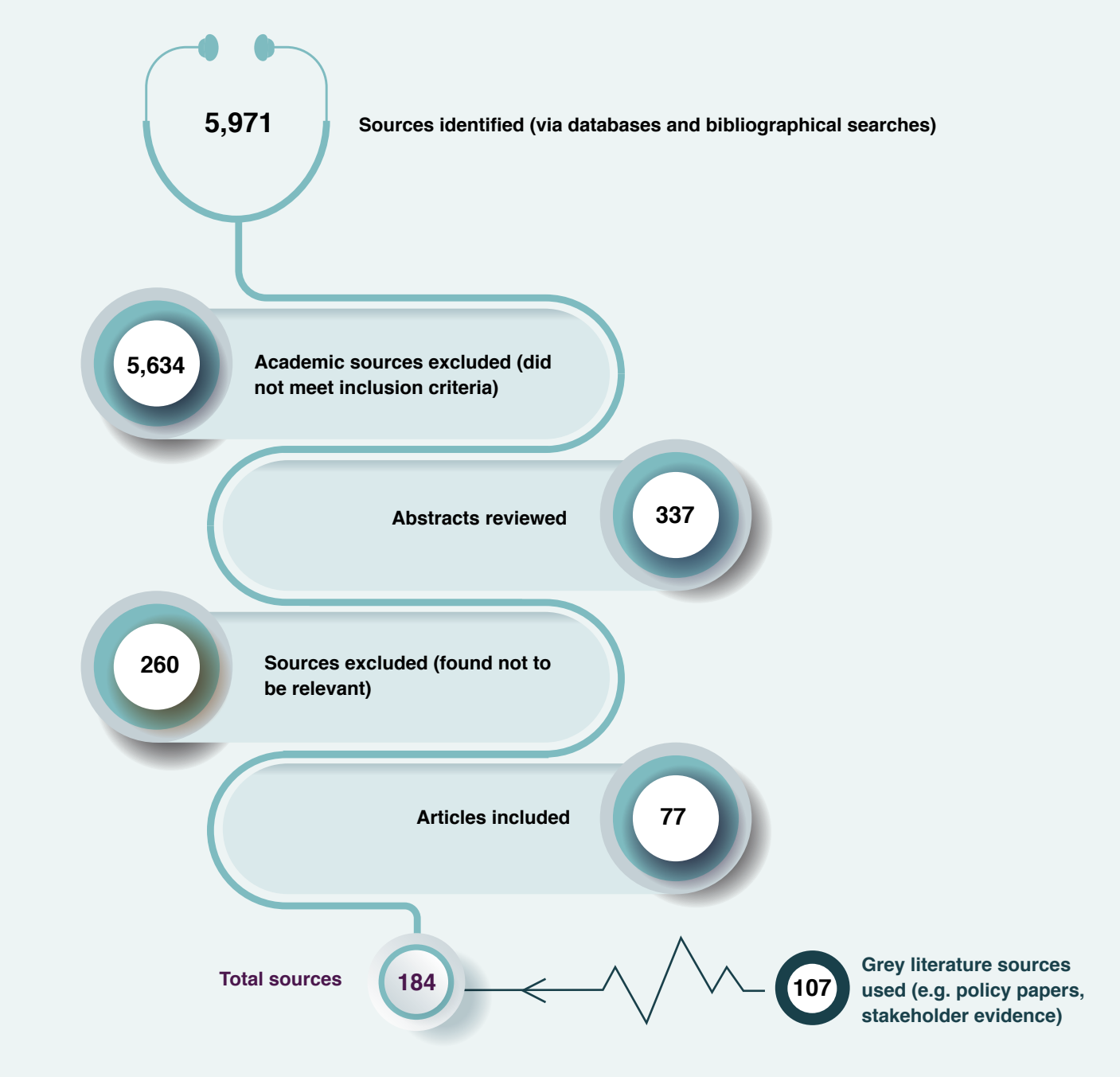
For this study, the 'certainty' gradings of 'very low', 'low', 'moderate', and 'high' have been used to rate the trustworthiness of evidence pertaining to the outcomes listed under objective 1 for this research, and the NMC priority areas for investigation. The gradings have been applied to both qualitative and quantitative research studies. The highest ratings are given to studies including meta-analyses, studies with a strong methodological design and analysis framework and/or achieved a high response rate. The lowest ratings are given to studies with poor response rates, weak design, those which are largely based on opinion or which draw on few sources.

The assessments were performed independently by two researchers. Moderation was then conducted using random sampling of the sources.

Ratings were not applied to the grey literature such as regulations, standards and education programmes as this is factual information.

.

The flow chart below illustrates how many academic studies were identified using open searches of academic databases, how many were excluded based on the exclusion criteria, how many abstracts were reviewed and how many full text articles were included in this report. The flow chart also shows the number of grey literature sources (e.g. policy papers, standards and regulations), that were used.



In total, 184 sources (academic sources and grey literature) were used in this report.

- Academic studies were assessed for their quality. The results of the quality assessment are contained in a separate matrix which accompanies this report and the evidence review report.
- Grey literature included policy reports, standards and regulations as well as information from university websites. These sources were not quality assessed.

1.3 Reporting considerations

This report provides a high-level comparison of the similarities and differences between the education standards of:
a) Four healthcare professions in the UK and,
b) nursing and midwifery in eight countries[1]

The first part of this report details the key findings, first for comparator healthcare professions in the UK, then for nursing and midwifery education standards in other countries. Section 3 of this report provides a detailed discussion of similarities and differences between the education standards of comparator health professions, while section 4 explores the similarities and differences of different countries' education standards for nursing and midwifery.

The report pays particular attention to the following priority areas:

1. Practice hours and use of simulation
2. Programme length and number of academic theory and practice hours
3. Selection, admission, and progression
4. Recognition of prior learning (RPL)
5. Entry to shortened midwifery programmes

This report explores the similarities and differences of various standards at the national level. Some of these priority areas – such as selection, admission and progression – are determined not by the standards of national regulatory bodies but by the decisions made at the level of individual institutions. There is, therefore, enormous variability in admissions and progressions criteria between individual education providers which complicates the process of providing a summary overview of these criteria at the national level. While this report has offered a high-level overview of the above-mentioned criteria, the great variability between institutions has, in some instances, meant that meaningful comparisons between different countries have not been possible.
The report also provides a summary and synthesis of recent evidence relating to the impact and effectiveness of nursing and midwifery education in different countries across the following outcomes:

1. Public protection and safety
2. Effectiveness and quality of care for people who use services
3. People with different protected characteristics (including nurses, midwives, nursing associates, students and people who use services)
4. The experiences and perceptions of nurses, midwives, nursing associates and students
5. The number and supply of nurses, midwives and nursing associates
6. Effectiveness, availability and quality of education programmes.

1 As noted above, education standards for midwifery in the Philippines are not directly comparable to UK.

Summarised evidence is examined by country. For ease of navigation, reviewed evidence is also categorised (with subheadings) according to the six abovementioned themes and according to whether research is relevant to nursing, midwifery, or both.

In the case of evidence relating to the outcomes 'public protection and safety' and 'effectiveness and quality of care for people who use services', this review located very little reliable, empirical evidence. The paucity of evidence relating to these outcomes, published within the parameters of the inclusion criteria, in part reflects the challenges involved in quantifying these variables and the difficulty of measuring the impact of different education standards on patients' health outcomes. Ultimately, 'public protection and safety' and 'effectiveness and quality of care for people who use services' are broad variables which are influenced by a wide range of factors – social, economic, political. These challenges may go some way towards explaining the shortage of research in these areas.

For some countries, this review identified little or no published evidence, pertaining to the six abovementioned outcomes, relevant to midwifery. This is because midwifery education is relatively under-researched when compared to nursing education. In instances where no published research into midwifery education was identified, a clear statement to this effect has been included under the 'midwifery' subheading.

This review also identified a small number of published papers which explored both nursing and midwifery education jointly, as part of the same piece of research. In instances where published research explores both nursing and midwifery in conjunction – and where findings relevant for each profession are not easily separated – such research is summarised under the joint heading 'nursing and midwifery'.

2. Key Findings: Comparisons of UK nursing and midwifery standards with other healthcare roles and other nations

2.1 Comparisons with other healthcare roles

2.1.1 Programme length and theory/practice hours

Table 9: Comparison of programme length and theory/practice hours of comparator professions (UK and EU Directive)

	UK				EU Directive			
	Pre-education programme length		Theory and practice hours		Pre-education programme length		Theory and practice hours	
	Years	Hours	Theory	Practice	Years	Hours	Theory	Practice
Doctors	5+2*	5,500	Not specified	Not specified	5	5,500	Not specified	Not specified
Dentists	5+1**	5,000	Not specified	Not specified	5	5,000	Not specified	Not specified
Pharmacists	4+1***	Not specified	Not specified	90****	4+0.5*****	Not specified	Not specified	Not specified
Physiotherapists	3	Not specified	Not specified	Not specified	3	Not specified	Not specified	Not specified
Nurses	3	4,600	2,300	2,300	3	4,600	33% (1,533 hours)	50% (2,300) hours
Midwives	3	4,600	40% of total learning time	2,300 50% of total learning time	3 OR 2 OR 1.5	4,600 OR 3,600 OR 3,000	Not specified	1/3 of total learning time (3 year course)

*5 years of education + 2 years' foundation training

**5 years of education + 1 year foundation training (NHS dentists)

***4 years of education + 1 year foundation training

****90 hours of supervised practice specifically related to prescribing during the foundation training year.

*****4 years of education + 6 months training placement

2.1.2 Comparison with other healthcare roles: main findings

- **Course length for pre-registration education for most comparator healthcare professions, both in terms of years and total learning hours, tend to be greater than for nursing and midwifery** in the UK (medical doctors and dentists = 5 years; pharmacists = 4 years). The principal exception to this is physiotherapy,for which entrants to the register must complete a 3-year degree. This review has found no evidence from other regulators to suggest they are seeking to make changes now that the EU Directives no longer applies to the respective professions.
- **For most comparator healthcare professions, there are no clearly specified rules or regulations around practice hours, or around the balance of practice to theory hours.** Where references to practice hours are made in the education and training standards published by other regulatory bodies, most are do not stipulate expectations. The principal exception to this is the Standards for the Initial Education and Training of Pharmacists, which states that a minimum of 90 hours of prescribing practice must be completed in the foundation training year.
- **Most education and training standards for comparator health professions make allowance for simulation –** and simulation is commonplace in the pre-registration education of all medical professions considered – but it is not clear if simulation is treated as a substitute for hands-on clinical practice.
- **The training and education for medical doctors, NHS dentists and pharmacists includes an obligatory period of post-graduate foundation training.** The purpose of these foundation years is to provide further supervised training which acts as transition between education and clinical practice. In this way, foundation training for doctors, dentists and pharmacists serves a similar purpose to the preceptorship for nurses. The main difference, however, is that foundation training for these professions is an obligatory part of practitioners' training and education.
- **Most degree courses for comparator professions have shortened or graduate-entry courses available at select universities.** The main exception to this is the MPharm, for which there is no a ccelerated course.
- **Decisions regarding RPL, for comparator professions, tend to be made at the level of individual institutions.** Thus, it is the policies of individual HEIs, rather than regulatory bodies' education standards, which determines the extent and nature of recognition of students' prior learning. Standards published by regulatory bodies tend to provide no information about RPL (the exception being HCPC for physiotherapists).
- **In terms of course content, education standards for comparator professions are far from prescriptive.** Standards tend to stipulate that the content of educational courses must be aligned to graduate learning outcomes (which are published separately by the regulatory bodies).

2.2 Comparisons with other nations

Figure 1: Comparison of nursing education standards from other nations

Canada

Course length: 4 years direct-entry undergraduate degree.

Practice hours: Unspecified (50% of learning time is typical).

Simulation: Extent of use unspecified.

RPL: Accelerated courses for graduates in a similar subject area, and foreign-educated nurses.

USA

Course length: 4 years direct-entry undergraduate degree.

Practice hours: c. 700 (state average).

Simulation: 50% of practice hours can be replaced by simulation.

RPL: Shortened BSN for students with RND or AND, and graduates in non-nursing field.

Ireland

Course length: 4 years (4,600 hours) direct-entry undergraduate degree.

Practice hours: 81 weeks (2,300 hours): 45 weeks of supernumerary clinical instruction and 36 weeks of paid clinical internship placement.

Simulation: Extent of use limited by the EU Directive.

RPL: Flexible modes of entry, inc. graduate entry and APL, are permitted.

Spain

Course length: 4 years (4,600 hours) direct-entry undergraduate degree.

Practice hours: 2,300.

Simulation: Extent of use limited by the EU Directive.

RPL: Bridging courses for students who have completed 3-year nursing studies course.

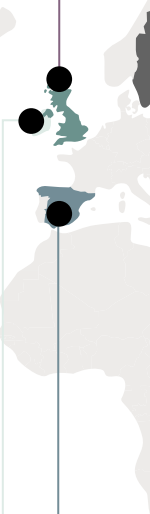
UK

Course length: 3 years (4
undergraduate degree.

Practice hours: 2,300.

Simulation: Extent of use

RPL: RPL is permitted prov
Standards of proficiency fo
outcomes, up to a maximu



,600 hours) direct-entry

limited by the EU Directive.

vided that it can be mapped to the
r registered nurses and programme
m of 50 percent of the programme.

The Philippines

Course length: 4 years direct entry undergraduate degree.

Practice hours: 2,346.

Simulation: Extent of use unspecified.

RPL: Unspecified.

Australia

Course length: 3 years direct-entry undergraduate degree.

Practice Hours: Minimum of 800 (many institutions expect 1,000).

Simulation: Exclusive of practice hours.

RPL: Granted at institution's discretion; facilitated entry for students from low-income families.

New Zealand

Course length: 3 years direct-entry undergraduate degree.

Practice hours: Minimum of 1,100.

Simulation: Exclusive of practice hours.

RPL: RPL granted by institutions on basis of qualifications, life or work experience or other educational experience. RPL is measured against programme learning outcomes, but credit may not be granted for clinical experience papers in third year of Bachelor's degree.

Sweden

Course length: 3 years (4,600 hours) direct-entry undergraduate degree.

Practice hours: 2,300.

Simulation: Proportion of practice hours can be replaced by simulation but use of simulation is limited by the EU Directive'

RPL: Unspecified.

Figure 2: Comparison of midwifery education standards from other nations

Canada

Course length: 4 year direct-entry undergraduate degree.

Practice hours: 50% of learning time.

Simulation: Extent of use unspecified.

RPL: Shortened courses for graduates in a similar health field with experience in labour and delivery.

USA

Course length: 2 years specialist post-graduate study (CNMs and CMs) OR 2-year direct-entry apprenticeship model (CPMs).

Practice hours: 1,000 is typical.

Simulation: Extent of use unspecified.

RPL: Accelerated bridge courses available for CPMs only.

Ireland

Course length: 4 year (4,600 hours) direct-entry undergraduate degree.

Practice hours: 81 weeks (2,300 hours): 45 weeks of supernumerary clinical instruction and 36 weeks of paid clinical internship placement.

Simulation: Extent of use limited by EU Directive.

RPL: Shortened courses available for registered nurses.

Spain

Course length: 2 years specialist post-graduate study (3,600 hours).

Practice hours: 50% of learning time.

Simulation: Extent of use limited by EU Directive.

RPL: Not permitted.

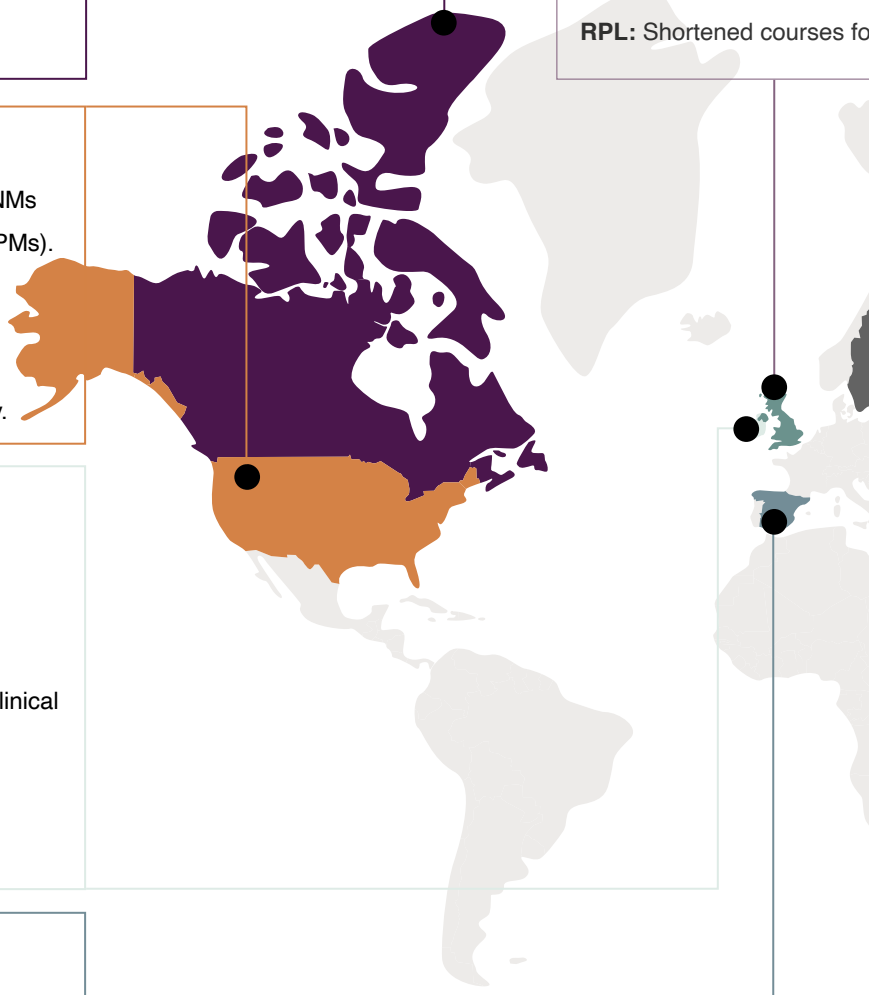
UK

Course length: 3 year (4,6
undergraduate degree.

Practice hours: 2,300.

Simulation: Extent of use l

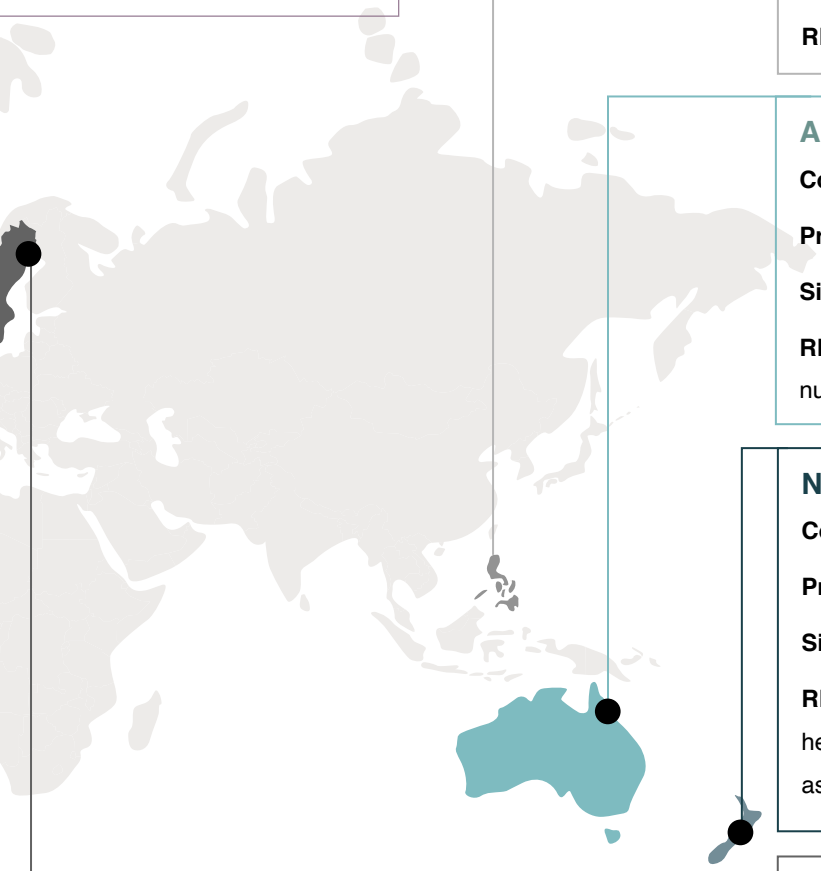
RPL: Shortened courses fo



00 hours) direct-entry

imited by EU Directive.

r registered nurses.



The Philippines

NOTE: Scope of Practice for midwives in the Philippines is limited compared to UK, so education standards are not directly comparable.

Course length: 2-year direct-entry Diploma OR 4 year direct-entry undergraduate degree.

Practice hours: 1,275 (Diploma) OR 2,346(degree).

Simulation: Extent of use unspecified.

RPL: Unspecified.

Australia

Course length: 3 years direct-entry undergraduate degree.

Practice Hours: 50% of learning time.

Simulation: Exclusive of practice hours.

RPL: 18-month Graduate Diploma available for registered nurses.

New Zealand

Course length: 3-4 year Bachelor's degree (4,800 hours).

Practice Hours: 50% of learning time.

Simulation: May account for 240 hours of clinical practice.

RPL: Shortened courses for registered practitioners of other health professions. Up to 200 practice hours may be credited as RPL without approval of the Midwifery Council.

Sweden

Course length: 1.5 years specialist post-graduate study (3,000 hours).

Practice hours: 50% of learning time.

Simulation: Extent of use limited by EU Directive.

RPL: Not permitted.

2.2.1 Programme length and theory/practice hours (minimum)

Table 10: Comparison of programme length and theory/practice hours of comparator countries (nursing and midwifery)

Country	Nursing				Midwifery			
	Pre-education programme length		Minimum theory and practice hours		Pre-education programme length		Minimum theory and practice hours	
	Years	Hours	Theory	Practice	Years	Hours	Theory	Practice
United Kingdom	3	4,600	2,300	2,300	3	4,600	40%	50%
Ireland	4 (144 weeks)	4,600	63 weeks	81* weeks	4 (144 weeks)	4,600	58 weeks	81 weeks**
Sweden	3	4,600	2,300	2,300	1.5***	3,000	40%	50%
Spain	4	4,600	2,300	2,300	2****	3,600	40%	50%
America	4	Not specified	Not specified	Average is typically c700[3]	2*****	Not specified	Not specified	1000+
Australia	3	Not specified	Not specified	800	3	Not specified	40%	50%
Canada	4	Not specified	Usually 50:50 but not specified	Usually 50:50 but not specified	4	Not specified	40%	50%
New Zealand	3	Not specified	Not specified	1,100	3 or 4	4,800	1,920	2,400
Philippines	4	Not specified	Not specified	2,346	4	Not specified	Not specified	2,346

*45 weeks of supernumerary clinical instruction and 36 weeks of internship clinical placement.

**45 weeks of supernumerary clinical placement and 36 weeks of internship clinical placement.

***1.5-year postgraduate midwifery training, to be completed only after completion of 3-year nursing degree.

****2-year postgraduate midwifery training, to be completed only after completion of 4-year nursing degree.

*****2-year (average) postgraduate midwifery training, to be completed after 4-year nursing degree.

2.2.2 Comparisons with other nations: main findings

- **When comparing against international education standards, 3-4 years of degree-level, undergraduate training is the norm for pre-registration education for nurses.** While total learning hours for nursing courses taught in the EU are determined by the EU Directive of 2005 (4,600 hours), most countries outside of the EU do not specify a precise total number of learning hours.
- Minimum practice hours for nursing education in EU countries is mandated by the EU Directive of 2005 (2,300 hours or 50% of total learning hours). **Outside of Europe**, where such hours are specified, **minimum clinical practice hours for nursing pre-registration education are generally lower than the minimum hours mandated by the EU Directive** – sometimes considerably so (Australia: minimum clinical practice hours are 800; New Zealand: minimum clinical practice hours are 1,100). Only in the Philippines are minimum obligatory practice hours for nursing education similar to the EU (2,346).
- **Simulation is commonplace in most nursing courses internationally. However, the extent to which simulation can be allowed in place of practice hours varies by country,** and most countries' standards make no explicit statement on the role of simulation as a substitution for clinical practice. **Only in America are there clearly established rules on the use of simulation in practice hours** (since 2015, up to 50% of clinical practice in nursing courses can be substituted for simulation). **In Australia and New Zealand, standards state explicitly that practice hours must be exclusive of simulation.**
- **International nursing education standards rarely publish rules to determine admissions and progression requirements.** Criteria governing admissions and progression are almost always set by individual institutions.
- **RPL is generally permitted for nursing programmes,** but international **education standards rarely set out precise rules** around the modules, learning outcomes or proportion of a course that can be accredited. Decisions regarding RPL are typically made by institutions. In **New Zealand,** national education standards set out specific guidelines for RPL for nursing and midwifery. For **nursing, RPL may be granted for prior qualifications, work and life experience,** but no credit can be granted for clinical experience papers in the third year of the course.
- In Canada, USA, Ireland and Spain, **shortened, accelerated** or **'bridge' courses** are available to either a) **foreign-educated nurses,** b) **qualified nurses who completed shorter nursing education programmes** (such as in the case of Spain where the 4-year Bachelor programme was only introduced in 2007) or c) **graduates with a Bachelor degree in a similar subject area** (such as in Canada or USA).
- Different countries' education and training standards for nursing go into varying levels of detail about the prescribed course content for education providers. **In most cases, education standards for nursing are aligned to the countries' published, national core competencies** which nursing graduates are expected to demonstrate upon entering registered practice. Standards state that providers must deliver courses which ensure that students develop these designated entry-level competencies.

Midwifery

- **For midwifery, there are two broad models of pre-registration education, internationally.** On the one hand, there are countries which have **direct-entry, degree-level training for midwives,** typically **lasting between 3-4 years** (such as in Ireland, Australia, New Zealand, or Canada). On the other hand, there are countries which stipulate that midwives must undertake **specialist, postgraduate training,** typically **lasting between 1.5-2 years** (such as in Spain, Sweden, or USA) which are usually open only to registered nurses who have already completed a bachelor's degree in nursing. Both of these models are consistent with the requirements of the EU Directive. This split is also broadly reflective of how different countries recognise midwifery as an occupation, with countries offering postgraduate midwifery education tending to view midwives more as specialist (obstetric or gynaecological) nurses (rather than as an independent profession in its own right).
- **Minimum practice hours for midwifery education internationally are dictated by the International Confederation of Midwives' Global Standards for Midwifery Education,** which stipulates that 'The midwifery curriculum includes both theory and practise elements with a **minimum of 40% theory and a minimum of 50% practise'**. In some cases, such as in Australia, education standards stipulate that theory and practice are integrated throughout the education programme in equal proportions (50 per cent theory and 50 per cent practice).
- **Simulation is commonplace in most midwifery courses internationally. In the EU,** the extent of **simulation in midwifery education is limited by the requirements of the EU Directive,** which restrict simulated practice for midwifery students to breech deliveries and episiotomies. Outside of the EU, most countries' standards make no explicit statement on the role of simulation as a substitution for clinical practice. **In Australia,** standards state explicitly that **simulated practice is not permitted in place of practice hours. In New Zealand, simulation may account for up to 240 hours of simulated practice.**
- **Ireland** is unique in that it is the only country in which **midwifery students complete a compulsory, paid clinical internship** component as part of a **direct-entry undergraduate course.**[2] Midwifery education in Canada has a similar structure to Ireland. In Canada, midwifery education consists of direct-entry undergraduate training with a spiral structure in which the clinical component increases as students advance, increasing to a final year which students spend wholly on clinical placement, and a final term – known as the clerkship – in which students act as fully competent, independent caregivers, with minimal supervision from midwives. Unlike Ireland, however, the clerkship is a supervised practicum, not a paid internship.
- **International midwifery education standards rarely publish rules to determine admissions and progression requirements.** Criteria governing admissions and progression are almost always set by individual institutions.

2 Midwifery students in Sweden and Spain also complete clinical internships as part of their course, but in these countries pre-registration midwifery education is structured differently and delivered as specialist, post-graduate education.

- For **midwifery,** outside of EU, **RPL is only permitted for direct-entry courses** and usually consists of **shortened programmes.** In the EU, the Directive prohibits RPL for midwifery. RPL is also not permitted where midwifery pre-registration education takes the form of specialist, post-graduate education. In **New Zealand**, national education standards set out specific guidelines for RPL for midwifery, stipulating that **up to 200 hours of RPL may be credited by HEIs** without the approval of the Midwifery Council
- In **Australia** and **Ireland, shortened midwifery courses** are available for registered nurses. In **New Zealand, shortened midwifery courses** are available for **registered practitioners of other healthcare professions,** while in **Canada, accelerated courses** in midwifery are offered to **graduates in a similar health field with experience in labour and delivery.** All the above mentioned countries offer midwifery education as a direct-entry, undergraduate course. Shortened courses are not possible in countries where the pre-registration education of midwives is undertaken as specialist, post-graduate education.
- Typically, **education standards for midwifery tend to go into much greater detail than standards for nursing.** Alongside core competencies, **standards for the education of midwives also generally specify precise practical learning objectives, such as a set number of births, care visits or clinical assessments** (antenatal, neonatal, postnatal). In the EU, these learning objectives are dictated by the EU Directive. In the case of **Australia and New Zealand,** standards for the education of midwives specify precise **learning objectives** which are **very similar to those stipulated by the EU Directive,** with the **addition of continuity of carer requirements,** such as the need to care for a specified number of women in the antenatal, labour and birth, and post-natal periods.

3. Approach taken to pre-registration education by comparable health professions

3.1 Medical Doctor

Medical doctors

3.1.1 Overview

The General Medical Council (GMC) is the regulatory body for medical doctors in the UK. Its primary role is to protect patients and strengthen medical education and practice throughout the UK. Its regulatory functions consist of:

- Deciding which doctors are qualified to work in the UK and maintaining a register of UK medical doctors.
- Setting the standards of education and training for doctors.
- Setting the professional standards which doctors must follow throughout their career.
- Taking actions against doctors who put patient safety or public confidence at risk.[4]

According to the GMC, there are currently 338,563 registered doctors in the UK, which includes 78,380 doctors on the GP register and 105,341 doctors on specialist registers. In 2020, there were 7,314 graduates who were awarded their primary medical qualification in the UK.[5]

3.1.2 Pre-registration education requirements

Programme length (number of hours)	5 years (5,500 hours)[6] + 2 years of Foundation Training[7]
Practice hours and use of simulation	Neither the EU Directive nor GMC standards specify precise rules around practice hours or use of simulation. GMC's Standards for Medical Education and Training state only that medical schools must provide: ■ 'sufficient practical experience to achieve the learning outcomes required for graduates'; ■ 'experiential learning in clinical settings, both real and simulated, that increases in complexity in line with the curriculum'.[8]

For comparison, details of the education standards for nursing and midwifery in the UK, along with register date, are included in the annex.

To be admitted to an undergraduate degree in medicine in the UK, applicants generally need to have AAA-AAB at A level (AAAAB-AAABB Scottish Highers) including chemistry and biology, although entry requirements vary between institutions.[9] Following graduation from medical school, students progress onto a two-year integrated Foundation Programme, which acts as a bridge between undergraduate medical training and speciality or general practice training. Students need to complete this post-graduate, foundation training in order to practice as a doctor in the UK. During the first year of the Foundation Programme, students are provisionally registered with a licence to practice and full registration is awarded to students upon completion of year 1.[10]

Shortened graduate entry programmes, which typically last 4 years (not including the Foundation Programme), are offered by some UK medical schools.[11] The GMC's standards for education and training provide no information about recognition of prior learning. Institutions have different RPL policies, but specifics depend on the institution/course.

Although individual institutions are responsible for the development of curricular content of medical degrees, this content is closely tied to the GMC's Standards for Medical Education and Training as well as to the Council's Graduate Learning Outcomes, which define what is expected of medical students upon graduation. It is the responsibility of the medical schools to ensure that their curricula meet the GMC's standards for education and deliver the specified graduate learning outcomes.

The GMC's Standards for Medical Education and Training sets out certain requirements in terms of what that medical curricula must deliver. This includes contact with patients which increases in duration and responsibility as students progress; experience in a range of specialties and settings; opportunities to gain of the needs of patients from diverse social, cultural, and ethnic backgrounds; learning opportunities that enable students to link theory and practice. The standards also specify that curricula must give students the opportunity to experience at least one student assistantship during which they assist a doctor in training.[12]

3.2 Dentist

Dentists

3.2.1 Overview

Like the GMC, the General Dental Council's (GDC) primary purpose is to protect the safety of patients and uphold public confidence in the profession. As a regulatory body, the GDC carries out the following functions:

1. Maintain a register of qualified dental professionals in the UK.
2. Set professional standards for dental professionals.
3. Quality-assure the education and training of dental professionals in the UK.
4. Investigate complaints about dental professionals and carry out fitness to practice enquiries.[13]

According to the GDC, as of 31st December 2019, there were 42,470 registered dentists and 70,968 registered dental care professionals in the UK.[14] During 2019, approximately 1,200 students graduated with a recognised qualification in dentistry.[15]

3.2.2 Pre-registration education requirements

Programme length (number of hours)	5 years (5,000 hours)[16] + 1-year Dental Foundation Training[17]
Practice hours and use of simulation	Although simulation is today quite commonplace in undergraduate dental education,[18] neither the EU Directive nor GDC standards specify precise rules around practice hours or use of simulation.

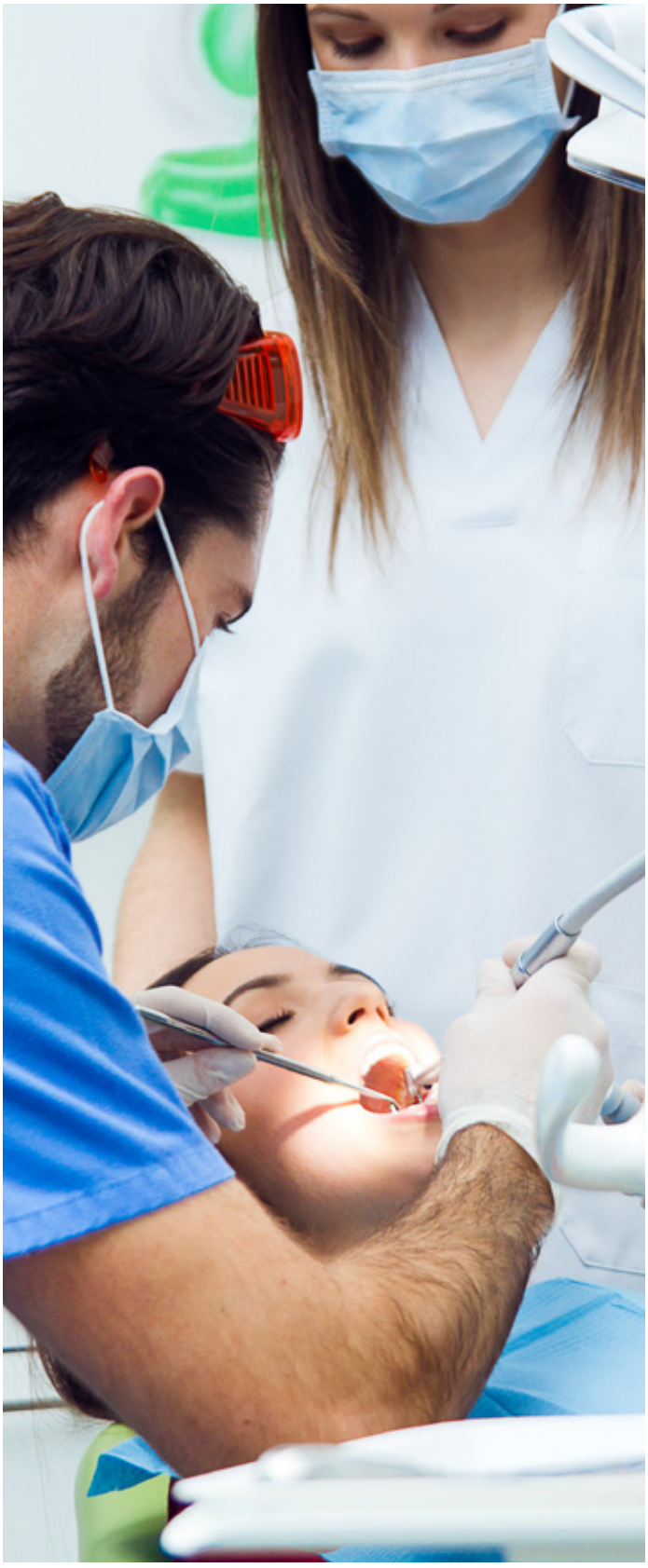
For comparison, details of the education standards for nursing and midwifery in the UK, along with register date, are included in the annex.

To be admitted to a dentistry course at undergraduate level in UK, typical entry requirements are: 3 A levels, usually at grades AAA to ABB, including chemistry and biology.[19] Following graduation, dental graduates can apply to join the GDC's register. Graduates wishing to practice as an NHS dentist must also undertake Dental Foundation Training (DFT), which involves spending a year in supervised practice after graduation. Like the Foundation Training for medical graduates, the DFT acts as a bridge between undergraduate studies and general practice. The Foundation Training is designed to offer new graduates a protected environment in which to work as well as introducing graduates to dental career pathways and an overview of the NHS dental system.[20]

There are shortened (four-year) courses available at dental schools at Aberdeen, Kings, Liverpool and UCLan, for students with relevant prior qualifications, such as a degree in Biomedical sciences.[21]
The GDC's standards for education and training provide no information about recognition of prior learning. Institutions have different RPL policies, but specifics depend on the institution/course.

As with medical degrees, schools of dentistry must align the curricular content of pre-registration dental education to the GDC's published Dental Team Learning Outcomes. The GDC's Learning Outcomes stipulate that educational providers must devise qualifications that will produce individuals who will demonstrate the following overarching skills, knowledge, and abilities:

- Practise safely and effectively
- Demonstrate effective clinical decision making.
- Describe the principles of good research.
- Apply an evidence-based approach to learning, practice, clinical judgment, and decision making.
- Utilise critical thinking and problem- solving skills
- Accurately assess their own capabilities and limitations, demonstrating reflective practice, in the interest of high-quality patient care and act within these boundaries
- Recognise the importance of lifelong learning and apply it to practice.[22]



3.3 Pharmacist

Pharmacists

3.3.1 Overview

The General Pharmaceutical Council (GPhC) is the independent regulator of pharmacists, pharmacy technicians and pharmacies in the UK. The overarching goal of the GPhC is to protect the public, ensuring that patients receive safe and effective care when using pharmacies in the UK. As a regulator, its functions consist of:

- Maintaining a register of pharmacists, pharmacy technicians and pharmacies in the UK.
- Establishing the standards for the education and training of pharmacists, pharmacy technicians and pharmacy support staff.
- Setting the standards that pharmacy professionals have to meet throughout their careers.
- Investigating concerns raised against pharmacy professionals and taking action against pharmacy professionals who put patient safety or public confidence at risk.
- Establishing the standard for and inspecting registered pharmacies, to ensure they provide safe and effective services for patients.[23]

According to the GPhC, as of March 2020, there were 57,651 registered pharmacists and 23,705 registered pharmacy technicians in the UK.[24] In 2019, there were approximately 3,330 graduates who achieved their MPharm degree.[25]

3.3.2 Pre-registration education requirements

Programme length (number of hours)	**4 years + 1 year (52 weeks) of foundation training focused on prescribing.**[26] Neither the EU Directive, nor GPhC's Standards for the Initial Education and Training of Pharmacists specify total programme hours.
Practice hours and use of simulation	A minimum of 90 hours of supervised practice focused on prescribing, during the foundation training year.[27] Simulation is permitted but is not used in place of supervised prescribing hours. The GPhC's educational standards state that simulation can be used as part of the MPharm to provide students with practical experience of working with a breadth of patients and healthcare professionals in a range of environments[28]

For comparison, details of the education standards for nursing and midwifery in the UK, along with register date, are included in the annex.

Entry requirements for the MPharm vary by institution, but applicants typically need science A levels in region of ABB-AAB to be admitted. Manchester University, for instance, asks for grades ABB-AAB which must include Chemistry, either Mathematics or Biology, 'and one further rigorous academic subject'.[29] After completing the 4-year MPharm degree, graduates must then complete a 52-week pre-registration placement (the foundation training year). Like the post-graduate foundation training for medical and dental graduates, the purpose of the pre-registration placement is to prepare new graduates for work by providing on-the-job, practical training in a clinical setting, during which time graduates are expected to complete 90 practice hours focused on prescribing. Graduates work under a tutor and at the end of the placement sit an assessment which examines whether they have acquired the requisite knowledge and skills.[30]

The GPhC's standards for education and training provide no information about recognition of prior learning and there are no accelerated or shortened versions of the 4-year MPharm.

As for undergraduate degrees in medicine and dentistry, the MPharm is aligned to a series of graduate learning outcomes, published by the GPhC, and arranged into 4 broad domains of study. The GPhC stipulates in its standards for education and training that MPharm courses offered by UK higher education institutions must ensure that students develop the 55 learning outcomes which fall under the domains of 'person-centred care and collaboration', 'professional practice', 'leadership and management', 'education and research'.

To meet these standards, the GPhC sets out that curricula must:

1. 'focus on the role of the pharmacist as a healthcare professional to deliver high-quality, person-centred care'.
2. 'provide experiential learning and interprofessional learning, with students from other health and care professions, and provide experience in different pharmacy settings'.
3. 'provide opportunities to engage with people and other health and care professionals'.
4. 'build the requirement of patient and public safety into all aspects of the design and delivery of initial education and training'.
5. 'provide a period of learning in practice specifically related to prescribing.' [31]

3.4 Physiotherapist

Physiotherapists

3.4.1 Overview

In the UK, the Health and Care Professions Council (HCPC) is the independent body which regulates the education and professional standards of physiotherapists, along with 14 other healthcare professions (including dieticians, occupational therapists, paramedics, podiatrists). In common with GMC, GDC and GPhM, its overarching purpose is to protect the public by performing the following regulatory functions:

- Establishing the standards for the education and training, professional skills and conduct of healthcare professionals.
- Maintaining a register of healthcare professionals who meet these standards.
- Approving the education and training programmes which professionals must complete to register.
- Taking action against registered professionals who do not meet specified standards.[32]

In November 2020, there were 58,097 physiotherapists on HCPC's register.[33] In the academic year 2018-19, 1,691 students graduated from pre-registration physiotherapy programmes.[34]

3.4.2 Pre-registration education requirements

Programme length (number of hours)	3 years[35] (neither the EU Directive nor HCPC's Standards of Education and Training specify total learning hours).
Practice hours and use of simulation	Neither the EU Directive nor HCPC's Standards of Education and Training specify practice hours for physiotherapists. The HCPC's Standards state that **'We do not set requirements for the structure, length or range of practice-based learning that you must include in your programme to meet our standards of education and training.'**[36] The HCPC's Standards do, however, make allowance for the use of practice simulation in teaching and assessment methods.

For comparison, details of the education standards for nursing and midwifery in the UK, along with register date, are included in the annex.

Admissions criteria for degree programmes in physiotherapy vary by institution but typical entry requirements are 2 or 3 A levels, including a biological science and/or PE, along with five GCSEs, including English language, maths and at least one science. Some HEIs also accept applicants with vocational qualifications, such as BTECs, HNDs or HNCs with a biological science component. Alternatively, some institutions accept relevant NVQs or a science-based access course. Unlike medicine, dentistry and pharmacy, there is no mandatory period of post-graduate, pre-registration training.[37]

From December 2018, an integrated degree standard apprenticeship in physiotherapy has been recently approved for delivery. Course duration is the same as the Bachelor's degree and entry requirements are broadly similar.[38]

Although recognition of prior learning is in most cases undertaken at the discretion of the institution, the HCPC's Standards of Education and Training state that educational providers must establish an 'appropriate and effective process for assessing applicants' prior learning and experience'. The standard stipulates that providers must assess individual applicants' relevant prior learning and experience on a case-by-case basis and that recognition of such learning could take the form of credit transfers, feeder routes or transition arrangements.[39]

Shortened, two-year accelerated MSc courses in physiotherapy are also available to people who already have a BSc degree in a relevant subject.[40]

4. Approaches taken to pre-registration education in other countries

4.1 Ireland

4.1.1 Overview

Per Capita spend on healthcare (2019)	€4,843.60
Number of nurses and midwives per 1,000 (2020)	c.16 (15.9)[41]
Annual inflow of foreign-trained nurses (2019)	2,301
Number of graduates (nurses) per 100,000 (2018)	29.3
Number of graduates (midwives) per 100,000 (2018)	2.2

Source: OECD, Health Statistics 2020 (unless otherwise specified)
For comparison, details of the education standards for nursing and midwifery in the UK, along with register data, are included in the annex.

The Nursing and Midwifery Board of Ireland (NMBI) is the national body responsible for regulating the education, training and professional standards of nurses and midwives in Ireland. The purpose of the NMBI is to protect the public and its main regulatory functions consist of maintaining a register of nurses and midwives; evaluating applications from Irish and overseas applicants who want to practice as nurses or midwives in Ireland; developing standards for professional practice; setting the standards for nursing and midwifery education and investigating complaints.[42]

4.1.2 Pre-registration education requirements

	Nursing[43]	Midwifery[44]
Programme length (number of hours)	4-year Bachelor's degree (4,600 hours of clinical and theoretical instruction)	4-year Bachelor's degree (4,600 hours of clinical and theoretical instruction)
Practice hours and use of simulation	81 weeks (45 weeks of supernumerary clinical practice and a 36-week clinical placement internship).	81 weeks (45 weeks of supernumerary clinical practice and a 36-week clinical placement internship).

In the Republic of Ireland, the programme length and number of practice hours for nursing and midwifery courses comply with the requirements of the EU Directive of 2005 (4,600 hours total learning hours. For nursing, 50% of these hours must be spent in clinical practice; for midwifery, one third of total learning hours must be spent in clinical practice).

In fact, the number of clinical hours for both nurses and midwives **exceeds the minimum requirements of the EU Directive.** Pre-registration education for both nurses and midwives in Ireland consists of a 4-year Bachelor's programme with a combined total of 81 weeks of clinical practice (representing 56% of the total 144 weeks of learning mandated by the NMBI). For both courses, clinical practice includes a compulsory 36-week paid clinical placement internship which students complete in their final year.[45]

The NMBI's pre-registration education standards for both nurses and midwives make allowance for the use of simulation. However, the EU Directive places limitations on the extent and use of simulation. Student nurses in Ireland may receive actual or simulated experiences of procedures such as blood sampling (venepuncture and peripheral intravenous cannulation), while student midwives may experience a range of simulated childbirth situations which are stipulated by the EU Directive. These include the use of simulation for carrying out a breech birth, performing an episiotomy or suturing a perineal wound following and episiotomy.[46]

Nursing

Admissions criteria for nursing degrees in Ireland are determined by individual higher education institutions. Typically, applicants need to have completed at least six subjects as part of the Irish Leaving Certificate, which must include English, Irish, Maths and a laboratory science (biology, chemistry, physics) normally at grade 6 or 7 in higher level examinations (H6/H7).[47]

Students wishing to study nursing in Ireland also need to pass An Garda Siochana Clearance (clearance administered by Ireland's National Police and Security Service) and Health Status Clearance from the Health Service Executive Occupational Health Unit.

Pre-registration education for nurses in Ireland is centred on the development of six core domains of competence. NMBI's pre-registration education standards for nursing recognise that the development of competencies is incremental and stipulates that competencies are to be assessed at four graduated intervals over the duration of the 4-year course. At levels/years 1 and 2, student nurses are recognised as novice practitioners with limited experience of practice settings and requiring close supervision of the registered nurse. Upon completion of level/year 3, students nurses are recognised as advanced beginners who can actively participate in the planning and delivery of person-centred care. Following completion of level/year 4 (which involves completion of the 36-month internship), students will have achieved the level of newly qualified nurse and competent practitioner. At graduation, the newly qualified nurse will have developed the requisite competencies to be eligible for registration.[48]

Although decisions regarding recognition of prior learning are mostly taken at the level of individual institutions, the NMBI's Standards for the approval of Higher Education Institutions states that HEIs should ensure that flexible modes of entry – such as mature students, FETAC, ACCESS, graduate entry – and procedures for Approval of Prior Learning (APL) have been approved by the NMBI. Curricular content on pre-registration nursing courses in Ireland is underpinned by the NMBI's six domains of competence. These broad competency areas represent the skills, knowledge, and abilities which a graduate must achieve on completion of the education programme for entry to the Nursing Register. The six domains of competence are:

- Professional values and conduct of the nurse competences.
- Nursing practice and clinical decision-making competences.
- Knowledge and cognitive competences.
- Communication and interpersonal competences.
- Management and team competences.
- Leadership and professional scholarship competences.[49]

Midwifery

Admission criteria for midwifery degrees in Ireland are similar to those for nursing degrees. Applicants typically require six subjects on the Irish Leaving Certificate, including English, Irish, Maths and a laboratory science (biology, chemistry, physics) normally at grade 6 or 7 in higher level examinations (H6/H7). Like nursing degrees, applicants to midwifery are also subject to health screening requirements and Garda vetting.[50]

Like nursing, pre-registration education for midwives in Ireland is based on the incremental development and assessment of certain core competencies, which are aligned to the principles of the Code of Professional Conduct and Ethics for Registered Nurses and Registered Midwives. Each competency area is broken down into a series of indictors, which serve as learning outcomes for each year. In years 1 and 2, the student midwife is recognised as a novice practitioner with limited exposure to provision of care and in need of close supervision from the preceptor. In year 3, students begin to actively participate in the care of women with indirect preceptor supervision. Following completion of year 4 (including completion of the 36-week internship), students are expected to have fully developed the skills, knowledge and abilities of a competent midwife and become eligible for registration.[51]

Ireland also offers shortened midwifery courses which are available for registered nurses and which are aligned to the requirements of the EU Directive. The Higher Diploma in Midwifery is an 18-month course for registered general nurses which leads to eligibility for registration as a midwife at the NMBI. The course is 78-weeks long and consists of 26 weeks of theoretical content and 52 weeks of midwifery practice. During this course, student-midwives are employed at a maternity hospital.[52]

The NMBI's Standards for midwifery education provide no details about provisions for the recognition of prior learning.[3] Like nursing, curricular content on the 4-year Bachelor's course in midwifery is centred on the development of core competency areas:

- Respect for the Dignity of the Person.
- Professional Responsibility and Accountability.
- Quality of Practice.
- Trust and confidentiality.
- Collaboration with Others.

In line with the EU Directive, student midwives also have certain specific requirements around clinical practice, including:

- Supporting and assessing at least 100 women during pregnancy, includes detailed antenatal assessment and abdominal examination.
- Providing care to at least 40 women during labour.
- Provide care to at least 40 women in spontaneous vaginal birth. Where this number cannot be reached owing to the lack of available women in labour, it may be reduced to a minimum of 30, provided that the student participates actively in 20 further births.[53]

3 RPL for midwives is not permitted under the EU Directive.

4.1.3 Impact and efficacy of the approach

Key findings

- Recent research into pre-registration education for nurses and midwives in Ireland has focused on student perceptions of their courses and experiences of clinical placements.
- This review identified two recent research articles, within the exclusion criteria, exploring student experiences: one examining the experiences of both nursing and midwifery students (in the first semester of their course) and one examining the experiences of midwifery students (in their final, 36-week clinical internship).
- This review did not identify any recent research, within the parameters of the exclusion criteria, about the impact of standards on public protection and safety; the effectiveness and quality of care; equality, diversity and inclusivity, or the quality and effectiveness of education programmes.

Experiences and perceptions of students

Research into the perceptions of nursing and midwifery students undertaking pre-registration education in Ireland suggests that, while students offer positive assessments of their learning experiences and gains in the earlier years of their course, they report elevated levels of stress and greater challenges when moving into higher years and in particular when exposed to more clinical practice.

Nursing and Midwifery

According to a cross-sectional descriptive study of 2018,[54] which involved a survey of **206 first-year nursing and midwifery students** at a large urban university in Ireland, students in the first semester of their nursing/midwifery courses generally spoke positively of their experiences. The study surveyed students who had just completed the first semester in the first year of their course. This semester consists of six theory-based modules and so sampled students had not yet experienced clinical practice. The study made use of the Student Assessment of Learning Gains (SALG) questionnaire: students answered a series of questions which explored perceived student gains in skills, cognitions, and attitude. The results from the survey revealed that students positively evaluated the teaching and learning approaches they had experienced in the first semester of their course. Students indicated that the 'greatest enablers of learning' were:

- Clinical skills laboratory teaching
- Online learning materials
- Multiple choice questions

Qualitative data captured as part of the survey revealed that students valued the clinical skills laboratory because they enabled students to 'put theory into practice' and consolidate their theoretical learning in preparation for clinical practice. Labs were therefore perceived as a useful steppingstone into clinical practice which students would experience later in their courses.

Students also reported learning gains in communication and teamwork skills, as well as an increase in confidence and enthusiasm for their chosen career. It must be remembered, however, that these learning gains are reported from students who had experienced theoretical learning only; they had not yet experienced clinical practice.

Midwifery

Research into the perceptions and experiences of students in their final years of study, however, present a rather different picture. A descriptive, qualitative study of **student midwives' experiences,** published in 2018[55], found that fourth-year midwifery students experience a range of difficulties – mostly relating to pressures on time and relations with staff midwives – on their 36-week clinical internship. The study involved a series of focus groups with 13 final-year BSc Midwifery students who were half-way through their clinical internship. All participants had experience of working in two clinical sites time of data collection. Findings from the focus group discussions reveal that students recognise the importance of the internship as a means of consolidating clinical skills and building confidence and competence for midwifery practice.

However, participants also mentioned experiencing considerable stress during the internship period, with principal causes of stress identified as the need to balance competing demands (in particular, juggling academic assignments with practice commitments) and maintain a work-life balance. Travel time to sites and difficulty accessing resources for academic assignments were also cited as sources of stress.

Participants also reported numerous barriers to learning on placement, including 'interpersonal issues' (the inability to cultivate working relationships with staff midwives) as well as dismissive attitudes from staff midwives towards releasing students for protected reflective time (PRT).

4.2 Sweden

4.2.1 Overview

Per Capita spend on healthcare (2019)	53,465.60 Swedish Krona (c. £4,495)
Number of nurses per 1,000 (2017)	10.88
Number of midwives per 1,000 (2017)	<1 (0.75)
Annual inflow of foreign-trained nurses (2019)	171
Number of graduates (nurses) per 100,000 (2018)	-*
Number of graduates (midwives) per 100,000 (2018)	3.66

*OECD data not available
Source: OECD, Health Statistics 2020 (unless otherwise specified)
For comparison, details of the education standards for nursing and midwifery in the UK, along with register data, are included in the annex.

In Sweden, the National Board of Health and Welfare (NBHW) is responsible for the registration and licencing of nurses and midwives (along with 19 other occupational groups in the health care services). The Board's overarching mission is to promote high-quality and equitable health and social care that is accessible to the whole of Sweden's population. Its main functions are the production of data, regulations and knowledge which is passed onto the Government and the social and health care services.

As part of this mission, the NBHW grants licenses to professionals who have achieved minimum standards of pre-registration education across 21 key healthcare occupations.[56] Licences are granted to healthcare professionals for life, meaning that individuals do not have to renew licences periodically.

The NBHW does, however, have the right to revoke licences or invoke a trial period of three years in the case of malpractice.[57]

4.2.2 Pre-registration education requirements

	Nursing[58]	Midwifery[44]
Programme length (number of hours)	3-year Bachelor's degree (4,600 hours of clinical and theoretical instruction)	1.5-year post-graduate degree (3,000 hours)[59]
Practice hours and use of simulation	2,300 hours	50% of learning time is spent in clinical practice which includes an internship.[60]

In Sweden, total learning hours and practice hours for nursing pre-registration education is determined by the EU Directive of 2005. For midwifery pre-registration education, total learning hours is determined by the EU Directive, while the proportion of students' time spent in clinical practice (50%) is determined by the International Confederation of Midwives' (ICM) **Global Standards for Midwifery Education.**[61]

For nursing education, Ministerial orders in the Nordic countries

> **"allow a proportion of the total number of clinical hours to be replaced with time in the simulation centre".**

In this context, simulation learning

> **"means training in a realistic environment utilizing simulation equipment".**

However, no ratio is stipulated and use of simulation in Sweden remains limited by the EU Directive, which describes clinical learning as being 'in direct contact with a healthy or sick individual.[62]

For midwifery education, as in other European contexts, use of simulation is limited by the restrictions stipulated in the EU directive.

Nursing

Admission requirements for pre-registration education in nursing in Sweden involve completion of upper secondary school education and applicants typically need to have achieved a minimum standard in Swedish, English, mathematics, and the natural sciences. Upon successful completion of the 3-year Bachelor's programme in nursing, graduates apply for licensure. Licences are then granted by NBHW to all graduates who have successfully completed pre-registration education. There is no national licencing exam as in USA or Canada.[63]

HEIs in Sweden are responsible for developing their own education programmes. As such there is some variation in nursing courses from institution to institution. However, all pre-registration nursing education must comply with national regulations set by the Higher Education Ordinance (Högskolelag (SFS 1992:1434)) and the Higher Education Act (Högskoleförordning (SFS 1993:100)), which sets out the knowledge, understandings, skills and professional judgement and approach which nursing graduates must develop throughout the course of their studies.[64]

Midwifery

In Sweden, midwives are considered specialist nurses and education programmes for midwives are delivered at post-graduate level. During training, student midwives spent 50% of their time in clinical practice, a large proportion of which is spent in clinical internships which take place in a variety of settings.[65]

To be admitted to the post-graduate course in midwifery science, applicants need to hold a Swedish nursing licence and must have one year's worth of professional experience as a nurse and a relevant Bachelor's degree (in any of the major health sciences). Following completion of the midwifery post-graduate course, newly qualified midwives can then apply to the NBHW for licensure.[66]

Like nursing, content of the midwifery courses is also shaped by the requirements set out in the Higher Education Ordinance and Higher Education Act. This includes a broad and specialised knowledge in the field of reproductive, perinatal, and sexual health, specialised skills in planning and undertaking examinations and treatment, both autonomously but also in cooperation with patients, as well as qualities such as self-awareness and empathy.[67]

4.2.3 Impact and efficacy of the approach

Key findings

- For Sweden, this review identified a range of recent research exploring:
  - The perceptions and experiences of nursing and midwifery students (one study for nursing students; two studies for midwifery students), and
  - Self-reported gaps in the clinical and cultural competence of students (4 studies relating to nursing students; one for midwifery students). This second group of studies provide an insight into the strengths and the weaknesses of Swedish education standards for nurses and midwives and will therefore be dealt with under the subheading 'Quality and effectiveness of pre-registration education.'
- One notable study on simulation in the context of Swedish midwifery was also identified. This study will be summarised under its own subheading.
- This review did not identify any recent research, within the parameters of the exclusion criteria, about the impact of standards on public protection and safety, or the effectiveness and quality of care.

Experiences and perceptions of students

Nursing

A recent qualitative study,[68] involving focus group interviews with 16 newly graduated nurses with six months' worth of clinical experience in an acute care hospital setting, found that new nurses did not feel sufficiently prepared or supported to meet the demands of complex patient situations in acute care clinical settings. Students described feeling that their competence was not sufficient to be able to individually handle complex nursing situations. They also emphasised feeling a lack of medical competence and a fear that they may harm patients, as well as an inability to manage multiple patients simultaneously. The study concludes that newly graduated registered nurses are not sufficiently supported for the level of responsibility and the demands placed on them in acute care and complex patient situations, a problem which may in some cases jeopardise patient safety.

Midwifery

A recent cross-sectional study[69] explored the experiences of final term midwifery students in Sweden on their clinical internships. The survey – which focused on open-ended questions – was distributed to all Swedish universities offering the midwifery programme and was completed by 108 students. Students described the internship as an intense, high-pressured and often stressful experience, for which many did not feel adequately prepared. Students often found their internships poorly organised and wards chaotic (students were allocated tasks at the last minute and preceptors were sometimes reassigned to different wards with students knowing). They also expressed that the need to achieve the final number of 50 assisted births led to feelings of competition towards fellow students.

In terms of pedagogical models, midwifery students generally valued preceptors[4] as important role models although some expressed that learning experiences could be compromised if preceptors lacked knowledge or confidence, or if preceptors changed part way through the internship. Many students found that the constant shifting of preceptors - or replacement of preceptors at the last minute - contributed to increased stress levels. Student midwives pointed out that the most preferable situation would be one in which preceptors were selected, trained, and supported in their role to supervise students, rather than students being assigned any available preceptor.

Other recent Swedish research underscores the importance of supervision in developing clinical competence and confidence of midwives. A qualitative study of 2020[70] sought to examine the factors that increased and decreased the confidence of midwifery students in clinical practice. The study made use of an open-ended questionnaire which invited Swedish midwifery students to self-assess against selected midwifery competencies. In total, 401 responses were analysed through manifest content analysis. The study found that the most important factor for developing confidence in clinical practice was supervision. Student midwives emphasised that a supportive practice supervisor, who encouraged students to practice independently but who remained responsive to individual student needs, was pivotal to the development of competence as a midwife. Midwifery students also emphasised the importance of theoretical knowledge and prior hands-on (or simulated) training in preparing them for clinical practice. Students recognised the importance of clinical placements but also expressed that placements could be stressful and demanding, and that the clinical placements need to be conducive to learning and allow time for independent reflection. Factors that undermined students' confidence were practice supervisors who appeared stressed or uninterested, along with perceived patronizing attitudes towards students and the fear of doing something wrong.

4 The 'midwife preceptor' in the Swedish context performs a similar function to the practice supervisor in the UK.

Quality and effectiveness of pre-registration education

Recent Swedish research exploring the self-reported competence of newly graduated nurses and midwives provide an insight into the strengths and the weaknesses of the current Swedish education programme for nurses and midwives. Studies suggest that graduates of nursing and midwifery often emerge from their pre-registration education with gaps in critical areas of clinical competence.

Nursing

A recent cross-sectional study found that newly qualified nurses often consider themselves to lack competences relating to direct clinical practice. The study consisted of a survey of 85 newly graduated registered nurses, who self-assessed their clinical competencies using the Professional Nurse Self-Assessment Scale of clinical core competencies II (ProffNurse SAS II). Participants reported high clinical competencies in areas relating to team collaboration and ethics (i.e., "consulting other professional experts when required"; "acting ethically in caring for the patients"), but lower clinical competencies in areas relating to professional development and direct clinical practice ("health-promoting and prevention"; "medications interaction and side effects"). These were also the competency area in which participants identified greatest need for further training: participants believed that their most pressing training needs were in "reporting all incidents according to the patient safety system"; "medication, interaction and the side effects of medication"; "differential diagnoses when assessing patients' health conditions"; "knowledge about the effect and treatment of medication".

Even where nursing students consider themselves to have high levels of competence, research has shown that nursing students' assessments of their own competencies may differ from competencies assessed through examination. Another recent cross-sectional study[72] analysed survey data collected from 179 final-year nursing students at three Swedish universities (based on the Nurse Professional Competence (GSE) Scale) and compared students' self-assessments of competency against the results from the NFCE national examination.

The study identified three clusters of nursing students:

- Students in cluster 1 passed the NCFE but presented lower self-assessed competence (NPC) than the loverall median values in the group.
- Students in cluster 2 also passed the NCFE and rated themselves as above median in all but one NPC competence area.
- Students in cluster 3 failed the NCFE but still rated themselves on the median level or higher in all but one of the NPC competence areas.

The results from this study identified two 'clusters' of students (clusters 1 and 3) in which self-assessment of competence was not concordant with competency assessment achieved through national examination. In the case of those in cluster 3 – who failed the national exam but rated themselves on the median level or higher in most competency areas – these students appear to exhibit an inflated self-confidence in relation to their exam results. The results of this survey should serve as caution for all studies which involve student self-evaluation of competence.

Research into the cultural competence of Swedish nursing students – who work in a multi-cultural, multi-lingual society – has shown that Swedish students are often ill-equipped to deal with cross-cultural encounters. A study from 2015[73] employed a series of semi-structured interviews with 10 final-year nursing students at a Swedish university (five from a Swedish background; five from an immigrant background) to examine nursing students' experience of and preparation for cross-cultural encounters. The study found that non-Swedish born students were more likely to emphasise life experiences as important preparation for nursing in a multi-cultural society. Swedish nursing students, however, placed greater emphasis on learning within the university in teaching them about how to interact with patients from different cultural backgrounds. Students recognised the importance of clinical placements in utilising self-awareness but also reported feeling inadequately prepared for many of the cultural encounters they experienced on placement, with some students stating that they did not know how to deal with negative attitudes, racism, and discrimination towards patients and, in some cases, towards themselves. The study concludes that nursing education had largely failed to prepare students to deal with such attitudes and recommends that greater emphasis should be placed on educating students about difficult situations arising from cultural discrimination.

More recent research reinforces the finding that formal education offers nursing students limited opportunities to develop cultural awareness. A recent qualitative study[74], which used focus groups to explore cultural awareness among 12 Swedish nursing students, found that while most nursing students were eager to learn about how to care for people from different cultural backgrounds, most students developed cultural awareness through practice or informal educations (i.e., learning by doing or learning outside of the classroom). Formal, lecture-based education, which takes place within the university, was found to be deficient in the opportunities it offered students to enhance cultural understandings.

Midwifery

On midwifery clinical competence, a cross-sectional study published in 2017[75] invited all final-year Swedish midwifery students, who were about to complete their course, to self-assess their confidence against four key areas of competence (antenatal, intrapartum, postpartum and new-born care) through a questionnaire. The study found that, while most midwifery students were confident in managing normal pregnancy, labour and birth, some students were more confident than others in handling obstetric emergency situations. Students at HEIs with a medical faculty were found to be more confident in dealing with obstetric emergencies such as performing aortic compression or managing immediate postpartum haemorrhage and shoulder dystocia. One possible explanation for this is that students on midwifery programmes with a medical faculty are more likely to receive greater exposure to such emergencies as women with severe complications in childbirth are more likely to be referred to a university hospital. The study also suggests that HEIs with a medical faculty can also provide better opportunities for inter-professional training and experiences to support improvements in an atmosphere of teamwork.

The study also found that midwifery students reported higher confidence in antenatal compared to intrapartum care, and that, overall, younger midwifery students felt more confident than older midwifery students. The study infers from this that length of time in service as a registered nurse[5] was not commensurate with confidence as a student midwife:

> **"Despite being registered nurses with at least one year of clinical practice, midwifery students in Sweden, did not feel confident in midwifery skills which were new. Midwifery is a unique profession with a distinctly different focus compared to nursing."**

Recent research on simulation

Midwifery

A Swedish longitudinal study[76] explored midwifery students' experiences of simulation and skills training, which is used as preparation for clinical practice. Between 2011-15, 61 midwifery students were interviewed in 13 group interviews. The study found that most students felt simulation and skill training were necessary to become familiar with **hands-on skills** and that **repeating tasks in a safe environment** was important so that mistakes could be made without compromising the safety of women.

Student midwives also reported feeling more prepared and confident having undertaken simulation and skills training before entering clinical practice. The study also highlighted the role of the lecturer in providing instruction and feedback and noted the importance of including reflection and critical thinking in the simulation and skills training to develop learning. The study concluded that simulation and skills training supported the development of midwifery skills by encouraging students to make links between theory and practice, thus facilitating students' learning ability and better preparing them for clinical practice.

Nursing

This review identified no studies relevant to nursing, within the parameters of the inclusion criteria, pertaining to simulation.

5 One year of service as a registered nurse is a prerequisite requirement for midwifery educational programmes in Sweden (See above).

4.3 Spain

4.3.1 Overview

Per Capita spend on healthcare (2019)	€2,387.60
Number of nurses per 1,000 (2018)	5.87
Number of midwives per 1,000 (2018)	-*
Annual inflow of foreign-trained nurses (2011)	415
Number of graduates (nurses) per 100,000 (2018)	21.23
Number of graduates (midwives) per 100,000 (2018)	<1 (0.78)

*OECD data not available
Source: OECD, Health Statistics 2020 (unless otherwise specified)
For comparison, details of the education standards for nursing and midwifery in the UK, along with register data, are included in the annex.

The General Council of Nursing is the regulatory body responsible for the regulation of nurses and midwives in Spain. It is compose of representatives from 17 autonomous councils and 52 provincial colleges and its purpose is to represent the Spanish nursing profession at the national and international levels; set educational standards and professional practice of nurses and uphold public and patient safety by initiating disciplinary action and resolving appeals.[77]

4.3.2 Pre-registration education requirements

	Nursing[78]	Midwifery
Programme length (number of hours)	4-year Bachelor's degree (4,600 hours of clinical and theoretical instruction) (typically courses consist of 2 semesters each year)	2-year specialist post-graduate training (3,600 hours)[79]
Practice hours and use of simulation	2,300 hours	50% of learning time is spent in clinical practice which includes an internship.[80]

As in Sweden, total learning hours and practice hours for nursing pre-registration education in Spain is determined by the EU Directive of 2005. For midwifery pre-registration education, total learning hours is determined by the EU Directive, while the proportion of students' time spent in clinical practice (50%) is determined by the International Confederation of Midwives' (ICM) **Global Standards for Midwifery Education.**

Simulation is commonly used in pre-registration education for nursing in Spanish universities. However, use of simulation in Spain is restricted by the EU Directive, which dictates that clinical experience must involve direct contact with a healthy or sick individual. At the University of San Pablo, for instance, applicants to the nursing programme are told that 'face-to-face clinical practices are supported and complemented by more than 600 hours of low, medium and high-fidelity clinical simulation in which the student integrates their theoretical and clinical training.'[81] For midwifery pre-registration education, as in other European contexts, use of simulation is limited by the restrictions stipulated in the EU directive.

Nursing

Since the 4-year Bachelor's in Nursing was created relatively recently (2009), some universities still offer the 3-year university orientation course in nursing studies (which was the only university course in nursing which existed before 2009). Several Spanish universities also offer a bridging course for students who have completed the 3-year nursing studies course, to bring the 3-year course up to the level of the 4-year degree.[82]

All students of nursing in Spain will receive some teaching in pharmacology during their pre-registration education. Changes in nurse prescribing legislation in Spain in 2009 authorised prescribing by nurses who successfully complete a certification course.

Registered nurses with the required certification may prescribe over-the-counter drugs in Spain. As such, pharmacology is now an essential component of nursing pre-registration education, with all nursing courses in Spain offering at least one pharmacology module to students. In a cross-sectional study of pharmacological content of all undergraduate nursing courses in Spain, Romero-Collado el al.[83] concluded that course training in pharmacology received as part of current nursing education is sufficient in providing the requisite skills and knowledge needed to prescribe medications that do not require a doctor's prescription, without the need for additional training and certification.

Nursing courses in Spain also typically contain content on gender-based violence, although precise content varies considerably between institutions. A recent study found that as many as 80% of the nursing education programmes in Spain included specific training in gender-based violence. Content typically explores the health consequences of gender-based violence and the role of health professionals in addressing such health consequences.[84]

Other research has identified gaps in the curricular content of nursing programmes in Spain. Pain management, especially that relating to chronic wounds, has been found to be lacking. According to a cross-sectional descriptive study, which reviewed course descriptions for 95 centres in Spain that offer a nursing degree, 63.1% of the course content reviewed contained no reference to the concept of pressure ulcer prevention, while 37.9% made no mention at all of ulcer treatment. Pain management in patients with chronic wounds was also lacking from all reviewed course content.[85]

A more recent study of course content in Catalonia found that the average total hours allocated to pain management in nursing courses in Catalonia was 230 hours (although this was higher than the average hours allocated to pain management in other medical courses, suggesting that pain management is neglected in most medical education in Spain).[86]

Midwifery

In Spain, midwives are considered specialist nurses known as obstetric or gynaecological nurses. The training of midwives in Spain is therefore delivered as a specialist, postgraduate course, which takes place in specialised multi-professional teaching units of obstetrics and gynaecology and which involves completion of an internship.[87]

Entrants to the Spanish post-graduate course in obstetrics and gynaecology (midwifery) need to have completed the 4-year degree in nursing. This model of midwifery education and training, like that of Sweden, is predicated on the notion that midwives are specialists who require additional education to build on the knowledge and skills they acquired as nurses. The Royal Decree 1837/2008 of 8th November (2008) (Standards for the Specialist Training Programme in Obstetrics and Gynaecology),[88] which lays down the minimum mandatory training requirements of midwives in Spain, states that:

> **"The previous requirement of the diploma or a degree in nursing determines that the professional who accesses this specialty already has extensive general training in nursing, which allows this program to focus on theoretical knowledge and clinical and practical activities more closely related to the speciality of Obstetric-Gynaecological Nursing (Midwife) and with the demands that today's society requires of this professional."**

The Spanish Standards for the training of obstetric-gynaecological nurses provides no details about the provision of RPL or shortened/accelerated courses in midwifery.[6]

Course content in Spanish midwifery courses is broadly aligned to the core competencies of midwives published as part of the Royal Decree 1837/2008 of 8th November (2008) (Standards for the Specialist Training Programme in Obstetrics and Gynaecology). The Spanish specialist training standards outline an extensive list of competencies and performance criteria which students on the course need to meet to qualify as a midwife. These include the ability to lead and promote maternal and child health programs, care for women and sexual and reproductive health, detect risk factors and health problems during pregnancy, childbirth, and the postpartum period, and carry out adequate health education for women, families, and the community, identifying learning needs in relation to maternal and child health.[89]

6 RPL for midwives is not permitted under the EU Directive.

4.3.3 Impact and efficacy of the approach

Key findings

- For Spain, this review identified two notable studies, within the parameters of the exclusion criteria, exploring nursing students' experiences and perceptions of clinical practice. The review also identified one study examining the extent of achievement (and non-achievement) of specific learning outcomes on a nursing course at a Spanish university, which gives some indication of the quality and effectiveness of nursing pre-registration education.
- Only one study – evaluating midwifery students' training in episiotomies – was identified, within the exclusion criteria, about midwifery.
- One study exploring Spanish nursing students' satisfaction with simulation was also identified. This will be summarised under a subheading of its own.
- This review did not identify any recent research, within the parameters of the exclusion criteria, about the impact of standards on public protection and safety; the quality and effectiveness of care, or equality, diversity and inclusivity.

Experiences and perceptions of students

Nursing

A Spanish study conducted in 2016[90] explored nursing students' experience of stress during clinical practice. This cross-sectional, descriptive study was conducted at the two nursing colleges of the University of Oviedo, located in Asturias, Spain, and consisted of a survey of 450 Spanish nursing students. Participants filled in a questionnaire composed of 41 items using a 4-point Likert Scale, which asked students to rate how much certain situations worries them from 0 ("Not at all") to 3 ("A lot"). Participants ranged from all 4 years of study in the Bachelor of Nursing (131 first-year students, 93 second-year students, 126 third-year students and 100 fourth-year students).

The study found that Spanish nursing students consider clinical practice to be 'rather stressful', with second-year students and female students experiencing highest levels of stress. Overall, female students found clinical practice to be more stressful than male students, both in general terms but also with respect to all individual stress factors included in the questionnaire. Interestingly, second-years students found clinical placements more stressful than both first-year students (who may not yet be fully aware of the responsibilities of patient care) and fourth-year students (who have more experience and training). On the whole, students found the risk of causing harm to patients or themselves to be the most stressful situation, while 'relationships with tutors and companions' constituted the least concern for students.

A more recent Spanish study[91] found that nursing students often approach their first clinical placement with a certain degree of anxiety (along with feelings of excitement and apprehension). This descriptive qualitative study - through which a series of semi-structured interviews were conducted with 15 second-year nursing students in the weeks shortly before starting clinical placement – found that nursing students are generally excited at the prospect of clinical practice.

Participants mentioned that they were approaching the clinical placement with a desire to learn, to integrate theory into practice and to feel fulfilled. However, participants also expressed anxiety about starting clinical practice, focusing on perceived personal weaknesses, such as insecurity and inexperience, which they believed may impact on their performance and learning experiences. The study states that the students:

> **"were concerned about feeling and being identified as inexperienced and that this could decrease their learning opportunities. They described how their worry about their insecurity might make them lose their ability to react to certain care situations and predicted that they would have high stress levels."**

Midwifery

This review identified no studies relevant to midwifery, within the parameters of the inclusion criteria, pertaining to the experiences and perceptions of students.

Quality and effectiveness of pre-registration education

Nursing

A Spanish prospective longitudinal study[92] found evidence that a number of learning activities in an undergraduate nursing course at University Jaume I were falling short of the established quality indicators. These learning activities are specific to the undergraduate course at this particular Spanish university and are used as assessment tools for evaluating the progression of students on the course. The study was based on data pertaining to 60 second-year nursing students, derived from the assessment tools used by assessors at the university to evaluate the acquisition of skills by students.

The main sources of data were **the Guide of Evaluation of Clinical Practices (GEPC) used by Reference Nurses to evaluate individually each student along with the ad hoc records developed to evaluate students' portfolios. Following descriptive analysis of the student performance data derived from the abovementioned assessment tools, the study found that nine of the 30 learning activities included in the GEPC did not reach the agreed standard of verification of 80%.**

Several of the learning activities that failed to reach the desired threshold of quality relate to critical aspects of quality of care. The research found that initial assessment, the elaboration of diagnoses and assessment and evaluation of results, along with the establishment of a care relationship, did not reach the established quality threshold.

It should be noted that the scope of this report focused exclusively on one undergraduate nursing degree, and the findings are specific to the content of this particular course.

Midwifery

More recent research[93] has suggested that severe deficits exist in the current Spanish and UK midwifery curricula regarding training around episiotomies and pelvic floor examinations. A cross-sectional survey of 711 students and 384 registered midwives across Spain and the UK found that only 15% of Spanish midwifery students and 54.8% of Spanish registered midwives stated that they had received teaching on longer-term pelvic floor complications.

Recent research on simulation

Nursing

Despite the prevalence of simulation in the education of nurses and midwives in Spain, there is a noticeable paucity of research into the effectiveness of simulation, or its impact on student learning experiences. One exception is a recent study carried out at a public university in Almeria,[94] which examined the reactions of Spanish nursing students to the use of simulated video consultations as a teaching tool. In response to the Covid-19 pandemic and the resulting closure of HEIs, the university in question developed high-fidelity clinical simulations as a means of recreating video consultations with patients. A total of six simulated video consultations were designed at the university in 2020, all of which related to basic healthcare at patients' homes, which were used as a learning tool for nursing students. Between April and May 2020, 93 nursing students at the university took part in a validated satisfaction questionnaire which asked questions about students' perceptions and overall satisfaction with the simulated video consultations.

Results from the survey revealed that 97.8% of the students expressed a high overall satisfaction with simulated video consultations, with numerous advantages cited including:

- 'Satisfaction and enjoyment: The participants expressed high satisfaction and enjoyed the implementation of this simulation modality.'
- 'Learning: The nursing students ascribed value to the learning acquired through simulated video consultations, considering that this modality may be used during their future clinical practice.'
- 'Calmness during simulated scenarios performance: Participants indicated that performing simulated scenarios at home using a computer may have contributed to generating less nervousness.'

Students also mentioned several disadvantages associated with simulated video consultations. These included:

- 'Technical issues: Nursing students indicated the Internet connection as a disadvantage, as video consultations require technological resources that must function properly to provide adequate health care.'
- 'Technical skills development: They highlighted the inability to perform clinical techniques required in simulated scenarios owing to its virtual format.

Midwifery

This review identified no studies relevant to midwifery, within the parameters of the inclusion criteria, pertaining to simulation.

4.4 Canada

4.4.1 Overview

Per Capita spend on healthcare (2019)	6,613.30 Canadian dollars (c. £3,798.95)
Number of nurses per 1,000 (2018)	9.95
Number of midwives per 1,000 (2018)	<1 (0.04)*
Annual inflow of foreign-trained nurses (2018)	2,837
Number of graduates (nurses) per 100,000 (2016)	56.13
Number of graduates (midwives) per 100,000 (2017)	<1 (0.41)

Source: OECD, Health Statistics 2020 (unless otherwise specified)
*'Professionally active' midwives.
For comparison, details of the education standards for nursing and midwifery in the UK, along with register data, are included in the annex.

In Canada, nursing is registered at the provincial or territorial level, with each province or territory responsible for the registration and licensure of nurses and midwives. As such, there are no mandatory national standards for the education of nurses in Canada.

Representatives from the various provincial regulatory bodies convene to form the Canadian Council of Registered Nurse Regulators (CCRNR), which publishes Entry-Level Competencies (ELCs) for registered nurses across Canada.[95] These ELCs establish inter-jurisdictional consistency, ensuring that nurses from all provinces of Canada abide by the same standards of competency. All nursing educational programmes in Canada are accredited by the Canadian Association of Schools of Nursing (CASN).

Midwifery in Canada has a similar organisational structure to nursing, in that midwives are also regulated and administered at the provincial/territory level, with representatives from each provincial regulatory body forming the national Canadian Midwifery Regulators Council (CMRC). Like the CCRNR, the CMRC establishes and publishes national competency standards for midwives across Canada.

4.4.2 Pre-registration education requirements

	Nursing[96]	Midwifery[97]
Programme length (number of hours)	4-year Bachelor's degree (typically consisting of 2 semesters each year)	4-year Bachelor's degree (typically consisting of 2 semesters each year)
Practice hours and use of simulation	There are no nationally mandated practice hours, but typically students spend 50% of their time in clinical practice.	Students spend 50% of their time in clinical practice. This includes a clinical internship in the final year known as a 'clerkship'.

Simulation is commonly used in the teaching of clinical skills in both nursing and midwifery courses in Canada, although it is not clear if simulation is counted as a substitute for practice hours. The school of nursing at the University of British Columbia has a Clinical Skills and Simulation Lab (CSL), which **'supports the teaching and learning of the required skills and competencies for professional nursing practice.'**

The CSL uses a range of simulated learning strategies including role play, case studies, demonstrations, computer-based learning modules, online activities, standardised patients, as well as a range of high-fidelity simulation technologies – such as virtual reality applications and full mannequins - to recreate 'real-world' situations and patient encounters.[98] Similarly, Ryerson University also uses simulated practice – such as role plays, mannequins and models – for the teaching of clinical skills to prepare students for real situations.[99]

Nursing

With the exception of Quebec, all Canadian provinces require nurses to hold a Bachelor's (or Baccalaureate) in Nursing to enter the profession and practice as a registered nurse.[100]

Although Bachelor's degrees typically take 4 years, most schools of nursing offer condensed, accelerated, and advanced entry programmes for graduates who already hold a Bachelor's Degree in a relevant field. These accelerated Bachelor's courses in Nursing can usually be completed in two years.[101] The Canadian Nurses Association (CNA) also states that Bachelor's courses can also be adapted and shortened to recognise the prior learning of nurses educated outside of Canada as well as second-entry degree students.[102]

Entry requirements for the Bachelor's programme in nursing differ between institutions and provinces. Generally, admission is dependent on students having completed high school and holding certificates in English (or French), mathematics, biology, and chemistry, with at least a C average. Physics is also considered desirable by most institutions. For those without the necessary prerequisites, some universities offer a 'pre-nursing year' (the equivalent of a foundation year).[103]

After graduation, graduates must then pass the Canadian Registered Nurse Examination, which is set and administered nationally by the Canadian Nurses Association, in order to acquire a nurse's licence, register with their province and begin practice as a registered nurse.[104]

Although course content varies between institutions, nursing courses in Canada are broadly shaped by the core ELCs published by the CCRNR (and approved by each of the provincial regulatory bodies). There are 101 competencies organised under nine broad roles (Clinician, Communicator, Collaborator, Advocate, Educator, Leader, Professional, Scholar, Coordinator).[105] Higher education providers need to ensure that academic courses in nursing enable students to develop these fundamental entry-level competencies. Bachelor's courses in Canada are also designed to prepare graduate nurses as generalists for entry to practice. According to Canadian Nurses Association's **Framework for the Practice of Registered Nurses in Canada:**

> **"Education programs for RNs prepare students for competent, safe, compassionate, and ethical practice and enable them to achieve the entry-to-practice competencies expected of new graduates. To attain all entry-level competencies, graduates must demonstrate wide-ranging skills and abilities. These include cognitive, behavioural, communicative and psychomotor skills, as are found, for example, in tasks requiring manual dexterity or appropriate responses in situations of stress or conflict.'**[106]

Midwifery

In common with Ireland and New Zealand, pre-registration education for midwives in Canada consists of a 4-year, direct-entry Bachelor's degree (typically 2-3 semesters per year). This means that candidates do not need a prior nursing qualification to enter the course.[107]

Midwifery Students spend 50% of their time in clinical practice, with clinical placements commencing in the second year. Students are placed with a practicing midwife, known as a preceptor,[7] as they deliver care in a range of settings (in clinics, in the community and in women's homes) and across the antenatal, intrapartum, and postpartum periods. In this way, continuity of care is embedded from the outset in students' clinical experiences. Students spend the whole of their final year in clinical practice under the supervision of a precepting midwife, increasingly providing full and independent care for women and their new-borns. During the final term of the fourth year, which is known as a clerkship, students take on the role of the primary care giver, taking on full scope of practice as a midwife and making clinical decisions with minimal supervision.[108]

Shortened courses are available for those with a Bachelor's degree in a relevant health care subject. Ryerson University has '2-year degree programme for people with a baccalaureate in a related health field and who have labour and delivery experience'.[109]

Entry requirements for midwifery courses in Canada are similar to those for nursing degrees. Applicants need to have completed the secondary school diploma and must have certificates in English, Biology and Chemistry.[110]

Midwives in Canada need to be registered with their province in order to practice. To be registered, midwifery graduates need to pass the Canadian Midwifery Registration Exam, which is based around the national Canadian Competencies for Midwives. Its purpose is to assess midwifery applicants to ensure they meet entry-level competency standards set out in the Canadian Competencies for Midwives.[111]

As for nursing, midwifery course content varies by province. However, midwifery courses in Canada are broadly aligned to the national Canadian Competencies for Midwives,[112] published by the Canadian Midwifery Regulators Council (CMRC). Pre-registration midwifery education programmes must ensure that students are able to develop the core competencies set out by CMRC, which are organised under the following broad competency areas:

1. 'Health and Well-being: Midwifery care in Canada is based on a respect for pregnancy and childbirth as normal physiological processes.'
2. 'Informed Choice: Canadian midwives respect the right of clients to make informed choices about all aspects of their care.'
3. 'Autonomous Care Providers: Canadian midwives are fully responsible for the provision of primary health services within their scope of practice, making autonomous decisions in collaboration with their clients.'
4. 'Continuity of Care: Canadian midwives are committed to working in partnership with clients in their care.'
5. 'Choice of Birth Setting: Canadian midwives respect the right of clients to make an informed choice about the setting for their birth.'
6. 'Evidence-based Practice: Canadian midwives are expected to stay up-to-date with regard to research on maternity care issues.'

7 In the Canadian context, the midwife preceptor serves a similar function to the practice supervisor in the UK.

As is common in midwifery courses in many other national contexts, student midwives must complete a specified number of outcomes, including a set number of births in both hospital and the home setting. Students at Ryerson University, for instance, need to attend a minimum of 60 births and act as primary caregiver for at least 40 births in home and hospital settings.[113]

4.4.3 Impact and efficacy of the approach

Key findings

- For Canada, this review identified three studies exploring nursing students' perceptions of effective nurse educators and tutors, and two studies relevant to the quality and effectiveness of pre-registration nursing education.
- This review identified no notable, rigorous evidence, within the parameters of the exclusion criteria, which related to midwifery education in Canada.
- This review did not identify any recent research, within the parameters of the exclusion criteria, about the impact of standards on public protection and safety, or the quality and effectiveness of care.

Experiences and perceptions of students

Nursing

Several Canadian studies have focused on nursing students' perceptions of course tutors, educators, and fellow nursing staff. These studies offer useful insights into students' ideas about the qualities of effective teachers.

A study published in 2015[114] used an online survey of 511 nursing students (representing all 4 years of the Bachelor nursing programme), followed by focus groups with seven students, to explore Canadian nursing students' perceptions of what makes an effective nurse educator in the clinical practice setting. Survey results revealed that students considered effective teachers to be prepared, person-centred, professional, passionate, and positive, and willing to adjust to meet individual students' needs in each year of the Bachelor programme.

Similar findings were also reported in a study published by the same group of researchers in 2016,[115] which used a similar methodology (online survey of 511 nursing students, followed by focus groups with 19 students) to interrogate nursing students' perceptions of what makes an effective tutor in problem-based learning courses. Results from this survey were very similar to the first survey: students believed effective problem-based learning tutors to be prepared with knowledge and facilitation skills, person-centred, passionate, professional, and able to prepare students for success in the nursing programme. Effective tutors were also able to adjust their approaches to the needs of students in different stages of the course.

Nursing students therefore value tutors who have a student-centred focus and who are responsive to the needs of individual students. In addition to tutors, research has also shown that nursing staff have a noticeable impact on the experiences of nursing students. A Canadian study of students' perceptions of nursing staff in the clinical setting[116] – which involved qualitative interviews with 30 Canadian nursing students – found that nursing staff could exert both a positive (enabling) and negative (hindering) effect on students' clinical learning experiences. Students mentioned that nursing staff could act as positive mentors and motivators. However, the actions of nursing staff could also have a demotivating effect on students, decreasing their confidence, learning and desire to continue in the profession. Such findings align with findings from research undertaken in other national contexts, which provide evidence of nursing staff having a negative impact on students on clinical placements (Bäck, Karlström, 2020; Bradshaw, Tighe, Doody, 2018 – see above).

Midwifery

This review identified no studies relevant to midwifery, within the parameters of the inclusion criteria, pertaining to the experiences and perceptions of students.

Quality and effectiveness of pre-registration education

Nursing

Research into the effectiveness of nursing and midwifery education in Canada is relatively scarce. Research conducted in 2016[117], into the perceived impact of curricular changes in McMaster University's Bachelor of Science in Nursing (BScN) on the performance of four-year nursing students, provides some indicative insights into the ways the Canadian curriculum prepares student nurses for practice. In 2008, the McMaster Mohawk Conestoga BScN Programme was subjected to a comprehensive curricular renewal.

Major changes were made to the curriculum including: 1) 'a focus on clinical reasoning and judgement,' 2) 'an adaptation of problem-based learning', and 3) 'the purposeful integration of pathophysiology and evidence -informed decision-making concepts into core nursing courses.' To assess the impact of the new curriculum on students, 25 faculty members who supervised BScN students in clinical placements both before and after curriculum renewal were interviewed about their perceptions of changes in the performance of fourth-year students. Faculty members discussed numerous positive outcomes of curriculum renewal on student performance, including:

- **Pulling it altogether:** Students had an improved ability 'to pull together the many facets of knowing, skill and reasoning that enabled effective nursing practice at a heightened level from the previous curriculum. This facilitated their being **more prepared for fourth year** expectations, allowed them to **'ramp up' sooner** in each placement in the final year, and consequently facilitated **greater professional confidence'**
- **Seeing the whole person:** Students would 'begin the meetings by discussing a holistic view of the person and would require a probe from the faculty member to also discuss the pathophysiology.
- **Finding their nursing voices:** 'While the importance of client advocacy had always been a component of the previous curriculum, there was evidence of students enacting this advocacy to greater degrees in their clinical practice. Faculty were inspired by the stories students shared about the way they enacted their strong nursing voices professionally and effectively when **communicating with interprofessional (IP) teams, questioning 'usual' practice,** and **advocating for both their clients and themselves.'**

Other research has alluded to potential shortcomings in Canadian nursing education, especially around the role of the community health clinical rotation. A study from 2015[118] found evidence of a gap between observed and desired nursing student competence in community practice settings. The study employed a mixed method design. Firstly, quantitative data was collected through a survey of 187 participants. These included 81 senior nursing students who had recent experience of a community health clinical rotation or a final preceptorship in community health, 87 practicing community health nurses, and 19 faculty members teaching community health nursing at baccalaureate level. A series of focus groups were then carried out with the same respondent groups. Findings revealed that all respondent groups report a statistically significant gap between observed level of performance and desired level of performance of students in community health competencies. Findings from this research suggest that non-traditional community health experiences – that is, those which take place at agencies which are not organizationally affiliated with the health care system and which typically do not employ registered nurses – were largely falling short of preparing students for actual practice roles in community health.

Midwifery

This review identified no studies relevant to midwifery, within the parameters of the inclusion criteria, pertaining to the quality and effectiveness of pre-registration education.

4.5 Australia

4.5.1 Overview

Per Capita spend on healthcare (2019)	7,522.70 Australian dollars (c. £4,159.32)
Number of nurses per 1,000 (2018)	11.92
Number of midwives per 1,000 (2018)	<1 (0.85)
Annual inflow of foreign-trained nurses (2018)	624
Number of graduates (nurses) per 100,000 (2018)	96.04
Number of graduates (midwives) per 100,000 (2018)	5.12

Source: OECD, Health Statistics 2020 (unless otherwise specified)
For comparison, details of the education standards for nursing and midwifery in the UK, along with register data, are included in the annex.

In Australia, nurses and midwives are regulated by the Nursing and Midwifery Board of Australia (NMBA). The primary function of the NMBA is to maintain professional standards and guidelines for nurses and midwives; register nurses and midwives and assess overseas -trained professionals; handle complaints and disciplinaries and approve accreditation standards.[119] Alongside the NMBA, the Australian Nursing and Midwifery Accreditation Council (ANMAC) accredits and sets the standards for nursing and midwifery education, training, and assessment.[120]

4.5.2 Pre-registration education requirements

	Nursing[121]	Midwifery
Programme length (number of hours)	3-year Bachelor's degree	3-years Bachelor's degree[122]
Practice hours and use of simulation	800 hours minimum (though some higher education institutions insist on 1,000)	ANMAC requires that 50% of learning hours must be spent in clinical practice[123]

The current nationally mandated minimum clinical hours (800) for Australian pre-registration nursing courses are believed by many educators to be too low. The 2019 Independent review of nursing in Australia recommended that the Australian Nursing and Midwifery Accreditation Council (ANMAC) and the Nursing and Midwifery Board for Australia (NMBA) increase the minimum clinical placement hours to 1,000 for Registered Nurses.[124]

There are no specified clinical practice hours for midwifery degree programmes in Australia. In line with the requirements of ICM's Global Standards for Midwifery Education, ANMAC's accreditation standards for midwifery courses state only that 'theory and practice are integrated throughout midwifery programs in equal proportions (50 per cent theory and 50 per cent practice).'[125] This means that 'the actual number of clinical practicum hours varies between universities according to how hours of study are apportioned to academic activities within programs.'[126]

Simulation plays an important role in most nursing and midwifery courses in Australia. In pre-registration nursing education, a range of simulation techniques – including role-playing, scenario planning, mock hospital wards, robots, artificial intelligence, computer games – are regularly employed to teach a range of subjects, from birth to end-of-life care.[127] Simulation is no less used in midwifery education. At Western Sydney University, students experience simulation through 'clinical practice units', which are designed to simulate a contemporary hospital ward setting.[128]

However, ANMAC's accreditation standards for both nursing and midwifery education state that clinical practice hours must be completed exclusive of simulation.[129] The 2019 Independent review of nursing in Australia concluded that further research is required into to the efficacy of simulation in the teaching of nursing. As Australia requires a lower number of minimum clinical placement hours than other national contexts, most commentators on the subject have thus far been opposed to substituting face to face practical learning with simulation.[130]

Nursing

Entry requirements for the Bachelor's degree in nursing in Australia vary enormously between institutions. For 2020 entry, the Australian Tertiary Admission Rank (ATAR) required by students for admission to Bachelor of Nursing courses varied from 50.3 to 96.[131] Students typically need to have satisfactorily completed English, Maths and Science as part of their high school certificate.[132]

Alternative entry pathways include Technical and Further Education courses, facilitated entry for students from rural and or low socioeconomic backgrounds, and pre-tertiary study courses.[133]

Provision for recognition of prior learning of applicants to nursing courses is made in Australia, but decisions about RPL are very much at the discretion of individual institutions. It is the responsibility of individual institutions to assess the extent to which a student's previous learning or experience matches the required learning specified in a particular qualification. Southern Cross University, for instance, makes provision for RPL for formal learning (learning gained through study in a structured, accredited Australian program that leads to full or partial achievement of a qualification'), non-formal learning ('learning gained through study in a structured, non-accredited Australian program (such as a short course, seminar, or professional development) that does NOT lead to a qualification') and informal learning ('learning gained through years of paid or voluntary Australian experience, professional standing or performance.')[134]

Accreditation standards for Bachelor's courses in nursing (and midwifery), published by the ANMAC, are aligned to the six objectives of the Health Practitioner Regulation National Law Act 2009. This includes the need to:

- provide for the protection of the public by ensuring that only health practitioners who are suitably trained and qualified to practise in a competent and ethical manner are registered;
- facilitate workforce mobility across Australia by reducing the administrative burden for health practitioners wishing to move between participating jurisdictions or to practise in more than one participating jurisdiction;
- facilitate the provision of high-quality education and training of health practitioners;
- facilitate the rigorous and responsive assessment of overseas-trained health practitioners;
- facilitate access to services provided by health practitioners in accordance with the public interest;
- enable the continuous development of a flexible, responsive, and sustainable Australian health workforce and to enable innovation in the education of, and service delivery by, health practitioners.

Description of course content in the nursing education accreditation standards is very broad and high level. ANMAC's standards for nursing education set out that course content and learning should ensure:

- achievement of the NMBA Registered nurse standards for practice
- integrated knowledge of regional, national, and global health priorities, including mental health and care of the older person
- integrated knowledge of safety and quality standards as they relate to health care
- integrated knowledge of care across the lifespan and across contexts of nursing practice
- equivalence in all delivery modes in which the program is offered.
- integrate knowledge of regional, national, and global health priorities, embed principles of diversity, culture, inclusion, and cultural safety for all people.[135]

Given that the above-listed accreditation standards for nursing courses are so broad and high-level –and given that they do not specify precise learning outcomes or competency statements – there is considerable room for variation in course content between HEPs. The Independent review of nursing in Australia has called for a more precise specification of the core knowledge, skills, and competencies to be expected of registered nurses: more akin to NMC's published competencies.[136]

Midwifery

Entry requirements for pre-registration midwifery courses in Australia are similar to those for nursing. For 2019 entry, the Australian Tertiary Admission Rank (ATAR) required by students for admission to midwifery undergraduate courses varied from 70 to the high 90s.[137]

A Graduate Diploma in Midwifery can also be completed in 18 months from specific providers, provided the student is already a registered nurse (or equivalent) with the Australian Health Practitioner Regulation Agency. Canberra University offers a Masters of Midwifery, able to be completed in 2 years. The prerequisite to entry into this Master's Degree is that the student already be a registered nurse, registered with the Nursing and Midwifery Board of Australia.[138]

Accreditation standards for midwifery education set out more specific requirements than the standards for nursing education. ANMAC's accreditation standards state that students must complete a minimum of continuity of care experiences, which includes engagement with a minimum of 10 women (involving attendance at four antenatal and two postnatal episodes of care as well as labour and birth). Students must also attend 100 antenatal episodes of care; act as the primary birth attendant for 30 women who experience a spontaneous vaginal birth; deliver care for 40 women with complex needs across pregnancy, labour, birth, or the postnatal period; attend at least 100 postnatal episodes of care with women and their babies and undertake 20 full examinations of a new-born infant.[139] These requirements are similar to those stipulated by the EU Directive, but with the addition of continuity of care, while the requirement to undertake 20 full examinations of new-borns is similar to the systematic examinations of new-borns in set out NMC's 2019 standards.

4.5.3 Impact and efficacy of the approach

Key findings

- For Australia, this review identified a range of recent research, exploring:
  - The perceptions and experiences of nursing students (3 studies relevant to nursing students)
  - Deficiencies in Australian **nursing students' understanding of General Practice Nursing** (1 study relevant to nursing) and the **relationship between practicum hours** and **clinical competency in midwifery education** (1 study relevant to midwifery). Both of these studies are summarised under the sub-heading **'Quality and effectiveness of pre-registration education'.**
- The effectiveness of cultural competency and cultural safety education (1 study relevant to both nursing and midwifery education) which will be summarised under the heading 'Equality, diversity and inclusivity'.
- Three notable studies (including one literature review, which summarised findings from a range of preceding research) were identified exploring the use and impact of simulation in nursing and midwifery education (two studies relevant to nursing students; one relevant to nursing and midwifery students)
- This review did not identify any recent research, within the parameters of the exclusion criteria, about the impact of standards on public protection and safety, or the quality and effectiveness of care.

Experiences and perceptions of students

Nursing

Research from Australia provides further evidence that student nurses experience considerable challenges in clinical practice. Studies show that that the clinical environment often challenges students on their confidence and their perceptions of responsibilities for patient safety.

A study published in 2018[140] examined the confidence levels of final year nursing students in patient safety skills, along with the impact of situation awareness training on final year nursing students' confidence in their patient safety skills. The Health Professional in Patient Safety Survey was used to capture students' self-reported confidence in patient safety skills, both before and after receiving situation awareness training. Participants were taken from a convenience sample made up of final year nursing students at a Western Australia university. The results of the two surveys – one taken before situation awareness training and one taken after – were examined by repeated measures in ANOVA.

The study found that final year nursing students generally had high levels of confidence in their patient safety skills, and that incorporation of situation awareness training did not correlate to a significant difference in student confidence in patient safety. However, the study also found that self-reported student confidence in patient safety skills decreased noticeably after being exposed to clinical settings. The report concludes that while further studies are needed to establish whether the findings of this study can be generalised to other university nursing cohorts, the findings from this study suggest that work-place initiatives urgently need to be implemented in order to build patient safety confidence.

A more recent study[141] found that nursing students experience distress and anxiety when they witness clinical practice which is unsafe and detrimental to patient safety while on placement. This two-phased qualitative study – which used Interpretive Description to explore 53 pre-registration nursing students' perceptions and experiences of speaking up for patient safety – found that students believe that speaking up for patient safety is the right thing to do (in fact, it is their professional

responsibility). The study also found that students feel distress when they witness poor clinical practice while on placement which is inconsistent with the high standards which they are taught about at university. Although the inconsistency between what is taught at university and performed in practice causes many student nurses to feel stress and confusion, the study also shows that students do not always feel able to report bad practice. Rather, the clinical environment culture influences students' decisions to speak out about poor practice or remain silent.

A study of 2017[142] explored Australian and UK nursing students' experiences of bullying during clinical placements. Data collected through the Student Experience of Bullying during Clinical Placement (SEBDCP) questionnaire were analysed using descriptive and inferential statistics. The sample consisted of 833 Australian and 561 UK student nurses.

The study found that 50.1% of Australian nursing students experienced bullying while on placement, compared with 35.5% of students in the UK. Other nurses were identified as the main perpetrators of this bullying, while patients themselves were the main culprits in physical acts of bullying. Some students in the study felt that bullying and harassment was 'part of the job', and almost none reported the incidents of it for fear of being victimised. After experiencing or witnessing bullying or harassment on placements, students often question their future career choice, as the perceived 'caring' nature of the profession is incongruous with the bullying they experienced.

Midwifery

This review identified no studies relevant to midwifery, within the parameters of the inclusion criteria, pertaining to the experiences and perceptions of students.

Effectiveness and quality of education programmes

Nursing

Recent literature suggests that the Australian Bachelor of Nursing focuses disproportionately on preparing students for work in hospital or acute care setting, with limited exposure to work in a general practice nursing setting. Furthermore, while transition programmes exist for acute care settings, there are few such programmes oriented towards general practice.

A research project undertaken in 2019[143] explored the experiences of newly registered nurses and their mentors[8] in a new graduate program focused on Australian general practice[9] Interviews were conducted with graduate participants and their mentors on the programme, with interviews taking place at three intervals. Interviewed graduates expressed that 'they had limited understanding of general practice nursing' before embarking on the programme, and that their undergraduate education had 'largely prepared them for acute care employment'.

Only a few graduates had experienced a Primary Health Care placement during their degree, which limited graduates' understanding of the range of career pathways and workplace opportunities besides the traditional acute care settings. As new graduates progressed through the general practice-based programme, many began to change their perceptions of general practice nursing and view it as an important career pathway in nursing. Graduates spoke positively about the diversity of the work involved in general practice and about the need to develop a range of skills to care for patients across the lifespan.

Midwifery

A discussion paper published in 2015[144] addressed specifically the issue of whether or not the allocation of a specific number of clinical practice hours – or acquisition of a mandated number of clinical skills – was conducive to the development of competence. The paper reviewed published evidence relating to the allocation of clinical practicum hours, the number of mandated clinical skills and Continuity of Care Experience (CCE) relationships in the context of learning to be a midwife in Australia. From an assessment of published literature, the paper concluded that 'there is no evidence to date that a set number of experiences or hours ensures professional competence in the clinical environment'. The paper also suggests that a continuity of care approach to clinical learning – rather than a model of clinical learning based around a certain number of clinical experiences or practicum hours – may be better aligned to the values and underlying principles of the midwifery profession, by educating students in more effective, women-centred care. From a review of international studies (all published before 2015) exploring the experiences of student midwives, the paper discovered that students ended up 'chasing the numbers' when charged with the acquisition of a specified number of clinical skills:

> **"The 'tick-box' mentality that results from specified numbers of experiences and hours of practicum forces students to shift their focus from valuing women and the principles of woman-centred care to that of fragmented episodes of care and task acquisition."**

8 Mentors' in the Australian context fulfil the same role as preceptors in the UK.

9 Though the findings from this research are of relevance to this review, it must be stated that general practice nursing in Australia is very different from the UK in consequence of the structure of the Australian healthcare system. In Australia, unlike in the UK, patients can visit any GP which makes it more challenging for general practice nurses to offer continuity of care or manage the long-term conditions of patients, in the way that general practice nurses can in the UK.

In contrast, the paper reported on literature which proposed numerous advantages to a continuity model of care. Continuity of carer models resulted in improved birthing outcomes and increased satisfaction of care for mothers, as well as reducing the pressure for clinical practicum hours in maternity units as students are allocated women with whom they form relationships and accumulate their clinical hours 'with woman' rather than 'with institution'.

Equality, Diversity and Inclusivity:

Nursing and Midwifery

In order to promote greater understanding amongst student nurses and midwives of health issues relating to Aboriginal and Torres Strait Islander people, the Australian Government Department of Health released the Aboriginal and Torres Strait Islander Health Curriculum Framework in 2015.[145] It was designed to support higher education providers to:

> **"implement Aboriginal and Torres Strait Islander health curricula across their health professional training programs. Developed with extensive input and guidance from a wide range of stakeholders around Australia, the Framework aims to prepare graduates across health professions to provide culturally safe health services to Aboriginal and Torres Strait Islander peoples through the development of cultural capabilities during their undergraduate training."**

Universities delivering pre-registration courses for health professions are encouraged to use the Framework in ensuring that they meet and/or exceed the accreditation and registration guidelines for their profession in relation to Aboriginal and Torres Strait Islander health and cultural safety.[146]

Australia has a Congress of Aboriginal and Torres Strait Islander Nurses and Midwives, to represent Aboriginal and Torres Strait Islander nurses and midwives (as well as students undertaking their studies leading to registration and enrolment).

A recent literature review[147] on cultural competence and cultural safety education within post-secondary health science programs in USA, Canada, Australia, and New Zealand reported that educational interventions focused on the teaching of **cultural competence** of healthcare professionals often had limited results. The provision of **cultural safety** education, however, has been shown to yield numerous benefits in the training of healthcare professionals.

The review defines cultural competence as:

> **"the mastery of a set of measurable skills, knowledge, attitudes, and behaviours in which practitioners begin to become self-aware of their own culture in providing quality care to diverse populations. This awareness, solely determined by the practitioner, enables effective work in cross-cultural situations but does not address the inherent power imbalance between the recipient of the care and the healthcare provider."**

Cultural safety, on the other hand:

> **"extends beyond cultural competence, and focuses on the "social, structural and power inequities that underpin health inequalities/ disparities" and is determined and felt by both service-users and practitioners. Cultural safety education, stemming from concerns about the health status of Māori people in New Zealand, prepares practitioners to challenge unequal power relationships that perpetuate health inequalities and disparities of individuals, families and communities."**

The review found that teaching about cultural awareness (i.e., cultural competence) in healthcare science programmes in Australia can have positive results. Research has shown that Australian nursing students have higher levels of confidence and cultural humility during practicum exercises – and exhibit fewer negative attitudes – after completing courses in Australian Indigenous history, culture, and health.

However, despite these positive results, the review also contends that most of the teaching focused on cultural competence/awareness leads only to an acknowledgement of difference; it does not provide adequate teaching about application to practice and often fails to promote respectful or equitable distribution of power between healthcare provider and recipient. Some of the studies reviewed reported that students resist content relating to Aboriginal culture while others referred to an 'educational blind spot' of students who lack an awareness of Indigenous culture and history.

The review points out that cultural safety interventions focused more on community engagement and cultural immersion – facilitating meaningful engagement between healthcare students and Indigenous communities – are more effective in fostering understanding and cultural sensitivity. Studies (summarised by the review) show that the inclusion of Australian Indigenous peoples in education – as reference group members, teachers, and cultural competence trainers – can result in a greater willingness of students to learn about Indigenous culture, leading to a positive shift toward the acceptance of Indigenous people.

Recent research on simulation:

Nursing

Much of the recent evidence on the role of simulation in delivering effective learning outcomes of nursing students in Australia has been summarised in a recent literature review.[148] This review aimed to explore and systematically summarise evidence surrounding the use of simulation activities to assist students in reaching learning outcomes within undergraduate nurse education in Australia. The literature review consisted of two phases:

- **Phase 1:** involved the development of a framework for best practice in simulation which synthesized a number of existing framework elements. The purpose of this was so that the review could consistently measure the effectiveness of different simulation solutions.
- **Phase 2:** involved using the best practice framework to map the evidence around the use and evaluation of simulation in undergraduate nurse education in Australia.

The review found that a broad range of simulation technologies were employed in pre-registration nursing education in Australia, the most common of which were use of high-technology manikins and standardized patients. The review also discovered evidence of deficits in the preparation of teaching staff to make best use of simulation. Few of the reviewed studies reported a detailed strategy to prepare educators in the skills and abilities needed to effectively facilitate simulation, and less than a third of all studies reviewed reported that staff were adequately trained to facilitate simulation. Less than half of the included studies also reported the use of a framework, pedagogy, or learning theory to develop the simulation activity.

The review also found evidence of considerable inconsistency and variability in the means used by educators to evaluate simulated activities, which in turn has engendered limited evidence of the contribution of simulation education to students meeting their learning outcomes. The review recommends that robust and consistent evaluation tools, linked to professional standards for practice, are needed to provide evidence of the contribution of simulation to helping students achieve their learning outcomes.

Other research exploring the use of simulation, in Australia and New Zealand, has highlighted numerous barriers to development and expansion of simulation in nursing education. A recent cross sectional electronic survey,[149] which was distributed to lead academics in pre-registration nursing programmes in Australia and New Zealand, discovered that, although simulation is broadly valued and has been embedded in many curricula in these two countries, staff time, training and resource development constituted barriers to increasing the quality, amount and range of simulation experiences. The survey also found that the allocation of programme hours to simulated learning varied considerably and that quality assurance and robust evaluation of simulated activities were weak.

Nursing and Midwifery

Recent Australian research – exploring the **perceptions of both nursing and midwifery students** – has provided evidence to suggest that more cost-effective technologies can be just effective as high-fidelity virtual reality solutions in providing effective simulated clinical experiences. A study published in 2020[150] explored the effect on student learning and satisfaction of using a three-dimensional pharmacology artefact in a virtual facility (CAVE2™), before comparing against the effect of using a mobile handheld device with stereoscopic lenses attached to view the same object. The study, which involved a pre-test-post-test design, consisted **of 249 second year undergraduate nursing and midwifery students** self-reporting satisfaction levels before and after using the two instruments. The study found that while students scored higher satisfaction scores for clinical reasoning and clinical learning after using CAVE2, students were not disadvantaged in terms of knowledge acquisition when using mobile devices with stereoscopic lenses attached, compared to using CAVE2. The study also found that there were no major differences in student satisfaction with debriefing and reflective practice processes, and a handful of students also rated the handheld instrument more comfortable.

4.6 New Zealand

New Zealand

4.6.1 Overview

Per Capita spend on healthcare (2019)	5,946.00 NZ dollars (c. £3,008.38)
Number of nurses per 1,000 (2018)	10.34
Number of midwives per 1,000 (2018)	<1 (0.56)
Annual inflow of foreign-trained nurses (2018)	1,305
Number of graduates (nurses) per 100,000 (2018)	43.05
Number of graduates (midwives) per 100,000 (2018)	3.55

Source: OECD, Health Statistics 2020 (unless otherwise specified)
For comparison, details of the education standards for nursing and midwifery in the UK, along with register data, are included in the annex.

In New Zealand, nurses and midwives are regulated by separate bodies. Nurses are regulated by the Nursing Council of New Zealand (NCNZ)[151] while midwives are regulated by the Midwifery Council of New Zealand (MCNZ).[152] Both bodies have similar functions and responsibilities, encompassing the registration of nurses/ midwives; setting qualification requirements for registration and accrediting pre-registration education; establishing standards for clinical competence and scope of practice; handle complaints.

4.6.2 Pre-registration education requirements

	Nursing	Midwifery
Programme length (number of hours)	3-year Bachelor's degree[153]	3 or 4-year Bachelor's degree (4,800 hours)[154]
Practice hours and use of simulation	Minimum of 1,100 practice hours with all students entitled to 1,500 hours 'in which to demonstrate competence'[155]	2,400 hours (50% of total learning hours)[156]

Nursing

To become a registered nurse, students must complete a 3-year Bachelor of Nursing degree (level 7 on the New Zealand Qualifications Authority Framework) or a 2-year graduate entry master's degree (level 8 on the New Zealand Qualifications Framework).

Simulation hours are not permitted for inclusion in calculating total clinical placement hours. To ensure that the Nursing Council's Competencies are met, a minimum of 360 clinical experience hours are included in the final semester of the nursing program.[157]

Entry requirements vary by institution. Typically, students need to have 18 credits at level 3 in either Biology, Chemistry or Physics as part of the National Certificate of Educational Achievement (NCEA).[158] Upon graduation, nursing graduates must then sit and pass the State Final Examination to enter the registered nurse scope of practice.[159]

The Nursing Council of New Zealand sets out precise instructions for HEPs in the provision of RPL. The NCNZ stipulates that RPL can be granted on the basis of 'qualifications, life experience, work experience or other educational experience' and that credit for prior learning must be measured against the learning outcomes of the programme. The NCNZ's Handbook for pre-registration nursing education states that:

- 'Each school must have an RPL and Credit Transfer policy and procedure against which to assess individual student applications. These policies and procedures will be reviewed during accreditation of the programme. The application of these policies for individual students will be reviewed during monitoring processes.'
- 'Credit must be granted only on the basis of a student's individual qualifications and experience. The proposed individual programme to be undertaken by the student must be sufficient in theory and clinical experience to enable the student to meet all programme outcomes.'
- 'No credit may be granted for clinical experience papers in the third year of the bachelor's degree or in the final year of a pre-registration master's programme.'[160]

Curricular content of pre-registration education for nurses is focused on contemporary nursing practice and aligned to the competencies for registered nurse scope of practice published by NCNZ. All education courses for nurses in New Zealand must have curricular content which enables students to develop competencies in the following broad areas:

- professional responsibility.
- management and delivery of nursing care.
- interpersonal relationships.
- interprofessional healthcare and quality improvement.[161]

Midwifery

Pre-registration education for midwives in New Zealand consists of a direct-entry Bachelor's degree, for which students must complete a total of 4,800 learning hours over a 3 to 4-year period. The total learning hours equate to 4 academic years, but some institutions deliver their courses over 3 extended academic years (amounting to a minimum of 45 programmed weeks rather than the more usual 36 weeks) to ensure that students receive optimal experiential learning opportunities across the whole year. The MCNZ's Standards for pre-registration education state that at 50% of total learning hours (2,400 hours) must be spent in clinical practice, while 40% (1,920 hours) is spent on theory.[162]

Midwifery practice placements may include 'simulation to a maximum of 240 hours per programme.'[163] This is similar to simulation in practice permitted under the EU Directive.

In addition to pre-registration education, in the first year of registered practice, midwives must undertake an obligatory Midwifery First Year of Practice (MFYP) programme. Run by the New Zealand College of Midwives, the MFYP is a 'funded, structured and individualised programme of one-to-one mentoring, education and professional development designed to support new midwives as they gain confidence as autonomous practitioners.'[164] The MFYP serves a similar function as a compulsory preceptorship, providing a supported and structured learning environment to enable students to transition from education into practice.

Entry requirements for undergraduate courses in midwifery in New Zealand are similar to those for nursing courses. Entry requirements at Auckland University of Technology are: 18 credits at level 3 in either Biology or Chemistry, and 16 credits in one subject from Classical Studies, Drama, English, Geography, Health Education, History, Art History, Media Studies, Social Studies, Te Reo Māori, Te Reo Rangatira, Business Studies, Economics, Physical Education.[165]

Upon completion of their course, student midwives must pass the National Midwifery Examination set by the MCNZ to gain registration as a qualified midwife.[166]

In 2020, the MCNZ approved two shortened midwifery programmes – to be delivered by two HEIs (Ara Institute of Canterbury and Otega Polytechnic) – for applicants who hold current registration and practising certificates with other health professional responsible authorities.[167]

Like the NCNZ, the MCNZ also sets out precise regulations for the recognition of prior learning as part of its education standards:

- 'Each approved midwifery programme must have a Recognition of Prior Learning (RPL) policy and process by which to assess individual student applications.'
- 'In any case where a student is granted more than 75 credits (equivalent to 750 hours) through RPL, the midwifery school must submit the proposed programme of study to the Council for approval within two months of the student entering the programme. The Council reserves the right to decline or amend the programme if it is not assured that the proposed programme will enable the student to meet the graduate profile and Competencies for Entry to the Register of Midwives. This submission must be accompanied with details of the credits granted and the supporting evidence.'
- 'No more than 200 practice hours may be credited without prior approval of the Midwifery Council'[168]

The curricular content of pre-registration education programmes for midwives in New Zealand are closely aligned to New Zealand standards for registration as a midwife and Competencies for Entry to the Register of Midwives.

The MCNZ also specifies as part of its standards for pre-registration education precisely what HEI providers need to cover in their curricula. In this way, the MCNZ mandates precise curricular content with greater specificity than many of the regulatory bodies considered for this project. Midwives need to learn standard theoretical content such as the physiology of pregnancy, labour, birth, and postnatal care, but also Maori health issues including Te Tiriti o Waitangi; Māori health and midwifery care, along with cultural competence for working with Māori women and whānau.[169]

In addition to the specified hours, to be eligible for registration, a graduate's transcript must include the completion of:

- a minimum of 25 follow-throughs where the same woman is cared for in the antenatal, labour and birth, and post-natal period.
- At least 100 antenatal assessments
- At least 100 neonatal assessments
- At least 100 postnatal assessments
- No less than 40 facilitated births
- Care of no less than 40 women with complications during their pregnancy, birth, or postnatal period.[170]

These requirements are similar to those stipulated by the EU Directive with the addition of continuity of care.

4.6.3 Impact and efficacy of the approach

Key findings

- For New Zealand, this review identified three studies, within the exclusion criteria, exploring students' perceptions of the blended learning approach (two studies relating to midwifery students and one study relating to nursing students).
- The review also identified three studies relevant to equality, diversity and inclusivity, focusing specifically on factors that facilitate and hamper Maori participation in nursing and midwifery courses. (two studies relating to nursing and one relating to midwifery)
- This review did not identify any recent research, within the parameters of the exclusion criteria, about the impact of standards on public protection and safety, or the quality and effectiveness of care.

Experiences and perceptions of students

Midwifery

In New Zealand, blended learning – necessitated by the nation's rurality – is the norm. The approach consists of face-to-face, online, and practice-based learning. Each school employs midwifery educators in distant regions who "teach practice skills, run tutorials, assess students, support students and midwives during practice placements and provide students with pastoral support." The blended learning approach is regarded as a success, increasing access for midwifery students, and growing the workforce in rural areas.[171]

A non-experimental descriptive survey published in 2015[172] examined the effectiveness of the blended learning approaches employed for the midwifery programme at the Otago Polytechnic School of Midwifery, by exploring student perceptions of the curriculum and their own readiness to practice. A survey was designed for three cohorts of graduates, who completed their midwifery courses in 2011, 2012 and 2013, respectively. A response rate of 93% (14/15) was achieved in 2011 for a paper survey and 47% (16/34) in 2012 and 50% (20/40) in 2013 with an online survey.

The research found that, overall, students agreed or strongly agreed that the blended approach (for theory, encompassing weekly face-to-face tutorials, intensive block courses, online learning modules and online tutorials) contributed positively to their learning.

Further research on midwifery in New Zealand highlights the importance of students developing effective communication and emotional intelligence skills required to be successful practitioners, via practice placements. However, the 'on call' aspects of clinical practice experience place various demands on both students and supervisors in terms of managing study, work, and home life. In recognition of this, schools have established support mechanisms.[173] This highlights the importance of embedding appropriate pastoral and other types of support for students during their clinical experience.

Nursing

Research has shown that nursing students also have a favourable attitude towards a blended approach to teaching and learning. A recent study,[174] exploring nursing students' perceptions of bioscience content within New Zealand undergraduate nursing programmes (descriptive, cross-sectional survey of 540 nursing students), found that over half of nursing students (55%) prefer biosciences papers be taught in the classroom but using a blended learning delivery instead of an exclusively traditional classroom setting.

Equality, Diversity and inclusivity

In common Australia, it is important that nurses and midwives in New Zealand have good cultural competence and intelligence when administering care, especially in Indigenous (Maori) communities which have historically suffered from poorer health outcomes compared to non-Indigenous New Zealanders.

Nursing

A recent literature review[175] on cultural competence and cultural safety education within post-secondary health science programs has shown that the provision of cultural safety education within nursing education can yield numerous positive outcomes. The review found that nursing students who studied cultural safety education while completing their nursing degree were better able to self-analyse, recognise power structures, and understand historical/political contexts for Maori people.

The review also emphasised the importance of cultural immersion – and the need for nursing students to establish meaningful connections with Indigenous communities as part of their education – to better understand the health needs of the Maori people. The review reported on evidence which found that nursing students were far more proficient in collaborating with communities and in identifying community health needs after completing a week-long cultural immersion program coordinated by local Maori health providers and Elders.

Research has emphasised that to improve the health outcomes of Maori communities in New Zealand, it is necessary to strengthen the presence of Maori people in the health professions. This, in turn, necessitates the entry and retention of Indigenous people in higher education. A recent literature review[176] exploring factors influencing the retention and success of Maori undergraduate nursing students in New Zealand found that the retention of Indigenous students depended largely on three broad themes:

- **Maori student identity:** it is important that the institution provide a culturally safe and supportive environment in which Maori students feel comfortable expressing their identity. At the same time, while many Maori students benefit enormously from the cultural and emotional support of the whānau (family) when undertaking their studies, there is often a lack of understanding on the part of the whanau of the demands of tertiary education. There are also sometimes conflicts between whanau responsibilities and obligations and study requirements. It is important that universities provide whanau with an understanding of the higher education environment through orientation events and ongoing interactions.

- **Institutional support factors:** Peer mentoring has been shown to have a positive impact on Maori student success. Māori peer mentors provided reassurance that success is possible and contribute to increased pass rates. Suitable support services can also assist Maori students academically, as Maori students are more likely than non-Maori students to have lower secondary school results and preparation for their health sciences tertiary study.
- **Program factors:** Ensuring that teaching practices, faculty culture and curriculum contact were culturally friendly also contributed to student retention.

Midwifery

Research into the experiences of Maori students on midwifery courses has returned similar findings. A participation research project undertaken in 2017,[177] through which a Maori researcher interviewed nine Maori students at the Midwifery School of Otago Polytechnic about their experiences on the course, found that Maori students appreciated the opportunities afforded by the blended approach to learning, especially the option to study remotely in their home areas.

However, the students pointed out that they found many elements of the course challenging. These included the structure and organisation of, and orientation to, the course (the travel costs to attend orientation week), the learning and assessment methods (students said they would prefer more face-to-face and more structured meetings) and the lack of visibility of Maori culture in the learning environment. Students suggested recommendations for changes that would improve the learning experience for Māori students. Students 'identified that culturally sound relationships with lecturers, fellow students and midwives in practice, as well as more iwi/whānau involvement (including greater representation of Māori tutors among academic staff), plus course advice and dedicated academic support, would assist them to be successful in their goal to become registered midwives.'


11
12
13
14
15
16
17
18

4.7 United States of America

USA

4.7.1 Overview

Per Capita spend on healthcare (2019)	$11,071.70 (c. £7,999.36)
Number of nurses per 1,000 (2019)	12.48[178]
Number of midwives per 1,000 (2018)	<1 (0.019)[179]
Annual inflow of foreign-trained nurses (2015)	6,470
Number of graduates (nurses) per 100,000 (2018)	63.19
Number of graduates (midwives) per 100,000 (2016)	<1 (0.26)

Source: OECD, Health Statistics 2020 (unless otherwise specified)
For comparison, details of the education standards for nursing and midwifery in the UK, along with register data, are included in the annex.

Nursing education and practice in the USA is regulated at the state level. Each state has its own Nursing Regulatory Body (NRB), a jurisdictional government agency, and a Board of Nursing (BON). The NRBs make up the membership of the National Council of State Boards of Nursing (NCSBN), which issues some guidelines for nursing practice and education at the federal level. Nursing programmes are also generally accredited by the American Association of Colleges of Nursing (AACN).

There are three types of midwife in the USA: Certified nurse midwives (CNMs), certified midwives (CMs), and certified professional midwives (CPMs). While CNMs are licensed to practice in all 50 US states, CMs are currently limited to practicing in five states (New York, New Jersey, Rhode Island, Maine, Delaware), and CPMs are authorized to practice in 31 states. They are governed by different institutions: CNMs and CMs are administrated by the American College of Nurse-Midwives (ACNM) and CPMs by The Midwives Alliance of North America (MANA) and (National Association of Certified Professional Midwives) NACPMs'.[180]

Although the Scope of Practice of CNMs and CMs very similar, for CPMs, 'Practice is generally limited to the care of low-risk women and their new-borns throughout the childbearing year.'[181]

4.7.2 Pre-registration education requirements

	Nursing	Midwifery
Programme length (number of hours)	**4 years** (Bachelor of Science in Nursing) **2 years** (Associate Degree in Nursing) **2-3 years** (Registered Nurse Diploma)[182]	Typically, 2 years of specialist post-graduate study (CNMs and CMs)[183] **OR** Apprenticeship model consisting of 2 years of clinical training (CPMs)[184]
Practice hours and use of simulation	Average number of clinical hours: **733** (Bachelor's programmes) **621** (Associate Degree Programmes) **737** (Diploma Programmes)[185]	Not specified, but 1,000+ hours are typical[186]

Nursing

In the USA, there is huge variability in the number of practice hours set by State Boards of Nursing BONs. Bowling et al's review of 50 US Boards of Nursing requirements for pre-licensure education found that 30 contain some rules about clinical education such as defining 'clinical', setting the number of hours, or the use of simulation. Only 10 set a specific number of clinical hours for prelicensure programmes. The number of clinical hours set by the 10 BONs range from 400 to 750h, with an average of 510h.[187]

According to Daisha et al, in the absence of specific evidence or regulatory requirements, schools of nursing have used various methods to determine the number of clinical hours in their programmes. These include:

- 'ritual and tradition' – i.e., it has always been done that way
- Schedule convenience
- Availability of clinical sites[188]

There have been several published recommendations regarding the amount of clinical time required to reach competency in advanced nursing practice in the USA, however there is a dearth of literature related to acquiring competency based on clinical hours in prelicensure nursing.[189] Whilst there is a growing body of research into the use of simulation – including the NCSBN national simulation study, there are no studies on the quality of and minimum hours needed for hands-on clinical experiences.[190]

In the absence of robust evidence on the optimum number of hours required for supervised clinical experience, the NCSBN's model rules suggest that the number of hours should be comparable to clinical hours in similar programmes, such as those with the same level of education and those of comparable size. According to Hayden (2010), the average number of clinical hours for RN programmes are:

- associate-degree programs = 621
- diploma programs = 737
- baccalaureate programs = 733
- master's entry programs = 780[191]

Simulation is widely used in pre-registration education in nursing in the USA. Simulation has been embedded into many aspects of undergraduate learning in nursing and is now widely used to teach students about end-of-life care, anatomy, mass casualty and multi-patient situations. Virtual reality simulations are also increasingly being used in pre-registration nurse education.[192]

From 2015, NCSBN guidelines permit up to 50% of practice hours in nursing degrees to be substituted for simulation, provided that such simulations are sufficiently realistic.[193]

There are numerous pathways into nursing in the USA. The Bachelor of Science in Nursing (BSN) is the most popular route and consists of a 4-year course. Alternative routes to registration as a nurse in USA are the Associate Degree in Nursing (ADN), which can be completed in 2 years. There is also the Registered Nurse Diploma (RND) which can be completed in 2-3 years. Although all these courses allow students to sit the national registration examination to acquire a license to practice, increasingly, hospitals are requiring nurses to have the BSN as a minimum.[194]

Prerequisites for enrolment onto the BSN, ADN and RND are minimum scores on the SAT or ACT, along with at least 3 years of maths subjects (including algebra II and geometry), 3 years of science subjects (including chemistry and biology), 4 years of English and 2 years in any other foreign language. Following graduation from the BSN, ADN and RND, applicants must then pass the national registration examination – the NCLEX-RN exam – administered by the National Council of State Boards of Nursing (NCSBN) in order to receive the Registered Nurse Licence and begin practice.[195]

Shortened, accelerated BSN courses exist for those who already have a Bachelor's degree. Students who have already completed the RND or ADN can apply for a shortened BSN which can normally be completed in 2 years. Students with Bachelor's degrees in a non-nursing field may enrol in an accelerated or "second degree" BSN that allows them to transfer general education requirements. Students typically complete this degree in less than two years.[196]

Since pre-registration education for nurses is regulated and approved at the state level, by each Board of Nursing (BON), there is considerable variation in course content between different states. There is, however, some curricular consistency in nursing courses throughout the USA. According to Nancy Spector et al:

> **"Most BONs require that a nursing program curriculum include courses in the biological and social sciences, as well as nursing theory courses focusing on specific areas of practice across the lifespan. Additionally, didactic content and associated clinical experiences should focus on the prevention of illness and the promotion, restoration, and maintenance of health in patients of all ages and from diverse cultural, ethnic, social, and economic backgrounds... Because nurses are broadly licensed to practice in all patient settings across the age continuum, including medical-surgical, obstetrics and newborn, pediatrics, and psychiatric-mental health, most BONs require theoretical content and direct patient care (besides simulation) experiences in all areas of practice as part of their public protection missions."[197]**

Midwifery

To be admitted to CNM or CM programme, applicants need to have a Bachelor's degree from an accredited college or university. CNMs also need to have earned their Registered Nurse licence either prior to or during their post-graduate midwifery education program. CMs do not need to acquire the nurse's licence, but they do need to be able to demonstrate 'successful completion of required science & health courses and related health skills training prior to or within midwifery education program.'[198]

CPM educational programmes have a range of different admission requirements but generally the NARM requires a minimum of high school diploma or equivalent and graduation from an accredited program or completion of the Portfolio Evaluation Process (PEP). The PEP includes documentation of clinical midwifery experience, as well as competency in skills identified in the NARM Job Analysis.[199] Like nurses, CNMs and CMs need to pass a national certification examination administered by American Midwifery Certification Board (AMCB) to receive the professional designation of CNM/CM and enter practice.[200]

Accelerated courses exist for CPMs educated through nonaccredited midwifery programs. CPMs in this position can complete the NARM Midwifery Bridge Certificate to meet the requirement for accredited education[201]
The Accreditation Commission for Midwifery Education (ACME) sets out specific requirements on the number of clinical experiences which CNMs and CMs must undertake in order to qualify for registration. Student midwives studying to become CNMs and CMs must complete: 10 preconception care visits, 15 new antepartum visits, 70 return antepartum visits, 20 labour management experiences, 20 births, 20 new-born assessments, 20 early postpartum visits, 15 postpartum visits, 10 breastfeeding support visits, 20 family planning visits 40 gynaecologic visits, 40 primary care visits.'[202]

4.7.3 Impact and efficacy of the approach

Key findings

- In the USA, the research agenda for nursing education has been dominated by:
  - the issue of a lack of agreement on the optimum number of practice hours and,
  - the question of simulation as a substitution for clinical learning hours.
- The review identified seven recent studies, within the parameters of exclusion criteria, relating to quality and effectiveness of pre-registration education. Five of them relate to nursing students while two of them relate to midwifery. Two of these studies relate specifically to the relationship between prescribed practice hours and nursing student learning outcomes.
- The review also found six recent studies which explored the impact of simulation on achieving student learning outcomes (five studies relating to nursing students; one relating to midwifery students)
- The review identified only one study exploring the experiences and perceptions of student nurses, and one study relevant to equality, inclusivity and diversity in nursing education (looking at the experiences of students with English as a second language). No studies relating the experiences of midwifery students were identified.
- This review did not identify any recent research, within the parameters of the exclusion criteria, about the impact of standards on public protection and safety, or the quality and effectiveness of care.

Quality and effectiveness of pre-registration education:

Nursing

Research in the USA has reported on the unpreparedness of new graduates when entering the nursing profession. They are typically found to lack critical thinking and leadership skills and they may struggle with anticipating interventions and recognising symptoms indicating deteriorating health.[203] Feedback from employers that new graduates are not practice-ready has also impacted on the number of clinical hours that nursing schools include in their curricula: numbers of hours tend to be higher in programmes where employers have said that new graduates are not practice ready.[204]

However, while there exists considerable variability in the prescribed minimum practice hours for pre-licensure nursing education between the US states, recent research has suggested that there is no discernible link between the prescribed number of clinical practice hours and the achievement of specific learning outcomes. A recent comparative descriptive study,[205] which compared the number of clinical and simulation hours on four pre-licensure nursing programmes (two Associate Degrees in Nursing and two Bachelor of Science in Nursing), concluded that there exists significant variation in the requirements for clinical experience between the four courses, both in terms of the minimum clinical practice hours and in terms of the extent of use of simulation. The study also involved an interrogation of NCLEX performance data for all of the students who completed the courses (271 students in total). The findings from the study showed that 'although the variability of clinical hours across ADN and BSN programs was substantial for some courses, the programs' licensure examination results were not commensurate with clinical hours'. The study concluded 'These findings underscore the difficulty in identifying the optimum range of clinical and simulation hours and the optimum distribution of these hours.'

Further evidence from the USA supports the claim that a higher number of clinical practice hours does not equate to better outcomes. A recent descriptive study[206] examined the relationship between clinical hours, programme type and NCLEX pass rate. A total of 107 nursing schools were surveyed, drawn from a sample of 722. Multiple linear regression analysis revealed there was no correlation between programme type and NCLEX pass rates or the total number of clinical hours in a school and NCLEX pass rates. The findings go on to suggest that the NCLEX may not be accurately measuring what students learn in clinical practice and that the quality of clinical education may be more important than quantity.

Recent American research has also focused on the impact of alternative models of teaching clinical skills. A study published in 2018[207] examined the effectiveness of a Dedicated Education Unit (DEU) clinical teaching model – a teaching strategy whereby a whole unit of a health facility is devoted to nursing students from a single course and staffed by nurses who are given professional development as educators – in developing students' self-efficacy[208] and attitude towards team-working. The DEU model was compared against a blended clinical teaching model and a traditional approach which consisted of faculty-supervised clinical practicum. A convenient sample of 272 entry-level nursing students were divided into 3 groups:

- 84 participated in a dedicated education unit model treatment group
- 66 participated in a blended model treatment group
- 122 participated in a traditional model control group

Pre- and post-tests were then used to measure students' perceived self-efficacy and their attitudes towards teamworking. Statistical analysis revealed that all three clinical teaching models resulted in significant increases in both clinical self-efficacy and attitude toward team process. However, increases were noticeably higher for students who participated in the dedicated education unit model and in the blended model, compared to students participating in the traditional model. The research concludes that findings support the use of DEUs and blended clinical partnerships as effective alternatives to traditional approaches to teaching clinical skills.

Midwifery

Recent research into midwifery education in the USA has revealed that a shortage of clinical sites and preceptors[10] continues to be a challenge. Midwifery education programmes compete with medical and Advanced Practice Registered Nurse (APRN) programmes for a relatively small number of clinical sites and preceptors and most midwifery programme educators report finding clinical sites for students to be a significant challenge.[209] The current model of midwifery clinical training – based around a one-to-one relationship between a student and preceptor – also puts pressure on the educational system by limiting the number of students that can be trained by the number of available preceptors. Research[210] undertaken into the effectiveness of an alternative learning model in midwifery education – known as the clinical learning dyad model (CLDM), which pairs two midwifery students with one preceptor in a busy practice – has highlighted numerous advantages to an alternative approach. The model began as a pilot project to improve student access to training and the research paper provides results of a midterm and one-year postintervention survey. Students and preceptors who participated in the CLDM noted several advantages, including increased student accountability, enhanced socialization into the profession, improved learning, and reduced teaching burden on preceptors. Participants also stated that the CLDM encouraged students to form a learning community and collaborate with preceptors to care for women in busy clinical settings.

10 In the USA, preceptors serve a similar function to the practice supervisor in the UK.

Experiences and perceptions of students

Nursing

Recent research focused specifically on student experiences in the US context is scarce compared to more dominant research fields of clinical hours and simulation. A descriptive study from 2015[211] examined nursing students' perceptions of the effectiveness of clinical supervisors. Data were collected from 236 BSN students at a Midwestern USA comprehensive masters university, who completed the Nursing Clinical Teacher Effectiveness Inventory (NCTEI) and the student self-efficacy (SSE) questionnaire. Results showed that students from the higher self-efficacy group (i.e. those who were grouped according to the SSE questionnaire as exhibiting higher levels of self-confidence) scored 'evaluation' higher than lower self-efficacy students. This means that, for students with higher levels of self-efficacy, the evaluations they received from their clinical supervisors increased their clinical self-confidence. More specifically, students from the higher self-efficacy group reported that supervisors who suggests ways to improve, identifies strengths and weaknesses of student, observes frequently, communicates expectations, gives positive reinforcement and corrects without belittling were most helpful in increasing student self-confidence.

Midwifery

This review identified no studies relevant to midwifery, within the parameters of the inclusion criteria, pertaining to the experiences and perceptions of students.

Equality, diversity and inclusivity:

Nursing

In the USA, English as-a-Second Language (ESL) students enrolling on pre-licensure nursing programmes experience numerous challenges. This leads to high attrition rates for ESL students, especially on the Fundamentals of Nursing Practice course, which is an entry-level course which determines a student's eligibility for continuation. A recent qualitative study,[212] which employed a descriptive phenomenological approach, was undertaken to explore the experiences and challenges of a group of culturally diverse ESL nursing students who passed an Associate Degree Nursing (ADN) program in the North-eastern United States. The purpose of the study was to examine challenges and barriers to ESL students but also to explore what helped these particular students to succeed in their course. Data were collected from six ESL students using a combination of open-ended survey questions and face-to-face interviews. Challenges commonly cited by the students were language barriers, a lack of faculty support and mentorship, difficulties adapting to teaching and learning styles, and a lack of critical thinking and application skills. Participants also discussed difficulties with concepts and applications in clinical practice, as well as experiencing racism and discrimination in the learning environment. While the research highlighted a number of coping mechanisms and strategies used by ESL students to overcome these challenges – most notably a shared determination, the formation of study groups and autodidact activities like watching YouTube videos repeatedly until the concepts started making sense – the study concludes that teaching strategies used for the Fundamentals of Nursing course were not sufficient to support ESL students and that faculty support was generally lacking.

Midwifery

This review identified no studies relevant to midwifery, within the parameters of the inclusion criteria, pertaining to equality, diversity and inclusivity.

Recent research on simulation

Simulation – and its effectiveness as a tool in teaching clinical skills and delivering learning outcomes – represents a growing field of research in pre-licensure nursing education in the USA. Perhaps the most high-profile research influencing pre-licensure nursing education in recent years was conducted in the USA by the National Council of State Boards of Nursing (NCSBN).[213] This study was a precursor to the introduction of a set of national guidelines for using simulation in nursing pre-registration education. The study was instigated partly in response to a lack of robust evidence on the efficacy of simulation in nursing education. Its overall aim was to explore the extent to which simulated clinical experiences could effectively substitute for traditional clinical hours in pre-licensure nursing education.

The research consisted of a large-scale randomised controlled trial which measured the effect of replacing either 25% or 50% of total clinical hours with simulation on 10 pre-licensure nursing programmes. Incoming nursing students on the 10 selected pre-licensure nursing courses were randomised into 1 of 3 study groups:

- 25% group: Students with 25% of their traditional clinical hours replaced by simulation
- 50% group: Students with 50% of their traditional clinical hours replaced by simulation.
- A control group: Students with no more that 10% of clinical hours replaced by simulation.

The study commenced in the first semester of 2011 and tracked students' progress – with students' clinical competency and nursing knowledge being assessed – until graduation in 2013. A total of 666 students completed the study requirements at the time of graduation and were included in the study.

At the end of the nursing education programme, the study found:

- No statistically significant differences in the NCLEX pass rates between the study groups (25% and 50% of clinical hours replaced by simulation) and the control group
- No statistically significant differences in clinical competency, as assessed by clinical preceptors, between the three groups.
- No statistically significant differences in nursing knowledge assessments between the 3 groups.

Furthermore, students perceived various benefits to their learning.

The research also involved a study of the new graduates and their managers during their first six months of employment. Managers were asked to rate the new graduates' readiness for practice and their overall competency. The study found no difference between the three groups.

The study concluded:

> **"The results of this study provide substantial evidence that substituting high-quality simulation experiences for up to half of traditional clinical hours produces comparable end-of-program educational outcomes and new graduates that are ready for clinical practice."**

The research thus concludes that up to 50% of clinical hours can be effectively replaced by simulation. As a result, the NCSBN developed Simulation Guidelines for Prelicensure Nursing Education Programmes, which are being adopted by some state boards.

Other research in the United States has explored the impact of simulation on critical thinking skills of nursing students. A recent qualitative causal-comparative study[214] employed a pre-test/post-test methodology to measure the effects of simulated learning on the critical thinking skills of 69 junior nursing students at a mid-western American university. The students were recruited from a convenience sample and divided into two groups: of a simulation group (n = 36) and a written case study control group (n = 33). Students took the pre-test, the experienced three weeks of being in either the simulation group or the control group before taking the post-test. The study found no significant difference between the mean critical thinking scores of nursing students who took part in simulation, compared to those who used written case studies. However, results also showed no significant difference in mean critical thinking scores between pre-test and post-test scores. The study concludes that there is insufficient evidence to support the use of high-fidelity simulation as a teaching strategy to increase critical thinking skills of nursing students.

Empirical evidence supporting the use of high-fidelity simulation in other areas of pre-licensure nursing education is also limited. According to a recent literature review,[215] while there exists evidence to suggest that high-fidelity simulation increases nursing students' knowledge and confidence, and that students are more satisfied with simulation-based teaching compared to other methods (online learning or classroom lecture), more research is needed to explore the effectiveness of simulation in reducing the theory to practice gap and in evaluating knowledge retention. Further research is also needed in assessing the transferability of simulated learning to real patient situations and the impact of simulation on patient outcomes.

Research published in America also revealed significant differences in the ways simulation is used in the teaching and assessment of nursing students in different states and in different nursing schools. A literature review undertaken by Doolen et al.,[216] which examined research undertaken into the use of high-fidelity simulation in undergraduate nursing education in the USA, drew attention to significant differences in the design and assessment methods used for high-fidelity simulation. This was found to lead to a wide variety of measurement outcomes and a variety of limitations – including weak designs, mixed samples, and a lack of valid and reliable evaluation tools - suggesting a need for

> **"methodologically sound research that translates simulation outcomes to future performance and practice."**

The review recommended that a more standardised approach to the implementation of high-fidelity simulation by nurse educators is needed. This research suggests that, in spite of the publication of the NCSBN's guidelines on the use of simulation in pre-licensure nursing education, a nationally consistent approach to the adoption of simulation as a learning tool is yet to be established.

A more recent study, by Smiley, paints a more encouraging picture. Building off the NCSBN's National Simulation Study of 2014, Smiley[217] conducted a follow-up national survey of US pre-licensure nursing programmes which explored clinical hours and the extent of use of simulation. The overall aim of the study was to examine the impact of the National Simulation Study and NCSBN's National Simulation Guidelines. The survey found that the National Simulation Guidelines had left an impact in how simulation was being used in nursing schools. Of those nursing programmes which allowed substitution of clinical practice hours for simulation, the majority substitute simulation for clinical hours in a 1:1 ratio of simulation to clinical hours.

Midwifery

Research into the use and effectiveness of simulation in midwifery education in the USA is considerably more limited. One study from 2015[218] described the implementation and evaluation of a hybrid simulation of emergency birth situations used in a graduate midwifery programme. Between 2011 and 2012, nurse-midwifery students on the graduate programme twice participated in two simulated emergencies scenarios replicating shoulder dystocia and postpartum haemorrhage. The study, which reported on the outcome and evaluation of the simulation, concluded that students found the simulated experience to be realistic. The study also found that the use of best practices (such as repetitive practice, team learning, small group debriefing, and large group debriefing) enhanced the quality of the simulation experience and promoted learner reflection about their professional skills, strengths, weaknesses and confidence.

4.8 The Philippines

Philippines

4.8.1 Overview

Per Capita spend on healthcare (2019)	6,662.20 Philippine Peso[219] (£99.60)
Number of nurses per 1,000 (2019)	<1 (0.06)[220]
Number of midwives per 1,000 (2018)	<1 (0.17)[221]
Annual inflow of foreign-trained nurses (2015)	-
Number of graduates (nurses) per 100,000 (2018)	-
Number of graduates (midwives) per 100,000 (2016)	-

OECD does not possess data for the Philippines. Relevant data have been acquired through interrogations of Philippine Statistics Authority, but data were not available for all of these categories.
For comparison, details of the education standards for nursing and midwifery in the UK, along with register data, are included in the annex.

In the Philippines, nursing practice is regulated by the Professional Regulatory Board of Nursing, which sets the standards for nursing and midwifery education in the Philippines. All Bachelors' of Science in Nursing must also be approved by the Commission on Higher Education (to which the Board of Nursing makes a recommendation following its quality assessment), which regulates higher education in the country.

4. 8.2 Pre-registration education requirements

	Nursing[222]	Midwifery[223]
Programme length (number of hours)	4-year Bachelor's degree	4-year Bachelor's degree **OR** 2-year Diploma
Practice hours and use of simulation	2,346 hours	2,346 hours (Bachelor's degree) 1,275 hours (Diploma)

The use of simulation is encouraged as a learning tool for both nursing and midwifery education in the Philippines. The National Nursing Core Competency Standards Training Modules encourages the use of simulation particularly when teaching/learning acute care, as well as when assessing children (and younger) patients.[224] In midwifery education, it is common for students to be taught how to deliver a baby using simulation, including making use of simulated beds and operating rooms.[225]

Nursing

Nurses must acquire a licence to practice in the Philippines. After completing the 4-year Bachelor of Science in Nursing (BSN), graduates must sit and pass the Nursing Licensure Exam (NLE). This is conducted twice a year, by the Professional Regulation Commission in conjunction with the Professional Regulatory Board for Nursing. The exam is made up of five parts and candidates must achieve an average rating of 75% overall – and a rating of no less than 60% in any of the five parts/ subjects - in order to pass the exam.[226]

English language proficiency directly impacts students' performance in the NLE. This is because English is widely used in highly technical fields, such as nursing: 'English as a medium of instruction has been adopted for decades by Philippine nursing schools. Published academic research and major references used in nursing schools in the country are written mostly in English.'[227]

The Philippines' Commission on Higher Education (CHED) on the Policies, Standards and Guidelines for the Bachelor of Science in Nursing[228] provides no details about provisions for the recognition of prior learning.

CHED's policies, standards, and guidelines for the Bachelor of Science in Nursing states that HEIs are 'allowed to design curricula suited to their own contexts and missions provided that they can demonstrate that the same leads to the attainment of the required minimum professional nursing outcomes.' HEIs must ensure that their courses in nursing deliver the certain programme outcomes - which graduate nurses need to be able to exhibit- including providing safe, appropriate, and holistic care to individuals, families, and community, communicate effectively in speaking, writing, and presenting using culturally appropriate language, and engaging in lifelong learning.[229]

Midwifery

Philippines – Cautionary note:
Although this review includes an overview of the education standards for midwifery in the Philippines, the scope of practice of midwives educated in the Philippines is limited compared to midwives in the UK. According to the 2010 Philippine Midwifery Act, the practice of midwifery in the Philippines involves the management of normal deliveries, which consists of activities such as managing discomfort, preventing complications, preparing for delivery and postpartum check-up.[230]

This means that the education standards for Philippine midwives are not directly analogous to standards in the UK. While midwifery in the Philippines is here included to demonstrate differences as much as parallels, caution must be exercised when drawing comparisons against midwifery in the Philippines.

There are two alternative routes into registered practice as a midwife in the Philippines. Students can either study the 4-year Bachelor of Midwifery Science (BSM) or the 2-year Diploma in Midwifery. According to the Philippines' Commission on Higher Education (CHED) on the Policies and Standards for Midwifery Education,[231] the main difference between the two courses is that the BSM aims to develop **'higher level competencies** of a midwife as a health care provider', whereas the Diploma prepares students for **entry-level midwifery competencies. In both cases, however, scope of practice is limited compared to midwives in the UK.**

Graduates of the BSM and the Diploma in Midwifery must sit and pass a national exam – the Midwifery Board Exam - to register to practice. This exam is conducted twice a year by the Professional Regulation Commission in conjunction with the Professional Regulatory Board for Nursing.

A pass rate of at least 75% overall, and not less than 50% in any subject is required to pass the overall exam.[232]

The Philippines' Commission on Higher Education (CHED) on the Policies and Standards for Midwifery Education provides no details about provisions for the recognition of prior learning.

In terms of course content, the 2-year Diploma in midwifery is designed to teach students the entry-level skills and competencies needed by midwives to **'give the necessary supervision, care and advice to women during pregnancy, labour and post-partum period; manage normal deliveries on her own responsibility and care for the child.'** [233]

More specifically, graduates of the Midwifery Diploma are expected to be able to:

- Obtain pertinent history
- Perform physical assessment including vital signs taking
- Do simple laboratory examinations such as haemoglobin determination and urine test for sugar and albumin;
- Assess the progress of labour;
- Perform relevant midwifery procedures;
- Provide appropriate care to the mother and the new-born;
- Provide life-saving measures during obstetrical emergencies such as administering IV fluids and cardiopulmonary resuscitation;
- Detect abnormal conditions of the mother and/or new-born; and
- Facilitate referrals as necessary
- Implement government health programs following proper protocols;
- Administer first aid measures as needed
- Give appropriate health teachings to individuals, families and the community;
- Supervise barangay health workers;
- Manage a barangay health station[234]

During the clinical practicum, students on the Midwifery Diploma learn about managing pregnancy, labour and delivery, with specific learning objectives around comfort measures, positioning (in preparation for labour), delivery technique, Ritgen's manoeuvre and aftercare including treating lacerations. **However, since teaching is focused on preparing graduates for managing 'normal pregnancies' – and not on teaching students how to attend to complex obstetric situations – students who complete the Midwifery Diploma lack the full scope of practice required of midwives in the UK.**

Students on the BSM are expected to develop higher-level competencies, centred on a broader range of functions including family planning, healthcare education in the community and Community Health Service Management. The BSM is intended to prepare graduates for higher-level leadership and educational roles, such as midwife teacher/supervisor, researcher, clinic manager or health programme manager. Students on this course are also taught more about the management of obstetric emergencies.

More specifically, graduates of the BSM are taught to:

- Provide the necessary supervision, care, and advise to woman with a high-risk pregnancy in the absence of a specialist.
- Correctly interpret diagnostic examinations related to midwifery care and act accordingly.
- Execute life-saving obstetrical management during emergency cases.
- Assist in a caesarean section procedure as a scrub/circulating assistant.
- Provide post caesarean section care.
- Provide basic and comprehensive family planning services.
- Administer appropriate drugs according to proper protocol.
- Manage a Midwifery Educational Program and Reproductive Health Care Facility/Program.
- Conduct classes in Midwifery courses.[235]

4.8.3 Impact and efficacy of the approach

Key findings

- For the Philippines, this review identified one recent study, within the parameters of the exclusion criteria, which explores strategies to improve the 'fit-for-practice' workforce – and so improve quality of healthcare service – for users in the Philippines. This study has been treated under the sub-heading 'Quality and effectiveness of care for service users.'
- The review also identified two recent studies, within the exclusion criteria, exploring the perceptions and experiences of nursing students, and three studies relevant to the quality and effectiveness of pre-registration nursing education. Two of these studies examine the theory-practice gap in Philippine nursing education, the other examines the self-reported competency levels of nursing students.
- The review did not find any recent evidence, within the parameters of the exclusion criteria, specifically focused on midwifery students.
- This review did not identify any recent research, within the parameters of the exclusion criteria, about the impact of standards on public protection and safety.

Quality and effectiveness of care for service users

Nursing and Midwifery

In the Philippines, the out-migration of highly trained health personnel has led to a gap in the domestic supply of qualified health workers. This in turn has had a detrimental effect on the quality of care delivered to communities within the Philippines, especially in rural and under-resourced areas.[236]

A recent international review[237] – exploring the impact of various strategies designed to improve the supply of 'fit for purpose' health workforces to under-resourced communities – has drawn attention to a promising health education intervention in the Philippines designed to rectify this gap in domestic supply of health workers. The 'Stepladder' programme at the University of the Philippines Manila School of Health Sciences is a 'sequential and continuous curriculum' which takes students from under-served communities onto nursing, midwifery, and medical courses, in order to produce health care workers to serve under-resourced communities. The programme both draws on and strengthens the social capital of poorer communities: the School, the students and the sponsoring community enter into a social contract ensuring that students return and serve in their community. The review concludes that 'While this [programme] has not been independently evaluated, it is likely that social capital built over time contributes to the high retention rates of more than 80% of graduates still working in disadvantaged regions.'

Experiences and perceptions of students

Nursing

Studies into the perceptions of Filipino nursing students of their educational experiences have alluded to numerous problems relating to teachers/instructors. A study of 2016[238] used a cross-sectional survey to measure the perceptions of medical laboratory science students and nursing studets of their academic learning environment. 341 students from the Department of Medical Laboratory Science, School of Natural Sciences, and the School of Nursing at Saint Louis University in the Philippines answered the Dundee Ready Education Environment Measure (DREEM) instrument from April to May 2016. The study found that while students broadly viewed their academic learning environment as 'more positive than negative', nursing students identified a range of problem areas. Most of these problems related specifically to students' instructors, although the greatest problem area was identified as 'over-emphasis on factual learning.' On instructors, nursing students raised problems such as 'teaching is too teacher-centred,' 'instructors ridicule the students,' 'instructors are authoritarian,' 'instructors get angry in class,' and 'the students irritate the instructors.'

The study states that 'the behaviour of instructors may cause stress for nursing students.' Research has shown that Filippino nursing students place a high premium on their instructors' interpersonal abilities and caring behaviour. A study published in 2017 (Factor, de Guzman, 2017)[239], which sought to explore students' preferences in instructor qualities, recruited 227 junior and senior nursing students 'from one of the comprehensive universities in the Philippines' and asked them to sort orthogonal cards generated by Sawtooth Software. Conjoint analysis was then conducted on their results. Findings from the analysis revealed that, while students rated clinical teaching capacity as the most important attribute in teachers, this was closely followed by interpersonal relationship and caring behaviour. Within these broad categories, students indicated that they valued a 'clinical instructor who parallels clinical teaching skills with the students' understanding and experience' as well as a 'clinical instructor who respects a student nurse as an individual and cares about him/her as a person.'

Quality and effectiveness of pre-registration education

Nursing

Research conducted in the Philippines has provided evidence of a theory-practice gap in the delivery of nursing education. A qualitative investigation of 2017[240] – in which 10 senior nursing students at a comprehensive university in the Philippines were interviewed about their learning experiences – reported on three critical deficits in students' exposure to clinical practice which represent the manifestation of the theory-practice gap.

These deficits are:

- Structural deficits – when hospitals and clinical practice settings lack the necessary resources to allow students to provide optimal patient care.
- Pedagogical deficits – When students on placement discover that the theories, principles, operations, and procedures they learned in class do not translate seamlessly into the clinical setting.
- Relational deficits – when students on placement observe that staff nurses provide care which does not correspond to ideal clinical practice which they learned about in theory.

Students who experience these deficits report on feelings of confusion and frustration when transitioning from theory to clinical practice.

Other research, however, has downplayed the severity of the theory-practice gap by suggested that theoretical study provides effective and meaningful preparation for clinical practice. A 2019 study[241] explored the relationship between theoretical classroom instruction and Related Learning Experiences (RLE) of nursing students in the Philippines. The study employed a descriptive correlational research design, using academic records data relating to all the graduates of the Bachelor of Science in Nursing from the West Visayas State University, covering a five-year period (2013 to 2017). Data related to 653 nursing students. Results of the analysis revealed evidence of 'a significant positive elationship between performance in theoretical classroom instruction and RLE of nursing students.' In other words, 'nursing students who performed poorly in their classwork in nursing school also performed poorly in the RLE or practicum of the course. On the other hand, nursing students who excelled academically in theoretical classroom instruction were more likely to do well in the practical component of the course.'

In contrast to findings from research conducted in many other national contexts, which generally reveal low levels of self-reported confidence in the competences of newly graduated nurses, research conducted on newly licensed nurses in the Philippines has revealed relatively high levels of self-reported competence. A recent descriptive, cross-sectional study,[242] which involved a survey of 79 newly licenced nurses followed by analysis conducted using descriptive statistics, indicated that new graduate nurses in the Philippines had high levels of self-reported fundamental nursing skills and core competence. Several areas of weakness were, however, also noted. The study revealed lower levels of self-reported confidence in complex areas of diagnostic testing and wound care, as well as skills which involve the use of specific equipment or resources.
Graduate nurses surveyed also reported numerous challenges associated with transition into the workforce, especially around changes in role expectations. Many also expressed the need for increased support during their transition.

5. Summary of effectiveness and impact

Robust evidence on the impact and effectiveness of pre-registration programme education standards for nursing and midwifery is relatively scarce. There have, for instance, been few detailed longitudinal studies examining the impact over time of nursing/midwifery education on public health outcomes, patient safety or the development of competent healthcare professionals. Most of the research into the efficacy of nursing and midwifery education, undertaken over the past five years, tends to consist of cross-sectional surveys in which students self-assess their own competence and skill levels. Such studies, which depend on students' subjective evaluations of their own development, offer an important glimpse into student perceptions and experiences but they provide only an imperfect measure of the effectiveness and quality of nursing and midwifery education.

Nursing

Research into the perceptions of nursing students in different national contexts has shown that students typically experience elevated levels of stress, anxiety and confusion when undertaking clinical practice. Major sources of student stress on clinical placements are unsympathetic or unsupportive supervisors, concerns surrounding clinical competence and fears of causing patients harm, along with the confusion at witnessing practices on placement which are incongruent with what they were taught in classes. Recent research conducted in Spain has also suggested that female nursing students, and students in their second year of practice, experience highest stress levels in clinical practice. Stress on placement is a major issue which can have a detrimental effect on student confidence and perception of clinical competence.

Research into students' experiences of clinical practice also draw attention to the significant influence – both positive and negative – of the practice supervisors (or preceptors) for students on placement. Students emphasise that supportive supervisors, who encourage students to practice independently while remaining responsive to student needs, are pivotal to the development of competence. Clinical supervisors can exert a positive influence and build confidence; however, they can also undermine students and exacerbate students' stress levels, especially where

supervisors are seen to be dismissive or too busy to attend to the needs of students. Students emphasise that the ideal practice supervisor is one who is clinically competent but also supportive, person-centred, and responsive to the individual needs of students at different stages of their education.

Another factor which has a significant bearing on students' experiences of clinical practice is the extent to which theoretical practice adequately prepares them for clinical practice (the theory-practice gap). Numerous research studies over the past years have explored this phenomenon and have alluded to a range of ways in which theoretical, classroom-based learning falls short of preparing students for the clinical environment, leading to students feeling disappointed, frustrated, or confused when transitioning into clinical practice. The observing of practices and procedures which do not correspond to the ideal clinical practice which students learn about in theory – and the consequent difficulties experienced by many students in translating theoretical knowledge into clinical practice – are some of the manifestations of this theory-practice gap.

While student self-assessments of their own competence are inherently limited as a measure of quality/effectiveness of education standards, they do give a reasonably good indication of the strength-areas of curricula, as well as areas where educational standards may be deficient. Students and graduates often report feeling that they lack critical skills directly related to clinical practice, such as administering care to patients in acute care situations, dealing with medications and assessing patients' health conditions. Students/new graduates often worry about harming patients and jeopardising patient safety. Research conducted in Sweden has also found that many educational programmes for nursing are deficient in the teaching of cultural competence and the administration of care in culturally and linguistically diverse populations. A number of studies allude to insufficient cultural competence on the part of newly qualified nurses, while students themselves talk about difficulties managing difficult situations arising from negative, discriminatory attitudes (both towards patients and healthcare staff).

In terms of improving the quality of care to culturally diverse communities, recent literature has emphasised the importance of both cultural competence (or cultural awareness) education but also cultural 'safety education,' which usually consist of immersion experiences in which students spend time working in and learning from different communities. This approach has worked particularly well in forging connections between student nurses/midwives and Indigenous populations in Australia and New Zealand and in improving the cultural sensitivity of nurses/midwives and quality of care provided to culturally diverse communities.

Regarding practice hours, although there is enormous variation in the number of mandated practice hours for nursing courses globally – and although there is debate in some national contexts, such as Australia, about the sufficiency of the minimum practice hours – studies have concluded that there is insubstantial evidence to equate a set number of experiences or practice hours with the development of professional competence in the clinical environment. Research conducted in the USA has suggested that there is no observable correlation between the minimum number of practice hours, mandated by different US states, and the achievement of learning outcomes in nursing courses. Nor is there any discernible relationship between the number of clinical practice hours and NCLEX pass rates. These findings suggest that mandated practice hours are not commensurate with the development of professional competency as a nurse.

Although there is now a growing body of literature relating to simulation in the teaching of clinical skills for nursing, much of this literature also relates primarily to student experiences of, and satisfaction levels with, different simulation technologies. There is very limited empirical evidence on the effectiveness of simulation compared to other pedagogical approaches. The few studies which have sought to evaluate the impact of simulation on teaching and learning outcomes – most importantly the NCSBN's national simulation study of 2015 in USA – have found that there is no meaningful difference in the overall performance of students who experience simulated clinical teaching, compared to those who receive traditional, hands-on clinical experiences. Furthermore, research undertaken into student experiences of simulation in clinical teaching have reported broadly positive receptions of technologies such as VR in the teaching of clinical skills. This evidence suggests that there may be some basis on which to use simulation in place of practice hours.

However, other research undertaken into the use of simulation in nursing education has highlighted numerous challenges. Research conducted in USA and Australia has drawn attention to significant variation and inconsistencies in the design, implementation and assessments methods used for simulation in nursing education. The lack of a consistent approach in the use of simulation means that it is difficult to evaluate the contribution of simulation education to students meeting their learning outcomes. In order to increase the extent of use of simulation in nursing education, several Australian and American reports recommend the adoption of a consistent, standardised approach to the design, implementation and assessment of simulation in education. Similarly, simulation is dependent on technologies which many users may not have access to. Recent Spanish evidence – into the use of simulated video consultations in nursing education – reported internet and connectivity issues as a major drawback in accessing the technology.

Cost can also be an issue in implementing simulated solutions. Yet, recent Australian evidence has revealed that more cost-effective technologies – such as using mobile handheld devices with stereoscopic lenses – can be just effective as high-fidelity virtual reality solutions in providing effective simulated clinical experiences.

Midwifery

As with nursing, research into the perceptions of midwifery students has shown clinical practice to be stressful. Likewise, major sources of midwifery student stress on clinical placements are unsympathetic practice supervisors and staff, who are sometimes perceived to be unsupportive, over-worked or, at times, dismissive and unwelcoming of students on placement. Other typical stressors – more specific to midwifery students – include difficulties managing competing demands on time (juggling practice requirements and academic deadlines); insufficient time for learning and personal reflection and feelings of competition engendered by the need to complete a specific number of clinical tasks (such as a specific number of births). Findings from midwifery students also largely mirror those from nursing students about practice supervisors, suggesting that supervisors can have both a positive impact – with supportive supervisors facilitating the development of skills and socialisation into the midwifery profession – and a negative impact – with unsupportive supervisors hindering professional development and sense of professional acceptance.

Again, like with nurses, many student and graduate midwives consider themselves to be deficient in certain core clinical competencies. This is especially the case for students experiencing their first clinical placements or internships. In the case of midwives, research has found that many students/new graduates lack confidence in complex, emergency obstetric situations. Recent Swedish research found confidence levels in dealing with obstetric emergencies were higher in students at HEIs with a medical faculty. The reason suggested for this is the fact that these students were more likely to receive exposure to obstetric emergencies, as women with severe complications in childbirth are more likely to be referred to a university hospital.

In midwifery pre-registration education, the difference between direct-entry, undergraduate education (such as in Ireland, Canada, Australia and New Zealand) and specialist, post-graduate education, which can only be undertaken by applicants already registered as a nurse (such as in Sweden, Spain and America), must be taken into consideration. In Sweden, recent research has found that younger midwifery students often felt more confident than older midwifery students, suggesting that the length of time in service as a registered nurse was not commensurate with confidence as a student midwife. Thisfinding reinforces the view that midwifery is a unique profession with a distinctly different focus compared to nursing.

Although very little research has been undertaken into the issue of allocation of clinical hours in midwifery, the evidence which does exist has reinforced the findings from research into nursing clinical hours, suggesting that there is no evidence to support that the achievement of a set number of learning hours or clinical skills will guarantee professional competency. Recent Australian research has contended that the allocation of a set number of practicum hours engenders a ‘tick-box’ mentality, encouraging students to focus on ‘chasing the numbers’, rather than on providing quality care to women. This research argues that this approach can be detrimental to the development of woman-centred care, and suggests that an approach based more around continuity of care would ensure quality care for health service users.

Simulation is far less researched in the context of midwifery education, compared to nursing. A recent Swedish study found that simulated learning was beneficial in helping to build students’ confidence, making them feel more prepared when entering clinical practice. The study therefore provides some evidence on the utility of simulation in midwifery education, suggesting that simulation helps students to make links between theory and practice, thus facilitating students' learning ability and better preparing them for clinical practice.

Appendix: Quality Assessment

Author	Title	Date	Published By	Country	Core Profession	Study type (e.g. systematic, meta-analysis, RCT etc.)	Nu stu po
Aebersold, Michell	Simulation-Based Learning: No Longer a Novelty in Undergraduate Education	2018	The Online Journal of Issues in Nursing	USA	Nursing	Discussion and descriptive analysis - literature review	Lite - 43
Andersen, Patrea; Hanson, Julie; Dunn, Peter K.	The effects of a virtual learning environment compared with an individual handheld device on pharmacology knowledge acquisition, satisfaction and comfort ratings	2020	Nurse Education Today	Austria	Both	Post-test and pre-test design	249 und nur mid der
Bäck, Lena; Karlström, Annika	Developing confidence during midwifery training: The experience of Swedish final year students	2020	Sexual and Reproductive Healthcare	Sweden	Midwifery	Qualitative study	401 col
Bäck, Lena; Sharma, Bharati; Karlström, Annika; Tunon, Katarina; Hildingsson, Ingegerd.	Professional confidence among Swedish final year midwifery students – A cross-sectional study	2017	Sexual & Reproductive Healthcare	Sweden	Midwifery	Cross sectional survey	Stu mid pro Sw inv par que
Barcelo, J. M	Medical laboratory science and nursing students' perception of academic learning environment in a Philippine university using Dundee Ready Educational Environment Measure (DREEM)	2016	Journal of Educational Evaluation for Health Professionals	Philippines	Nursing	Cross-sectional survey	341 nur

mber of udies/ pulation	Characteristics and setting	Intervention	Comparison	Outcomes and analysis method	Results	Quality assessment
erature review references		Integration of simulation into learning				Moderate
9 second year dergraduate rsing and dwifery students.	School of Nursing and Midwifery in a regional university in Southeast Queensland, Australia	Use of VR Simulation	Pre and post test	Online multiple choice tests to measure knowledge acquisition; Self-reported satisfaction scores and comfort ratings were collected using questionnaires.	Participants were not disadvantaged in terms of knowledge acquisition by using either VR or the mobile handheld visualisation tool	High
1 responses lected		Factors that increased and decreased the confidence of midwifery students in clinical practice		The study made use of an open-ended questionnaire which invited Swedish midwifery students to self-assess against selected midwifery competencies. Responses were analysed through manifest content analysis	The study made use of an open-ended questionnaire which invited Swedish midwifery students to self-assess against selected midwifery competencies. Responses were analysed through manifest content analysis	High
udents on all dwifery ogrammes in weden were ited to rticipate in a estionnaire		Professional confidence of final-year Swedish midwifery students		students used questionnaire to self-report their assessments of confidence against four selected domains of ICM competencies	Most students were confident handling normal pregnancy, but some students were more confident than others in handling obstetric emergency situations	High
1 Filippino rsing students	Department of Medical Laboratory Science, School of Natural Sciences, and the School of Nursing at Saint Louis University in the Philippines	Perceptions of medical laboratory science students and nursing students of their academic learning environment	Responses were compared according to course of study, gender, and year level	Respondents answered the Dundee Ready Education Environment Measure (DREEM) instrument from April to May 2016	While students broadly viewed their academic learning environment as 'more positive than negative', nursing students identified a range of problem areas. Most of these problems related specifically to students' instructors	Moderate

Birks, M. et al	Uncovering degrees of workplace bullying: A comparison of baccalaureate nursing students' experiences during clinical placement in Australia and the UK	2017	Nurse Education in Practice	Australia and UK	Nursing	Secondary analysis conducted on two primary cross-sectional studies	833 and stu
Blakeslee, Janine R.	Effects of high-fidelity simulation on the critical thinking skills of baccalaureate nursing students: A causal-comparative research study	2020	Nurse Education Today	USA	Nursing	Qualitative casual-comparative with pre-test, post-test design	69 bac nur
Bogossian, Fiona E; Cooper, Simon; Kelly, Michelle; Levett-Jones, Tracey; McKenna, Lisa; Slark, Julia; Seaton; Philippa	Best practice in clinical simulation education - are we there yet? A cross-sectional survey of simulation in Australian and New Zealand undergraduate nursing education	2018	Collegian	Australia and New Zealand	Nursing	Cross-sectional online survey of lead nursing academics	61 sur (36 rat
Bowling, Ann M; Cooper, Rhonda; Kellish, Ashley; Kubin, Laura; Smith, Tedra	No Evidence to Support Number of Clinical Hours Necessary for Nursing Competency	2018	Journal of Pediatric Nursing	USA	Nursing	Descriptive comparative study	Pre nur tion of a Sta Nu a s me Soc ric
Bradshaw, Carmel; Murphy Tighe, Sylvia; Doody, Owen	Midwifery students' experiences of their clinical internship: A qualitative descriptive study	2018	Nurse Education Today	Ireland	Midwifery	Descriptive qualitative study using focus groups	13 BS stu
Butler, Michelle M; Hutton, Eileen K; McNiven, Patricia S	Midwifery education in Canada	2016	Midwifery	Canada	Midwifery	Discussion paper	
Castro-Palaganas, Erlinda et al	An examination of the causes, consequences, and policy responses to the migration of highly trained health personnel from the Philippines: The high cost of living/leaving-a mixed method study	2017	Human Resources for Health	Philippines	Various	Mixed methods approach including scoping review of policy documents, stakeholder interviews and household survey with Filippino doctors, nurses, midwives and physical therapists	37 hol hou vey tor 66 and the ing pol and lite

3 Australian d 561 UK dent nurses	Nursing students in Australia and UK	Australian and UK nursing students' experiences of bulling during clinical placements	Comparisons of experiences of Australian and UK nursing students	Data collected through the Student Experience of Bullying during Clinical Placement (SEBDCP) questionnaire were analysed using descriptive and inferential statistics	The study found that 50.1% of Australian nursing students experienced bullying while on placement, compared with 35.5% of students in the UK	High
junior ccalaureate rsing students	A private university in the midwestern United States which offers a four-year Bachelor of Science Nursing program	Use of VR simulation on critical thinking skills	Pre and post test; 36 students in simulation group, 33 in a comparison group	Critical thinking skills of participants measured using The Health Science Reasoning Test (HSRT) in pre and post tests	There was no significant difference between the mean critical thinking scores of nursing students who took part in simulation, compared to those who used written case studies	Moderate
electronic rvey responses .1% response e)	HEIs offering courses leading to nurse registration in Australia and New Zealand	The extent and use of simulation in tertiary nursing education courses in Australia and New Zealand		Thematic analysis of survey responses	Simulation was embedded in curricula and positively valued as a substitute for clinical placement, but there was wide variation in the allocation of programme hours to simulation	Moderate
elicensure rsing educa- n requirements all 50 United ate Boards of rsing, plus urvey of embers of the ciety of Pediat- Nurses	US State Boards of Nursing	Number of required clinical hours and definitions for clinical experience across all 50 US Boards of Nursing	Comparison of minimum clinical hours acorss the 50 state Boards of Nursing		Only ten states outline any requirements regarding the required number of clinical hours for prelicensure nursing education and twenty-six states incorporate language that defines clinical experiences	High
final-year Sc Midwifery dents	BSc Midwifery students' in the final year of their programme in an Irish University	Midwifery students' experiences of their clinical internship		Thematic analysis of focus groups	Midwifery students' experience considerable stress during the internship period	Low
	Midwifery education programs in Ontario and British Columbia	Overview of the approach to midwifery education in Canada			The Canadian model of midwifery education has been very effective with low attrition rates and high demand for the number of places available	Moderate
key stake- der interviews; usehold sur- ys with 7 doc- s, 329 nurses, midwives, d 18 physical erapists. Scop- review of icy documents d academic rature	Healthcare professionals in the Philippines	Causes, consequences and policy responses relating to the outflow of human resources for health (HRH) from the Philippines		Thematic analysis and descriptive analysis using frequency and cross-tabulations	The migration of health workers has both negative and positive consequences for the Philippine health system and its health workers	High

Cipher, Daisha J; LeFlore, Judy L; Urban, Regina W; Mancini, Mary E	Variability of clinical hours in prelicensure nursing programs: Time for a reevaluation?	2021	Teaching and Learning in Nursing	USA	Nursing	Descriptive comparative study	27 acr cer pro
Cohen, Susanna R., Celeste R Thomas, Claudia Gerard	The Clinical Learning Dyad Model: An Innovation in Midwifery Education	2015	Midwifery Women's Health	USA	Midwifery	Discussion paper	
Doolen, Jessica, Bette Mariani, Teresa Atz, Trisha Leann Horsley, Jennifer O'Rourke, Kelley McAfee	High-Fidelity Simulation in Undergraduate Nursing Education: A Review of Simulation Reviews	2016	Clinical Simulation in Nursing	USA	Nursing		Lite
Ebert, Lyn; Tierney, Olivia; Jones, Donovan	Learning to be a midwife in the clinical environment; tasks, clinical practicum hours or midwifery relationships	2016	Nurse Education in Practice	Australia	Midwifery	Discussion paper	

1 students ross 4 pre-li- nsure nursing ograms	Two Associate Degree (ADN) and two Bachelor of Science (BSN) nursing programs		Numbers of clinical and simulation hours across 4 pre-licensure nursing programmes		Large variabilities existed in the number of clinical and simulation hours across the four programmes. The findings suggest that prelicensure nursing programmes' licensure examination results were not commensurate with clinical hours	Moderate
		Advantages and challenges of clinical learning dyad model (CLDM) in midwifery education		The article discusses the origins of the model, the specifics of its design, and the results of a midterm and one-year postintervention survey	Students and preceptors involved in this model identified several advantages to the program, including increased student accountability, enhanced socialization into the profession, improved learning, and reduced teaching burden on preceptors. An additional benefit of the CLDM is that students form a learning community and collaborate with preceptors to care for women in busy clinical settings. Challenges of the model will also be discussed.	Low
erature Review	7 reviews		The use of high-fidelity simulation in undergraduate nursing education in the USA		Findings from simulation research and reviews revealed significant differences in design and assessment methods leading to a wide variety of measurement outcomes and a variety of limitations. The review suggests a need for methodologically sound research that translates simulation outcomes to future performance and practice.	Low
	Midwifery education in Australia	Discussion around the number of and type of clinical experiences required to ensure that graduates of the Australian Bachelor of Midwifery become competent midwifery graduates.			To date, there is no evidence that a set number of experiences or hours ensures professional competence in the clinical environment	Low

Factor, E. M. R.; de Guzman, A. B	Explicating Filipino student nurses' preferences of clinical instructors' attributes: A conjoint analysis	2017	Nurse Education Today	Philippines	Nursing	Analysis of experimental vignettes	227 ser stu Ph
Fagan, A; Lea, J; Parker, V	Conflict, confusion and inconsistencies: Pre-registration nursing students' perceptions and experiences of speaking up for patient safety	2020	Nursing Inquiry	Australia	Nursing	Two-phased qualitative study	53 nur
Flott, Elizabeth A; Linden, Lois	The clinical learning environment in nursing education: a concept analysis	2016	Journal of Advanced Nursing	N/A	Nursing	Literature review and concept analysis	Un
Forsman, Henrietta; Jansson, Inger; Leksell, Janeth; Lepp, Margret; Sundin Andersson, Christina; Engström, Maria; Nilsson, Jan	Clusters of competence: Relationship between self-reported professional competence and achievement on a national examination among graduating nursing students	2020	Journal of Advanced Nursing	Sweden	Nursing	Cross-sectional study combining survey data and results from a national examination	179 nur in S
Gilkison, Andrea; Pairman, Sally; McAra-Couper, Judith; Kensington, Mary; James, Liz	Midwifery education in New Zealand: Education, practice and autonomy	2016	Midwifery	New Zealand	Midwifery	Discussion paper	
González-Chordá, Víctor Manuel; Maciá-Soler, María Loreto	Evaluation of the quality of the teaching-learning process in undergraduate courses in nursing	2015	Revista Latino-Americana de Enfermagem	Spain	Nursing	Prospective longitudinal study	60 nur at a uni

7 junior and nior nursing dents in ilippines	A comprehensive university in the Philippines	Nursing students' perceptions of the attributes of an effective clinical instructor		Conjoint analysis of students' responses to vignettes	Student nurses' preferred attributes in clinical instructors were 1) clinical teaching capacity, followed by 2) interpersonal relationship and caring behavior	Moderate
Australian rsing students		Students' perceptions and experiences of speaking up for patient safety		Interpretive Description	Students experience frustration and anxiety when they witness inconsistencies between what is taught at university and performed in practice. The clinical environment culture also influences students' decisions to speak up or remain silent	Moderate
known		Investigation of the clinical learning environment		Walker and Avant's concept analysis method	The clinical learning environment contains four attribute characteristics affecting student learning experiences. These include: (1) the physical space; (2) psychosocial and interaction factors; (3) the organizational culture and (4) teaching and learning components.	High
9 final-year rsing students Sweden	2 universities and 1 university college in Sweden	To explore correlation between graduating nursing students' self-reported professional competence and their achievement on a national examination	Students' self-reported professional competence compared against their achievement on a national examination	Students self-assessed their competence using the Nurse Professional Competence Scale; self-assessed competency ratings were then compared against performace in a national examination	The study illustrates how nursing students' self-assessed competence might differ from competency assessed by examination, which is challenging for nursing education	Moderate
	Midwifery education in New Zealand	An overview of New Zealand's midwifery education model and how it is integrated with New Zealand's unique midwifery service				Low
second-year rsing students a Spanish versity	Universidad Jaume I, Spain	To identify areas of the teaching -learning process at this Spanish University that could be improved		Descriptive and inferential analysis of student performance data derived from the tools that evaluated the acquisition of skills by undergraduate students of Nursing (Guide of Evaluation of Clinical Practices (GEPC))	9 learning activities were identified which did not meet the established quality indicators	Moderate

González-Chordá, Víctor Manuel; Maciá-Soler, María Loreto	Advancing Nursing Excellence for Public Protection The NCSBN National Simulation Study: A Longitudinal, Randomized, Controlled Study Replacing Clinical Hours with Simulation in Prelicensure Nursing Education	2014	Journal of nursing regulation	USA	Nursing	Longitudinal, randomised control study	666 nur
Henriksen, J; Anna Löfmark; Eivor Wallinvirta,;Þóra Jenný Gunnarsdót-tir; Åshild Slettebø	European Union directives and clinical practice in nursing education in the Nordic countries	2019	Nordic Jounal of Nursing Research	Nordic	Nursing	Discussion paper	
Hernández-Quevedo, C; Moreno-Casbas, MT.	Strengthening health systems through nursing: Evidence from 14 European countries - 12. Spain	2019	The European Observatory on Health Systems and Policies	Spain	Nursing	Discussion paper	
Hickerson, Kirsten A; Taylor, Laura A; Terhaar, Mary F	The preparation–practice gap: An integrative literature review	2016	Journal of Continuing Education in Nursing	n/a	Nursing	Literature review	50 inc
Hultsjö, S; Bachrach-Lindström, Margareta; Safipour, J; Hadziabdic, E	“Cultural awareness requires more than theoretical education” - Nursing students’ experiences	2019	Nurse Education in Practice	Sweden	Nursing	Qualitative study using focus groups	12 nur

6 American rsing students	10 pre-licensure nursing programmes across USA; study conducted over 3 academic years and first 6 months' of graduates' clinical practice	Replacement of clinical hours with simulation in prelicensure nursing education	Control: Students who had traditional clinical experiences with no more than 10% of clinical hours could be spent in simulation; 25% group: Students who had 25% of their traditional clinical hours replaced by simulation; 50% group: Students who had 50% of their traditional clinical hours replaced by simulation.		At the end of the nursing program, there were no statistically significant differences in clinical competency as assessed by clinical preceptors and instructors; there were no statistically significant differences in comprehensive nursing knowledge assessments; and there were no statistically significant differences in CLEX® pass rates among the three study groups	High
		Discussion of the challenges presented by EU requirements to clinical practice in nursing education in the Nordic countries		Systematic and thorough review and evaluation of EU directives 2005/36/EC1 and 2013/55/EU,2 which regulate nursing education in the Nordic countries	There are several consequences and challenges for nursing education in the Nordic countries when meeting the EU directives for clinical practice	Moderate
	Nursing education in Spain	Overview of nursing education in Spain				Moderate
studies luded		Collating evidence on the existence, extent, and significance of a preparation-practice gap			Three main themes permeate the evidence: a preparation -practice gap exists; this gap is costly; and closing the preparation-practice gap will likely rely on changes in undergraduate education and on-the-job remediation (i.e., nurse residency or preceptor programs).	High
Swedish rsing students		Cultural awareness in nursing students in Sweden		Thematic analysis of focus groups	Students are willing to learn more about how to care for people with different cultural backgrounds. However, this learning is not always available in official lecture-based education and most awareness about cultural aspects of healthcare is developed from practice and informal education.	Low

Jiménez-Rodríguez, D; Arrogante, O	Simulated Video Consultations as a Learning Tool in Undergraduate Nursing: Students' Perceptions	2020	Healthcare	Spain	Nursing	Qualitative and quantitative survey of student satisfaction	93 stu
Kunst, Elicia L., Amanda Henderson, Amy N. B. Johnston	A Scoping Review of the Use and Contribution of Simulation in Australian Undergraduate Nurse ducation'	2018	Clinical Simulation in Nursing	Australia	Nursing	Literature Review	44
Kurtz D. L. M. et al.	Health Sciences cultural safety education in Australia, Canada, New Zealand, and the United States: a literature review	2018	International Journal of Medical Education	Australia, New Zealand, Canada, USA	Both	Literature review	158 and arti rev sel inc
Landeen, Janet; Carr, Donna; Culver, Kirsten; Martin, Lynn; Matthew-Maich, Nancy; Noesgaard, Charlotte; Beney-Gadsby, Larissa	The impact of curricular changes on BSCN students' clinical learning outcomes	2016	Nurse Education in Practice	Canada	Nursing	Descriptive qualitative study	25 me sch wh BS
Li, J; Lu, H.; Hu, R	A review of the definition and scope of practice of midwives in five representative countries	2018	Frontiers of Nursing	Various	Midwifery	Discussion paper	

nursing udents	A university in Spain	Undergraduate nursing students' satisfaction and perceptions about simulated video consultations using the high-fidelity simulation method-ology		Students used survey to rate their satisfaction with the simulated video consultations	The majority of students expressed a high overall satisfaction with simulated video consultations	Moderate
articles		Extent, breadth and quality of simulation as a pedagogical tool in Australian nursing education		Scopping Review. A framework of best practice in simulation was syn-thesized from previously published best practice guidelines and then applied to Australian simulation education described in studies included in the review	Diverse methods in conducting and evaluating simulation education have led to limited evidence of the contribution of simulation education to students meeting their learning outcomes. Robust and authentic evaluation tools linked to professional standards for practice are needed to provide evidence of the unique contribution of simulation.	Moderate
83 abstracts d 122 full-text icles were iewed with 40 ected for final lusion		To review the research literature on cultural safety education within post-secondary health science programs.	Differences in coverage of cultural safety education in different countries' education standards	Discussion and consensus to identify thematic linkages of major findings		Moderate
faculty embers at hool of nursing o supervised cN students	School of Nursing at McMaster University, Ontario, Canada	To evaluate the impact of curricular changes on students' deep learning	Students' performance assessed before and after curricular changes	Individual interviews and focus groups conducted and analysed using Interpretive Descriptive qualitative research methodology	Faculty described three major themes in students' performance 1) pulling it all together, 2) seeing the whole person, and 3) finding their nursing voices	Moderate
		To review the definition and scope of the practice of midwives in Sweden, Finland, the United Kingdom, the United States, and Australia to find models and make suggestions for reforms in the midwifery policies of China.	Comparison of scope of practice of midwives in 5 counrties: Sweden, Finland, the United Kingdom, the United States, and Australia			Moderate

Matthew-Maich, Nancy; Martin, Lynn; Ackerman -Rainville, Rosemary; Hammond, Cynthia; Palma, Amy; Sheremet, Darlene; Stone, Rose	Student perceptions of effective nurse educators in clinical practice	2015	Nursing standard (Royal College of Nursing (Great Britain) : 1987)	Canada	Nursing	Mixed methods approach involving online survey and focus groups	51 nu pa su stu pa foc
McInnes, S; Halcomb, E. J; Huckel, K; Ashley, C	Experiences of registered nurses in a general practice-based new graduate program: A qualitative study	2019	University of Wollongong Faculty of Science, Medicine and Health	Australia	Nursing	Longitudinal qualitative descriptive study	9 r gra nu an
Miller, Jane Lindsay, M. Avery, K. Larson, Anne Woll, Alison VonAchen, Angela Mortenson	Emergency birth hybrid simulation with standardized patients in midwifery education: implementation and evaluation	2015	Journal of midwifery & women's health	USA	Midwifery	Discussion paper	
Miró, J; Castar-lenas, E; Solé, E. et al	Pain curricula across healthcare professions undergraduate degrees: a cross-sectional study in Catalonia, Spain.	2019	BMC Medical Education	Spain	Nursing	Cross-sectional survey	55 lea all un pro Ca uni

1 Canadian rsing students rticipated in rvey; 7 dents rticipated in cus groups	Canadian nursing students enrolled in all four years of the baccalaureate programme	To explore baccalaureate nursing student perceptions of what makes an effective nurse educator in the clinical practice setting and the influence of effective teaching on student experiences		Data from online surveys and focus groups analysed using content analysis	Participants indicated that effective teachers foster positive experiences, motivation, meaningful learning and success. They adjusted to meet individual students' needs at each level of the programme.	High
ecently aduated rsing students d 9 mentors	Graduates taking part in a new graduate program within Australian general practice	To explore the experiences of new graduate registered nurses and their registered nurse mentors in a new graduate program within Australian general practice	Views of graduates were compared at 3 intervals through-out the research	Graduates and their mentors were interviewed at 3 separate intervals (beginning of the programme, after 6 months (at the mid-point) after 12 months (the end of the programme)). Interview responses analysed using thematic analysis	Interviews revealed 4 themes: 'Preparation and Opportunities' describes the influence that pre-registration education had on preparing nurses for general practice employment. 'Exceeding Expectations' highlights the positive expe-riences within the program. 'Program Challenges' draws attention to the difficulties experienced by participants, and 'Future Career Intentions' explores future career plans	Moderate
		The implementation and evaluation of a hybrid simulation of emergency birth situations in a graduate midwifery program		In the 2011-2012, nurse-midwifery students twice participated in 2 simulated emergen-cies-shoulder dystocia and postpartum hemorrhage-using hybrid simulation (a standardized patient paired with a birth task trainer).	Students found the simulations to be realistic. The use of best practices (ie, repetitive practice, team learning, small group debriefing, and large group debriefing) enhanced the quality of the simulation experience and the learners' reflection about their pro-fessional skills, strengths, weaknesses, and confidence in managing these 2 obstetric emergencies	Low
0 course aders from healthcare dergraduate ograms in talan versities	Survey of course leaders for all subjects on the undergraduate programs in Dentistry, Human Nutrition and Dietetics, Medicine, Nursing, Occupational Therapy, Pharma-cy, Physiotherapy, Podiatry, Psychol-ogy, and Veteri-nary Science, in Catalonia, Spain	To study the content of the pain education provided to undergraduates in healthcare and veterinary programs in Spain	Comparison of course content on pain management in a variety of undergraduate courses in healthcare in Catalonia	Descriptive statistical analysis to arrive at percentages of courses with pain content were obtained and the averages of pain content hours for each content category.	There were considerable differences in the number of pain-related hours among disciplines: Nursing reported the highest number of hours, and Psychology the lowest.	High

Montayre, J, et al	New Zealand nursing students' perceptions of biosciences: A cross-sectional survey of relevance to practice, teaching delivery, self-competence and challenges	2019	Nurse Education Today	New Zealand	Nursing	Cross-sectional study	540 stu
Oducado, Ryan Michael F; Amboy, Mary Kristine Q; Penuela, Ayesha C; BeloDelariarte, Rosana Grace	Correlation Between Theoretical Classroom Instruction and Related Learning Experiences: Evidence From a Philippine Nursing University	2019	International Journal of Scientific & Technology Research	Philippines	Nursing	Descriptive correlational study design	653 stu a 5
Oducado, Ryan Michael; Sotelo, Marianne; Ramirez, Liza Marie; Habaña, Maylin; Belo-Delariarte, Rosana Grace	English Language Proficiency and Its Relationship with Academic Performance and the Nurse Licensure Examination	2020	Nurse Media Journal of Nursing	Philippines	Nursing	Retrospective descriptive correlational study design	141 stu Phi
Onovo, G.	Fundamentals of Nursing Practice and the Culturally Diverse ESL Nursing Students: The Students' Perspectives for Teaching and Learning in Nursing	2019	Teaching and Learning in Nursing	USA	Nursing	Descriptive qualitative study	6 E wh an Nu pro
Pálsdóttir, B. et al	Training for impact: the socio-economic impact of a fit for purpose health workforce on communities	2016	Human Resources for Health	Various	Both	Review article	Ov str

0 nursing dents		Students' overall perception of biosciences within New Zealand undergraduate nursing programmes	Comparisons of perceptions of students over different year groups	A descriptive, cross-sectional survey on perceptions of New Zealand nursing students on biosciences was undertaken	55% of students preferred biosciences papers be taught classroom – based but using a blended learning delivery instead of an exclusively traditional classroom setting. Overall, students believed biosciences had relevance to the practice of nursing.	Moderate
3 nursing dents covering -year cohort	A university in the Philippines	The relationship between theoretical classroom instruction and Related Learning Experiences (RLE) of nursing students in the Philippines		Pearson's correlation and simple linear regression were used to analyze the data	There exists a significant positive relationship between performance in theoretical classroom instruction and RLE of nursing students.	High
1 nursing dents in ilippines	A university in the Philippines	The influence of English language proficiency on the academic p erformance of students in professional nursing courses and the NLE		Secondary analysis of existing research data sets of 141 nursing students in one nursing school in the Philippines was performed. Pearson's r was used to determine the correlation between variables	There were significant correlations between academic performance and the Verbal Ability subscale of the Nursing Aptitude Test and the three English courses included in the nursing curriculum	Moderate
ESL students o passed Associate rsing Degree ogramme		To examine challenges and barriers to ESL students but also to explore what helped these particular students to succeed in their course		Combination of open-ended survey questions and ace-to-face interviews	The common challenges encountered by the participants were: language barriers, a lack of faculty support and mentorship, difficulty with teaching and learning styles, and a lack of critical thinking and application skills. Also, difficulty with concepts and applications in clinical practice, and racism and discrimination in the learning environment were contributors to their learning challenges.	Low
erview of 6 ategies		The impact of educating and deploying a fit for purpose health workforce can be challenging to evaluate	Comparison of strategies for maximising deployment of fit for purpose health workforce across 6 countries			Moderate

Pijl-Zieber, Em M; Barton, Sylvia; Awosoga, Oluwagbohunmi A; Konkin, Jill	Nursing Students Achieving Community Health Competencies through Undergraduate Clinical Experiences: A Gap Analysis	2015	International ournal of Nursing Education Scholarship	Canada	Nursing	Mixed methdology involving qualitative survey and focus groups	Qu sur stu
Pijl-Zieber, Em M; Barton, Sylvia; Awosoga, Oluwagbohunmi A; Konkin, Jill	Comparing student clinical self-efficacy and team process outcomes for aDEU, blended, and traditional clinical setting: A quasi-experimental researchstudy	2018	Nurse Education Today	USA	Nursing	Non-equivalent control-group quasi-experimental design	Co sar ent bac nur
Potter, Kara; Hussey, Leslie; Ojeda, Maria	Clinical hours and program types effects on NCLEX pass rates	2021	Teaching and Learning in Nursing	USA	Nursing	Cross-sectional survey of 107 nursing schools in USA	107 nur
Romero-Collado, Angel; Raur-ell-Torreda, Marta; Zabaleta-del-Olmo, Edurne; Homs-Romero, Erica; Ber-tran-Noguer, Carme	Course Content Related to Chronic Wounds in Nursing Degree Programs in Spain	2015	Journal of Nursing Scholarship	Spain	Nursing	Cross-sectional descriptive study	An cou

alitative rvey of 187 dents	Participants included 81 senior nursing students who had recent experience of a community health clinical rotation or a final preceptorship in community health, 87 practicing community health nurses, and 19 faculty members teaching community health nursing at baccalaureate level.	Exploring the nature of the gap between observed and desired n ursing student competence in community practice settings			All respondent groups report a statistically significant gap between observed level of performance and desired level of performance of students in community health competencies	Moderate
nvenience mple of 272 try-level ccalaureate rsing students	All second term entry-level baccalaureate nursing students whowere attending either a Southwestern state university (DEU modeltreatment group) or a Midwestern state university (traditional teachingmodel control group or a blended model treatment group) were invitedto participate.	The effects of 3 different teaching models (dedicated education unit, blended, traditional) on clinical self-efficacy and attitude toward team process	84 students participating in a dedicated education unit model treatment group, 66 students participating in a blended model treatment group, and 122 students participating in a traditional model control group.	Perceived clinical self-efficacy was evaluated by the pretest/posttest scores obtained on the General Self-Efficacy scale. Attitude toward team process was evaluated by the pretest/posttest scores obtained on the TeamSTEPPS® Teamwork Attitude Questionnaire.	Statistical analysis revealed that all three clinical teaching models resulted in significant increases in both clinical self-efficacy and attitude toward team process. However, increases were noticeably higher for students who participated in the dedicated education unit model and in the blended model, compared to students participating in the traditional model	Moderate
7 out of 722 rsing schools		The relationship between clinical hours and NCLEX pass rates		Multiple linear regression analysis	No correlation exists between program type and NCLEX pass rates or the total number of clinical hours in a school and NCLEX pass rates	High
alysis of 2,258 urses	114 centers in Spain that offer a nursing degree	To analyze content related to chronic wounds in nursing degree programs in Spain		Course descriptions available for online access during June and July of 2012 were reviewed for the 114 centers in Spain that offer a nursing degree, according to the official Registry of Universities, Centers, and Titles	In 60 (63.1%) of these centers, none of the courses included the concept of pressure ulcer prevention, and the course content posted by 36 (37.9%) centers made no mention of their treatment. None of the course descriptions contained any reference to pain management in patients with chronic wounds.	High

Romero-Collado, Angel; Raurell-Torreda, Marta; Zabaleta-Del-Olmo, Edurne; Rascon-Hernan, Carolina; Homs-Romero, Erica	Nurse prescribing in Spain: The law and the curriculum	2017	Nursing & Health Sciences	Spain	Nursing	Cross-sectional study	All offe in r cou nfo
Rowbotham, Melodie, Rachel M Owen	The effect of clinical nursing instructors on student self-efficacy	2015	Nurse Education in Practice	USA	Nursing	Descriptive Study	236 tud
Smeds Alenius, Lisa; Rikard Lindqvist, and Carol Tishelman.	Strengthening health systems through nursing: Evidence from 14 European countries - 13. Spain	2019	The European Observatory on Health Systems and Policies	Sweden	Nursing	Discussion paper	
Smiley, Richard A	Survey of Simulation Use in Prelicensure Nursing Programs: Changes and Advancements, 2010-2017	2019	Journal of Nursing Regulation	USA	Nursing	Cross-sectional study	All nur edu pro U.S

centres ering a degree nursing with urse ormation online		All centres offering a degree in nursing with course information online			All centers offered at least one pharmacology course. One-third of the required courses had content related to pharmacology and healthcare products/supplies.	Moderate
6 BSN lents	Students attending a Midwestern USA comprehensive masters university	To explore the relationship between perceived instructor effectiveness and student self-efficacy	Comparison of lower- and higher-efficacy learning groups	Data were collected from students using the Nursing Clinical Teacher Effectiveness Inventory (NCTEI) and the student self-efficacy (SSE) questionnaire. Data was analyzed using Pearson's correlation and MANCOVA.	Results showed that students from the higher self-efficacy group (i.e. those who were grouped according to the SSE questionnaire as exhibiting higher levels of self-confidence) scored 'evaluation' higher than lower self-efficacy students. This means that, for students with higher levels of self-efficacy, the evaluations they received from their clinical supervisors increased their clinical self-confidence. Students with high self-efficacy reported faculty who suggested ways to improve, identified strengths and weaknesses, observed frequently, communicated expectations, gives positive reinforcement ad corrects without belittling.	Moderate
	Nursing education in Sweden	Overview of nursing education in Sweden				Moderate
prelicensure rsing ucation ograms in the S	Survey sent to all prelicensure nursing education programs in the USA	Evaluative follow-up study sought to update the current simulation landscape in prelicensure programs, compare results between 2017 and 2010, and determine the impact of the National Simulation Study and and National Council of State Boards of Nursing's National Simulation Guidelines		Survey sent to all prelicensure nursing education programs in the USA	High-fidelity simulation use in undergraduate courses increased substantially during the 7-year period, and computer-based simulation use decreased for all courses except for psychiatric/mental health nursing. Most nursing programs substitute simulation for clinical hours using a 1:1 ratio of simulation to clinical hours.	High

Soler, Olga Mestres; Aguayo-González, Mariela; Gutiérrez, Sabini-ana San Rafael; Pera, Miguel Jiménez; Leyva-Moral, Juan M.	Nursing Students' Expectations of their First Clinical Placement: A Qualitative Study	2020	Nurse Education Today	Spain	Nursing	Qualitative study	15 nur stu
Spector, Nancy; Janice I. Hooper; Josephine Silvestre and Hong Qian	Board of Nursing Approval of Registered Nurse Education Programs	2018	Journal of Nursing Regulation	USA	Nursing	Discussion paper	
Stomski, N, et al	The influence of situation awareness training on nurses' confidence about patient safety skills: A prospective cohort study	2018	Nurse Education Today	Australia	Nursing	Cross-sectional survey	A c sar om yea stu We uni
Suarez-Garcia, Jose Maria; Maestro-Gonzalez, Alba; Zuazua-Rico, David; Sánchez-Zaballos, Marta; Mosteiro-Diaz, Maria Pilar	Stressors for Spanish nursing students in clinical practice	2018	Nurse Education Today	Spain	Nursing	Cross-sectional descriptive study	450 stu Sp uni
Ubas-Sumagasyay, N. A; Oducado, R. M. F	Perceived competence and transition experience of new graduate Filipino nurses	2020	Jurnal Keperawatan Indonesia	Philippines	Nursing	Cross-sectional study	79 nur

second-year rsing dents	Second-year nursing students studying at a Spanish public university	To explore nursing students' expectations before the start of their first clinical placement		Data were collected through a semi-structured interview before the start of the first clinical placement. The data were analyzed using thematic analysis, as proposed by Braun and Clarke.	176 codes were identified, grouped into 3 categories: a) Expectations of clinical placements: this category highlighted the desire to learn, to integrate theory into practice, to feel fulfilled and students' observation that they lacked knowledge of the role of family and community nurses. b) Motivations to attend clinical placement, commitment, and willingness to learn. c) Personal weaknesses, such as insecurity and inexperience, especially regarding techniques and procedures.	Low
		The article discusses key regulatory components of RN education programs, discusses the BON approval process of RN education programs				Moderate
convenience mple prising final ar nursing dents at a estern Australia versity	Participants were enrolled from a convenience sample comprising final year nursing students at a Western Australia university	To: 1) understand final year nursing students' confidence in their patient safety skills; and 2) examine the impact of situation awareness training on final year nursing students' confidence in their patient safety skills.	Comparison of students' self-receptions of patient safety skills before and after situation awareness training.	Students self-reported their confidence in patient safety skills, using the Health Professional in Patient Safety Survey, before and after the delivery of a situation awareness educational intervention.	No significant differences in confidence about patient safety skills were identified within settings (class/clinical). However, confidence in patient safety skills significantly decreased between settings i.e. nursing students lost confidence after clinical placements	Miderate
0 nursing dents at a anish versity	two nursing colleges of the University of Oviedo	Stress in clinical practice		Students filled in KEZKAK questionnaire, a validated scale adapted to Spanish nursing students. It is composed of 41 items using a 4-point Likert scale, rating how much the described situation worries them from 0 ("Not at all") to 3 ("A lot").	Nursing students, particularly women, see clinical practice as "rather stressful", with the main stressors being those related to causing harm to patients.	Moderate
newly licenced rses		Self-assessed/ perceived competence of new graduate Filipino nurses		Respondents self-assess their own comptence levels. Analysis of survey responses using descriptive statistics	New graduate nurses in the Philippines generally had high levels of self-reported fundamental nursing skills and core competence	Moderate

Warren, Jessie N; Luctkar-Flude, Marian; Godfrey, Christina; Lukewich, Julia	A systematic review of the effectiveness of simulation-based education on satisfaction and learning outcomes in nurse practitioner programs	2016	Nurse Education Today	USA	Nursing	Literature review	10 co US 20
Webb, Sara S; Skene, Esther R; Manresa, Margarita; Percy, Elizabeth K; Freeman, Robert M; Tincello, Douglas G	Evaluation of midwifery pelvic floor education and Training across the UK and Spain	2021	European Journal of Obstetrics and Gyne-cology and Reproductive Biology	Spain	Midwifery	Cross-sectional survey	71 384 mi diff uni reg an
Webster, Alanna; Bowron, Caitlin; Matthew-Maich, Nancy; Patterson, Priscilla	The effect of nursing staff on student learning in the clinical setting	2016	Nursing standard (Royal College of Nursing (Great Britain) : 1987)	Canada	Nursing	Qualitative study	30 stu inte ind foc
Willman, Anna; Bjuresäter, Kaisa; Nilsson, Jan	Insufficiently supported in handling responsibility and demands: Findings from a qualitative study of newly graduated nurses	2020	Journal of Clinical Nursing	Sweden	Nursing	Qualitative study	16 gra Sw wit wo exp acu hos
Zambas, S. I; Dutch, S; Gerrard, D	Factors influencing Māori student nurse retention and success: An integrative literature review	2020	Nurse Education Today	New Zealand	Nursing	Literature review	13 inc the
Zwedberg, Sofia; Barimani, Mia; Jonas, Wibke	Exploring the internship experiences of Swedish final term student midwives: A cross-sectional survey	2020	Sexual and Reproductive Healthcare	Sweden	Midwifery	Cross sectional-study	108 Sw mi stu co su
Anushka Tavkar and Ajinkya Pawar	Simulation in Dentistry	2017	EC DENTAL SCIENCE	India	Yes	Review of current uses of simulation in dentistry	

studies nducted in SA between 07 and 2014		To collate evidence on the effectiveness of High-fidelity simulation in nurse practitioner education programmes	Comparison of 10 studies conducted in USA	Joanna Briggs Institute systematic review methodology was utilized	There is limited evidence supporting the use of HFS within NP programs.	Moderate
1 student and 4 registered dwives across ferent versities and gions in the UK d Spain	UK and Spain	Education and training of student and registered midwives in pelvic floor examinations	Spanish students' confidence levels compared against UK students	Participants self-assessed their knowledge and confidence in pelvic floor examinations and episiotomies	There is a considerable deficit in the current training practices for midwives regarding episiotomies	High
nursing dents were erviewed ividually or in us groups		To explore baccalaureate nursing students' perspectives of the influence of nursing staff on their learning and experience in the clinical setting		Content analysis was used to analyse focus group responses	Nursing staff had positive (enabling) and negative (hindering) effects on students' clinical learning and socialisation to nursing.	Moderate
newly aduated edish nurses h 6 months' rth of clinical perience in an ute care spital setting		To explore newly graduated registered nurses' experiences and how they manage complex patient situations		Focus groups were conducted and responses analysed using qualitative content analysis	New nurses do not feel sufficiently prepared or supported to meet the demands of complex patient situations in acute care clinical settings	Low
studies luded in matic analysis		To explore the factors affecting retention and success of Māori undergraduate nursing students in New Zealand.		A Kaupapa Māori research framework was utilised within an integrative review design	Māori student identity, institutional support factors and programme factors play a role in Māori student success and retention	Moderate
8 final-year edish dwifery dents mpleted the rvey	The survey was distributed to 288 final-year mid-wifery students at all Swedish universities offer-ing the midwifery programme	Experiences of final term midwifery students in Sweden on their clinical internships		Thematic analysis of survey responses	Students described the internship as an intense, high-pressured and often stressful experience, for which many did not feel adequately prepared	Moderate
		Overview of the various simulation technologies that are currently in use in dentistry				

Annex

Nursing and midwifery in the UK

The Nursing and Midwifery Council (NMC) is one of 10 professional health and care regulators in the UK and is responsible for regulating almost 725,000 nurses, midwives in the UK and nursing associates in England. The number of registrants has risen steadily since September 2017.

At the end of September 2020 there were 724,516 registrants on the NMC register, up from 716,607 in April 2020: an increase of 1.1%. Despite the overall increase in the number of registrants, the number of professionals from the European Economic Area (EEA) on the NMC's register fell by 1.6% from 31,385 in April 2020, to 30,895 in September 2020.

The overall increase was accounted for by a growth of 1.8% between April and September 2020 in the number of professionals from outside the EEA. As of September 2020, there were 85,873 registrants on the NMC register from outside the EEA, the majority (39.1%) from the Philippines and India (29%)[243]

Country	Spending on healthcare per capita ($)[244 245]	Number of nurses (per 1,000 inhabitants)[246 247]	Number of nursing graduates (per 100,000)[248 249]
United Kingdom	4 653.1	7.78	30.88

Practice hours and use of simulation

Requirements	Nursing	Midwifery
EU Directive	Practice hours shall constitute at least 2,300 hours (of a three-year 4,600-hour programme) Simulation is not mentioned.	Practice hours shall constitute 50% of a three-year programme. Where active participation is not possible because of a lack of breech deliveries, practice may be in a simulated situation. Performance of episiotomy and initiation into suturing… may be in a simulated situation if absolutely necessary.
NMC Standards	AEIs must: ■ provide practice learning opportunities that allow students to develop and meet the Standards of proficiency for registered nurses ■ ensure that students experience the variety of practice expected of registered nurses to meet the holistic needs of people of all ages ■ provide practice learning opportunities that allow students to meet the communication and relationship management skills and nursing procedures, as set out in Standards of proficiency for registered nurses ■ ensure technology enhanced and simulation -based learning opportunities are used effectively and proportionately to support learning and assessment and pre-registration nursing programmes leading to registration in the adult field of practice comply with Article 31(5) of Directive 2005/36/EC (included in Annexe 1 of this document) ■ take account of students' individual needs and personal circumstances when allocating their practice learning including making reasonable adjustments for students with disabilities ■ ensure students experience the range of hours expected of registered nurses, and ■ ensure that students are supernumerary.	AEIs must: ■ provide practice learning opportunities that enable students to develop and meet the NMC Standards of proficiency for midwives ■ ensure students experience the role and scope of the midwife enabling them to provide holistic care to women, new-born infants, partners, and families ■ provide students with learning opportunities to enable them to achieve the proficiencies related to interdisciplinary and multiagency team working ■ provide students with learning opportunities to enable them to achieve the proficiencies related to continuity of midwifery carer across the whole continuum of care for all women and new-born infants ■ provide students with learning opportunities to experience midwifery care for a diverse population across a range of settings, including midwifery led services ■ provide learning opportunities that enable students to develop the required knowledge, skills and behaviours needed when caring for women and new-born infants when complication and additional care needs arise, including as they relate to physical, psychological, social, cultural, and spiritual factors ■ take account of students' individual needs and personal circumstances when allocating their practice learning opportunities, including making reasonable adjustments for students with disabilities ■ ensure students experience the range of hours expected of practising midwives, and ■ ensure students are supernumerary.

Programme length and number of academic theory and practice hours

Requirements	Nursing	Midwifery
EU Directive	For nurses responsible for general care: at least three years of study consisting of at least 4,600 hours of theoretical and clinical training. Theoretical training should represent at least a third and clinical training at least one half of the minimum duration of training.	One of the following criteria must be satisfied: ▪ (full-time training of at least three years as a midwife, which may in addition be expressed with the equivalent ECTS credits, consisting of at least 4 600 hours of theoretical and practical training, with at least one third of the minimum duration representing clinical training; ▪ full-time training as a midwife of at least two years, which may in addition be expressed with the equivalent ECTS credits, consisting of at least 3 600 hours, contingent upon possession of evidence of formal qualifications as a nurse responsible for general care referred to in point 5.2.2 of Annex V; ▪ full-time training as a midwife of at least 18 months, which may in addition be expressed with the equivalent ECTS credits, consisting of at least 3 000 hours, contingent upon possession of evidence of formal qualifications as a nurse responsible for general care referred to in point 5.2.2 of Annex V, and followed by one year's professional practice for which a certificate has been issued in accordance with paragraph 2
NMC Standards	As above, plus: ▪ AEIs in partnership with practice partners have the flexibility to design their own curriculum and the autonomy to decide on the proportion of generic and field specific hours provided. ▪ For practice learning, AEIs must ensure students experience the range of hours expected of registered nurses.	Full time education and training as a midwife is a minimum of three years and 4,600 hours, or ▪ where a student is already registered with the NMC as a Registered nurse: first level (adult), full-time education and training as a midwife shall be a minimum of two years and 3,600 hours, or ▪ where a student is already registered with the NMC as a Registered nurse: first level (adult), full-time education and training as a midwife shall be a minimum of 18 months and 3,000 hours, and in order for the qualification to be recognised in EU member states it must be followed by a year of professional midwifery practice.

Selection, admission and progression

Requirements	Nursing	Midwifery
EU Directive	Admission for nurses responsible for general care is contingent on either: a. completion of general education of 12 years, as attested by a diploma, certificate or other evidence issued by the competent authorities or bodies in a Member State or a certificate attesting success in an examination of an equivalent level and giving access to universities or to higher education institutions of a level recognised as equivalent; or b. completion of general education of at least 10 years, as attested by a diploma, certificate or other evidence issued by the competent authorities or bodies in a Member State or a certificate attesting success in an examination of an equivalent level and giving access to a vocational school or vocational training programme for nursing.	Admission to training as a midwife shall be contingent upon one of the following conditions: a. completion of at least 12 years of general school education or possession of a certificate attesting success in an examination, of an equivalent level, for admission to a midwifery school for route I; b. possession of evidence of formal qualifications as a nurse responsible for general care referred to in point 5.2.2 of Annex V for route II.
NMC Standards	The NMC sets a range of additional criteria for entry, admission, and progression, including that students: ■ are suitable for their intended field of nursing practice: adult, mental health, learning disabilities and children's nursing ■ demonstrate values in accordance with the Code ■ have capability to learn behaviours in accordance with the Code ■ have capability to develop numeracy skills required to meet programme outcomes ■ can demonstrate proficiency in English language ■ have capability in literacy to meet programme outcomes ■ have capability for digital and technological literacy to meet programme outcomes. Amongst other requirements students' health and character should also be sufficient to enable safe and effective practice.[250]	The NMC sets a range of additional criteria for entry, admission and progression including that the AEIs confirm that students: ■ enrolled on pre-registration midwifery programmes are appropriately compliant with Article 40(2) of Directive 2005/36/EC regarding general education length and/or nursing qualification as outlined in Annexe 1 of this document ■ demonstrate an understanding of the role and scope of practice of the midwife ■ demonstrate values in accordance with the Code ■ have capability to learn behaviours in accordance with the Code ■ have capability to develop numeracy skills required to meet programme outcomes ■ can demonstrate proficiency in English language ■ have capability in literacy to meet programme outcomes ■ have capability to develop digital and technological literacy to meet programme outcomes Amongst other requirements students' health and character should also be sufficient to enable safe and effective practice[251]

Recognition of prior learning

Requirements	Nursing	Midwifery
EU Directive	The EU Directive does not specify the percentage of a nursing programme that can be accredited as APL.	RPL is not permitted for pre-registration midwifery programmes However qualified nurses are permitted to enter shortened courses (see section 3.5) through recognition of formal qualification/s
NMC Standards	AEIs must: ■ permit recognition of prior learning that is capable of being mapped to the Standards of proficiency for registered nurses and programme outcomes, up to a maximum of 50 percent of the programme and comply with Article 31(3) of Directive 2005/36/EC (included in Annexe 1 of this document). ■ for NMC registered nurses permit recognition of prior learning that is capable of being mapped to the Standards of proficiency for registered nurses and programme outcomes that may be more than 50 percent of the programme[252]	As above.

Entry to shortened programmes

Requirements	Nursing	Midwifery
EU Directive	See 3.4.1 'Recognition of Prior Learning'	▪ Full time education and training of at least two years consisting of 3,600 hours, contingent upon possession of evidence of formal qualifications as a nurse responsible for general care, or ▪ Full-time education and training as a midwife of at least 18 months consisting of at least 3,000 hours, contingent upon possession of evidence of formal qualifications as a nurse responsible for general care and followed by a year's professional practice
NMC Standards	See 3.4.1 'Recognition of Prior Learning'	Prospective students who have previously completed an adult nursing programme are permitted to complete a shortened programme – typically 18 to 24 months. NMC registered nurses entering a shortened pre-registration midwifery programmes must be a Registered nurse: first level (adult) and the programme complies with Article 40(1)(b) of Directive 2005/36/EC outlined in Annexe 1 of this document.[253]

Endnotes

[1]European Commission, Directive 2005/36/EC of the European Parliament and of the Council, of 7 September 2005, on the recognition of professional qualifications, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX-:02005L0036-20200424&qid=1600271014953&from=EN#tocId48

[2] Mendeley is a reference management application that is widely used by academic researchers.

[3]Only 10 State Board of Nursing set clinical practice hours

[4]GMC, Our Role, and the Medical Act 1983: https://www.gmc-uk.org/about/what-we-do-and-why/our-mandate [accessed 17/03/2021]

[5]GMC, GMC Data, Reports: https://data.gmc-uk.org/gmcdata/home/#/reports/The%20Register/Stats/report [accessed 17/03/2021]

[6]Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications. Section 2, Article 24 (2).

[7]BMA, 2020, Medical Training Pathway: https://www.bma.org.uk/advice-and-support/studying-medicine/becoming-a-doctor/medical-training-pathway

[8]GMC, 2016, Promoting excellence: standards for medical education and training: https://www.gmc-uk.org/-/media/documents/promoting-excellence-standards-for-medical-education-and-training-0715_pdf-61939165.pdf

[9]Medical Schools Council, Entry Requirements: https://www.medschools.ac.uk/studying-medicine/making-an-application/entry-requirements#:~:text=Minimum%20total%20of%2037%20points,Biology%20at%20Standard%20level%206. [accessed 17/03/2021]

[10]GMC, Becoming a Doctor in the UK: https://www.gmc-uk.org/education/becoming-a-doctor-in-the-uk [accessed 21/01/2021]

[11]GMC, Becoming a Doctor in the UK: Getting into Medical School: https://www.gmc-uk.org/education/becoming-a-doctor-in-the-uk/getting-into-medical-school [accessed 24/01/2021]

[12]GMC, 2016, Promoting excellence: standards for medical education and training: https://www.gmc-uk.org/-/media/documents/promoting-excellence-standards-for-medical-education-and-training-0715_pdf-61939165.pdf

[13]GDC, About us: https://www.gdc-uk.org/about-us [accessed 17/03/2021]

[14]GDC, 2020, Registration Statistical Report 2019: https://www.gdc-uk.org/docs/default-source/registration-reports/gdc-registration-statistical-report-2019---final-30-09-2020.pdf?sfvrsn=53215636_12

[15]OECD, 2020, Health Statistics 2020: Dentists Graduates: https://stats.oecd.org/Index.aspx?ThemeTreeId=9

[16]Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications, Section 4, Article 34 (2)

[17]British Dental Association, Dental Foundation Training: https://bda.org/careers/Aftergraduation/Pages/DentalFoundationTraining.aspx [accessed 17/03/2021]

[18]A. Tavkar & A. Pawar, 2017, 'Simulation in Dentistry'. EC Dental Science. 12. 115-121.

[19]UCAS, Careers, Job Profile: Dentist: https://www.ucas.com/ucas/after-gcses/find-career-ideas/explore-jobs/job-profile/dentist [accessed 17/03/2021]

[20]British Dental Association, Dental Foundation Training: https://bda.org/careers/Aftergraduation/Pages/DentalFoundationTraining.aspx [accessed 17/03/2021]

[21]British Dental Association, Becoming a Dentist: https://bda.org/careers/becomingadentist [accessed 25/01/2021]

[22]GDC, 2015, Preparing for Practice: Dental team learning outcomes for registration: https://www.gdc-uk.org/docs/default-source/registration-for-dcps-qualified-overseas/preparing-for-practice-(revised-2015)-(3)9cfe2565e7814f6b-89ff98149f436bc7.pdf?sfvrsn=ab3900f4_7

[23]General Pharmaceutical Council, What we do: https://www.pharmacyregulation.org/about-us/what-we-do [accessed 17/03/2021]

[24]General Pharmaceutical Council (2020), Annual Report, 2019-2020: https://www.pharmacyregulation.org/sites/default/files/document/gphc-annual-report-2019-20.pdf

[25]OECD, 2020, Health Statistics 2020: Pharmacists Graduates: https://stats.oecd.org/Index.aspx?ThemeTreeId=9

[26]GPhC, 2021, Standards for the initial education and training of pharmacists: https://www.pharmacyregulation.org/sites/default/files/document/standards-for-the-initial-education-and-training-of-pharmacists-january-2021.pdf

[27]GPhC, 2021, Standards for the initial education and training of pharmacists: https://www.pharmacyregulation.org/sites/default/files/document/standards-for-the-initial-education-and-training-of-pharmacists-january-2021.pdf

[28]GPhC, 2021, Standards for the initial education and training of pharmacists: https://www.pharmacyregulation.org/sites/default/files/document/standards-for-the-initial-education-and-training-of-pharmacists-january-2021.pdf

[29]The University of Manchester, MPharm/Pharmacy, Entry Requirements: https://www.manchester.ac.uk/study/undergraduate/courses/2021/01695/mpharm-pharmacy/entry-requirements/ [accessed 18/03/2021]

[30]GPhC, Pharmacist Pre-Registration Training Scheme: https://www.pharmacyregulation.org/education/pharmacist-pre-registration-training-scheme [acccessed 26/01/2021]

[31]GPhC, 2021, Standards for the initial education and training of pharmacists: https://www.pharmacyregulation.org/sites/default/files/document/standards-for-the-initial-education-and-training-of-pharmacists-january-2021.pdf

[32]HCPC, What we do: https://www.hcpc-uk.org/about-us/what-we-do/ [accessed 18/03/2021]

[33]HCPC, 2020, Registrant Snapshot, 3 November 2020: https://www.hcpc-uk.org/about-us/insights-and-data/the-register/registrant-snapshot---3-november-2020/

[34]Chartered Society of Physiotherapy, 2021, Annual Quality Review 2019/2020: UK Pre-registration Physiotherapy Education: https://www.csp.org.uk/system/files/publication_files/Annual%20Quality%20Review%202019-20.pdf

[35]Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications, Annex 5.1.3. Titles of training courses in specialised medicine.

[36]HCPC, 2017, Standards of education and training guidance: https://www.hcpc-uk.org/globalassets/resources/guidance/standards-of-education-and-training-guidance.pdf?v=637106444300000000

[37]NHS Health Careers, Entry Requirements and Training (Physiotherapist): https://www.healthcareers.nhs.uk/explore-roles/allied-health-professionals/roles-allied-health-professions/physiotherapist/entry-requirements-and-training-physiotherapist [accessed 18/03/2021]

[38]Institute for Apprenticeships and Technical Education, Physiotherapist (Integrated Degree): https://www.instituteforapprenticeships.org/apprenticeship-standards/physiotherapist-(integrated-degree)-v1-0 [accessed 18/03/2021]

[39]HCPC, 2017, Standards of education and training guidance: https://www.hcpc-uk.org/globalassets/resources/guidance/standards-of-education-and-training-guidance.pdf?v=637106444300000000

[40]NHS Health Careers, Entry Requirements and Training (Physiotherapist): https://www.healthcareers.nhs.uk/explore-roles/allied-health-professionals/roles-allied-health-professions/physiotherapist/entry-requirements-and-training-physiotherapist [accessed 18/03/2021]

[41]According to NMBI, there are currently c. 78,000 registered nurses and midwives in Ireland (NMBI, Registration: https://www.nmbi.ie/Registration#:~:text=All%20nurses%20and%20midwives%20who,midwives%20are%20registered%20with%20us. [accessed 19/03/2021]). With a population of 4.9 million, this equates to around 16 nurses and midwives per 1,000 people.

[42]NMBI, What we do: https://www.nmbi.ie/What-We-Do [accessed 18/03/2021].

[43]NMBI (2016) Nurse Registration Programmes Standards and Requirements Nurse Registration Programmes Standards and Recommitments (Fourth Edition) nurse-registration-education-programme.pdf (nmbi.ie)

[44]NMBI (2016) Midwife Registration Programme Standards and Requirements (Fourth Edition) MASTER – NMBI Standards MREP 23.11.15.indd

[45]NMBI confirms that 'This internship usually attracts some payment to the student.': https://www.nmbi.ie/Careers-in-Nursing-Midwifery/Becoming-a-Nurse-Midwife/Course-content-and-placements
Student nurses/midwives on rostered placement also appear on HSE's Consolidated Salary Scales: https://healthservice.hse.ie/filelibrary/staff/october-2020-consolidated-pay-scales.pdf.

[46]NMBI (2016) Nurse Registration Programmes Standards and Requirements Nurse Registration Programmes Standards and Recommitments (Fourth Edition); NMBI (2016) Midwife Registration Programme Standards and Requirements (Fourth Edition).

[47]University College Cork, General Nursing: Entry Requirements: https://www.ucc.ie/en/ck710/#section3 [accessed 18/03/2021]; Trinity College Dublin, General Nursing: Admission Requirements: https://www.tcd.ie/courses/undergraduate/az/course.php?id=DUBNM-GNUR-2F09 [accessed 18/03/2021].

[48]NMBI (2016) Nurse Registration Programmes Standards and Requirements Nurse Registration Programmes Standards and Recommitments (Fourth Edition) nurse-registration-education-programme.pdf (nmbi.ie)

[49]NMBI (2016) Nurse Registration Programmes Standards and Requirements Nurse Registration Programmes Standards and Recommitments (Fourth Edition) nurse-registration-education-programme.pdf (nmbi.ie)

[50]University College Cork, Midwifery: Entry Requirements: https://www.ucc.ie/en/ck740/ [accessed 19/03/2021]; Trinity College Dublin, Midwifery: Admission Requirements: https://www.tcd.ie/courses/undergraduate/az/course.php?id=DUBNM-MIDW-2F09 [accessed 19/03/2021].

[51]NMBI (2016) Midwife Registration Programme Standards and Requirements (Fourth Edition) MASTER – NMBI Standards MREP 23.11.15.indd

[52]The National Maternity Hospital, Midwifery Courses: http://www.nmh.ie/home/midwifery-courses-placements.13652.html [accessed 19/03/2021].

[53]NMBI (2016) Midwife Registration Programme Standards and Requirements (Fourth Edition) MASTER – NMBI Standards MREP 23.11.15.indd

[54]Redmond. C et al., 2018, 'Nursing and midwifery students' perception of learning enablers and gains in the first semester of their BSc programmes: A cross sectional study', Nurse Education Today, 65:

[55]Bradshaw. C, Tighe S. M.,. Doody O, 2018, 'Midwifery students' experiences of their clinical internship: A qualitative descriptive study' Nurse Education Today, 68:

[56]Socialstyrelsen, 2015, The National Board of Health and Welfare: https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/ovrigt/2015-9-10.pdf

[57]Lisa Smeds Alenius, Rikard Lindqvist, and Carol Tishelman, 'Sweden', in Anne Marie Rafferty et al. Strengthening health systems through nursing: Evidence from 14 European countries (Copenhagen, 2019):

[58]Lisa Smeds Alenius, Rikard Lindqvist, and Carol Tishelman, 'Sweden', in Anne Marie Rafferty et al. Strengthening health systems through nursing: Evidence from 14 European countries (Copenhagen, 2019):

[59]University of Gothenburg, Programme in Midwifery Science: https://www.gu.se/en/study-gothenburg/programme-in-midwifery-science#The-degree [accessed 19/03/2021]. Number of hours determined by Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications, Section 6, Article 41 (1c).

[60]Zwedberg S., Barimani M., Jonas W., 2020, 'Exploring the internship experiences of Swedish final term student midwives: A cross-sectional survey,' Sexual & Reproductive Healthcare, 26:
Proportion of time spent in clinical practice is determined by ICM, 2013, Global Standards for Midwifery Education (2010) Amended 2013: https://www.internationalmidwives.org/assets/files/general-files/2018/04/icm-standards-guidelines_ammended2013.pdf

[61]ICM, 2013, Global Standards for Midwifery Education (2010) Amended 2013: https://www.internationalmidwives.org/assets/files/general-files/2018/04/icm-standards-guidelines_ammended2013.pdf

[62]Henriksen, J. et al., 'European Union directives and clinical practice in nursing education in the Nordic countries', Nordic journal of nursing research, (2019) 40(1): 3-5

[63]Smeds Alenius, L, Lindqvist, R, and Tishelman C, 'Sweden', in Anne Marie Rafferty et al. Strengthening health systems through nursing: Evidence from 14 European countries (Copenhagen, 2019).

[64]Swedish Council for Higher Education, 1993, The Higher Education Ordinance. Annex 2: Qualifications Ordinance, Degree of Bachelor of Science in Nursing: https://www.uhr.se/en/start/laws-and-regulations/Laws-and-regulations/The-Higher-Education-Ordinance/Annex-2/#BSc_Nursing

[65]Zwedberg, S, Barimani, M, Jonas, W, 'Exploring the internship experiences of Swedish final term student midwives: A cross-sectional survey,' Sexual & Reproductive Healthcare, 26, 2020:

[66]The Swedish Association of Midwives, 2019, Description of Required Competencies for Registered Midwives: https://storage.googleapis.com/barnmorskeforbundet-se/uploads/2019/11/Description-of-Required-Competences-for-Registered-Midwives_The-Swedish-Association-of-Midwives-2019.pdf; See also admission requirements for the programme in midwifery science at University of Gothenburg: https://www.gu.se/en/study-gothenburg/programme-in-midwifery-science#Admissions

[67]Swedish Council for Higher Education, 1993, The Higher Education Ordinance. Annex 2: Qualifications Ordinance, Postgraduate Diploma in Midwifery: https://www.uhr.se/en/start/laws-and-regulations/Laws-and-regulations/The-Higher-Education-Ordinance/Annex-2/#PostDipl_Midwife

[68]Willman, A, Bjuresäter, K, Nilsson, J, 2020, 'Insufficiently supported in handling responsibility and demands: Findings from a qualitative study of newly graduated nurses', Journal of Clinical Nursing:

[69]Zwedberg, S, Barimani, M, Jonas, W, 2020, 'Exploring the internship experiences of Swedish final term student midwives: A cross-sectional survey,' Sexual & Reproductive Healthcare, 26:

[70]Bäck L, Karlström, A, 2020, 'Developing confidence during midwifery training: The experience of Swedish final year students,' Sexual & Reproductive Healthcare, 25:

[71]Willman, A, Bjuresäter, K, Nilsson, J, 2020, 'Newly graduated nurses' clinical competencies and need for further training in acute care hospitals', Journal of Clinical Nursing, 29:

[72]Forsman, H, Jansson I., Leksell J., Lepp M., Sundin Andersson C., Engström M., Nilsson J., 2020, 'Clusters of competence: Relationship between self-reported professional competence and achievement on a national examination among graduating nursing students. Journal of Advanced Nursing, 76(1):

[73]Jirwe M., Emami A, Gerrish K., 2015, 'Learning to Nurse in a Multicultural Society – The Experiences of Nursing Students in Sweden', Nursing and Care, 4:5:

[74]Hultsjö S., Bachrach-Lindström M., Safipour J., Hadziabdic E., 2019, "Cultural awareness requires more than theoretical education" - Nursing students' experiences,' Nurse Education in Practice, 39:

[75]Bäck L., Sharma B., Karlström A., Tunon K., Hildingsson I., 2017, 'Professional confidence among Swedish final year midwifery students – A cross-sectional study', Sexual & Reproductive Healthcare, 14:

[76]Lendahls L., 2017, 'Midwifery students' experiences of simulation- and skills training', Nurse Education Today, Volume 50: https://doi.org/10.1016/j.nedt.2016.12.005.

[77]Consejo general de Enfermeria de Espana, Who we are: https://www.consejogeneralenfermeria.org/institucional/quienes-somos

[78]Hernández-Quevedo, Cristina and Teresa Moreno-Casbas María, 'Spain', in Anne Marie Rafferty et al. Strengthening health systems through nursing: Evidence from 14 European countries (Copenhagen, 2019)

[79]Boletín Oficial del Estado. 2009; (129), Orden SAS/1349/2009, de 6 de mayo, por la que se aprueba y publica el programa formativo de la especialidad de Enfermería Obstétrico Ginecológica (Matrona):

[80]ICM, 2013, Global Standards for Midwifery Education (2010) Amended 2013: https://www.internationalmidwives.org/assets/files/general-files/2018/04/icm-standards-guidelines_ammended2013.pdf

[81]Universidad San Pablo, Degree in Nursing: https://www.uspceu.com/oferta-formativa/grado/grado-en-enfermeria [accessed 19/03/2021]

[82]Cristina Hernández-Quevedo and María Teresa Moreno-Casbas, 'Spain', in Anne Marie Rafferty et al. Strengthening health systems through nursing: Evidence from 14 European countries (Copenhagen, 2019)

[83]Romero-Collado A, et al. 2017, 'Nurse prescribing in Spain: The law and the curriculum' Nursing and Health Sciences, 19:3

[84]Maquibar Landa A., Estalella I., Vives-Cases C., Hurtig A-K., Goicolea I., 2019, 'Analysing training in gender-based violence for undergraduate nursing students in Spain: A mixed-methods study' Nurse Education Today, 77

[85]Romero-Collado, A., Raurell-Torreda, M., Zabaleta-del-Olmo, E., Homs-Romero, E., & Bertran-Noguer, C. 2015, 'Course Content Related to Chronic Wounds in Nursing Degree Programs in Spain.' Journal of Nursing Scholarship, 47:1

[86]Miró, J., Castarlenas, E., Solé, E. et al., 2019, 'Pain curricula across healthcare professions undergraduate degrees: a cross-sectional study in Catalonia, Spain.' BMC Med Educ 19, 307.

[87]León-Larios F., 'The Current Situation of Midwives in Spain', in Consell de Collegis d'Infermeres i Infermers de Catalunya, Maternity Care in Different Countries: Midwife's Contribution (Barcelona, 2016), pp. 26-31.

[88]Boletín Oficial del Estado. 2009; (129), Orden SAS/1349/2009, de 6 de mayo, por la que se aprueba y publica el programa formativo de la especialidad de Enfermería Obstétrico Ginecológica (Matrona): https://www.mscbs.gob.es/profesionales/formacion/docs/enfermeriaObstetricoGineMatronas.pdf

[89]Boletín Oficial del Estado. 2009; (129), Orden SAS/1349/2009, de 6 de mayo, por la que se aprueba y publica el programa formativo de la especialidad de Enfermería Obstétrico Ginecológica (Matrona): https://www.mscbs.gob.es/profesionales/formacion/docs/enfermeriaObstetricoGineMatronas.pdf

[90]Suarez-Garcia J.-M., Maestro-Gonzalez A., Zuazua-Rico D., Sánchez-Zaballos M., Mosteiro-Diaz M.-P., 'Stressors for Spanish nursing students in clinical practice', Nurse Education Today, 64, 2018:

[91]Soler O. M., Aguayo-González M., Gutiérrez S. S. R., Pera M. J., Leyva-Moral J. M., 'Nursing students' expectations of their first clinical placement: A qualitative study,' Nurse Education Today, 98, 2021:

[92]González-Chordá V. M., Maciá-Soler M. L., 'Evaluation of the quality of the teaching-learning process in undergraduate courses in Nursing', Revista Latino-Americana de Enfermagem, 23:4, 2015: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4623966/

[93]Webb S. S., Skene E. R., Manresa M., Percy E. K., Freeman R. M., Tincello D. G., 2021, 'Evaluation of midwifery pelvic floor education and Training across the UK and Spain,' European Journal of Obstetrics & Gynecology and Reproductive Biology, 256:

[94]Jiménez-Rodríguez D. and Arrogante O., 'Simulated Video Consultations as a Learning Tool in Undergraduate Nursing: Students' Perceptions', Healthcare, 8, 2020

[95]CCRNR, Entry-Level Competencies (ELCs) for the Practice of Registered Nurses, 2018: http://www.ccrnr.ca/assets/draft-rn-elc-competencies-july-24-2018_en.pdf

[96]Canadian Nurses Association, Nursing Education: https://www.cna-aiic.ca/en/nursing-practice/the-practice-of-nursing/education [accessed 18/03/2021]

[97]Butler M., Hutton E. K., McNiven P. S., 'Midwifery Education in Canada, Midwifery, 33 (2016), pp. 28-30

[98]University of British Columbia, School of Nursing: Clinical Skills and Simulation Lab: https://nursing.ubc.ca/undergraduate-learning/clinical-skills-simulation-lab [accessed 19/03/2021]

[99]Ryerson University, Midwifery Education Programme: https://www.ryerson.ca/midwifery/program/ [accessed 19/03/2021].

[100]Canadian Nurses Association, RN and Baccalaureate Education: https://www.cna-aiic.ca/en/nursing-practice/the-practice-of-nursing/education/rn-baccalaureate-education [accessed 18/03/2021]. In Quebec, the 3-year Diploma in Nursing studies is still accepted for registration and licensure.

[101]https://www.cna-aiic.ca/en/nursing-practice/the-practice-of-nursing/education [accessed 18/03/2021]

[102]Canadian Nurses Association (2015), Framework for the Practice of Registered Nurses in Canada: https://www.cna-aiic.ca/~/media/cna/page-content/pdf-en/framework-for-the-pracice-of-registered-nurses-in-canada.pdf?la=en

[103]Canadian-universities.net: Nursing Admission Requirements for Canadian Universities: http://www.canadian-universities.net/Universities/Programs/Nursing-Prerequisites.html [accessed 19/03/2021]

[104]Canadian Nurses Association, Nursing as a Career - The Licensing Exam https://www.cna-aiic.ca/en/nursing-practice/nursing-as-a-career/the-licensing-exam [accessed 19/03/2021]

[105]The 9 broad roles are clinician, professional, communicator, collaborator, coordinator, leader, advocate, educator, scholar. College and Association of Registered Nurses of Alberta (2019), Entry-Level Competencies for the Practice of Registered Nurses: https://www.nurses.ab.ca/docs/default-source/document-library/standards/entry-to-practice-competencies-for-the-registered-nurses-profession.pdf?sfvrsn=15c1005a_16

[106]Canadian Nurses Association (2015), Framework for the Practice of Registered Nurses in Canada: https://www.cna-aiic.ca/~/media/cna/page-content/pdf-en/framework-for-the-pracice-of-registered-nurses-in-canada.pdf?la=en

[107]Canadian Association of Midwives, Education: https://canadianmidwives.org/education/ [accessed 19/03/2021].

[108]Butler Michelle M., Hutton Eileen K., McNiven Patricia S., 'Midwifery Education in Canada, Midwifery, 33 (2016), pp. 28-30

[109]Ryerson University, Midwifery Education Programme: https://www.ryerson.ca/midwifery/program/ [accessed 19/03/2021].

[110]Ryerson University, Midwifery Education Programme: Admissions: https://www.ryerson.ca/midwifery/admissions/ [accessed 19/03/2021]

[111]Canadian Midwifery Regulators Council, Registration Exam: https://cmrc-ccosf.ca/registration-exam [accessed 19/03/2021].

[112]Canadian Midwifery Regulators' Council, 2018, Canadian Competencies for Midwives: https://cmrc-ccosf.ca/sites/default/files/pdf/National_Competencies_ENG.pdf

[113]Ryerson University, Midwifery Education Programme: https://www.ryerson.ca/midwifery/program/ [accessed 19/03/2021].

[114]Matthew-Maich N., Martin L., Ackerman-Rainville R., Hammond C., Palma A., Sheremet D., Stone R., 'Student perceptions of effective nurse educators in clinical practice.' Nursing Standard, 29:34, 2015:

[115]Matthew-Maich N, Martin L, Hammond C, Palma A, Pavkovic M, Sheremet D, Roche C. Nursing students' perceptions of effective problem-based learning tutors. Nursing Standard, 31:12. 2016: https://journals.rcni.com/nursing-standard/nursing-students-perceptions-of-effective-problembased-learning-tutors-ns.2016.e10318

[116]Webster A, Bowron C, Matthew-Maich N, Patterson P. The effect of nursing staff on student learning in the clinical setting. Nursing Standard, 30:40, 2016:

[117]Landeen J., Carr D., Culver K., Martin L., Matthew-Maich N., Noesgaard C., Beney-Gadsby L., 'The impact of curricular changes on BSCN students' clinical learning outcomes', Nurse Education in Practice, 21, 2016:

[118]Pijl-Zieber E. M., Barton S., Awosoga O. A. and Konkin J., 'Nursing Students Achieving Community Health Competencies through Undergraduate Clinical Experiences: A Gap Analysis', International Journal of Nursing Education Scholarship, 12:1, 2015

[119]NMBA, About: https://www.nursingmidwiferyboard.gov.au/About.aspx [accessed 26/03/2021]

[120]ANMAC, About ANMAC: https://www.anmac.org.au/about-anmac [accessed 26/03/2021]

[121]Emeritus Professor Steven Schwartz (2019), Educating the Nurse of the Future: Report of the Independent Review of Nursing Education (Department of Health): https://www.health.gov.au/sites/default/files/documents/2019/12/educating-the-nurse-of-the-future.pdf

[122]Ebert Lyn, Tierney Olivia, Jones Donovan, 'Learning to be a midwife in the clinical environment; tasks, clinical practicum hours or midwifery relationships', Nurse Education in Practice, Volume 16, Issue 1, 2016, Pages 294-297, ISSN 1471-5953,

[123]Australian Nursing & Midwifery Accreditation Council, 2014, Midwife Accreditation Standards 2014: https://www.anmac.org.au/sites/default/files/documents/ANMAC_Midwife_Accreditation_Standards_2014.pdf

[124]Emeritus Professor Steven Schwartz (2019), Educating the Nurse of the Future: Report of the Independent Review of Nursing Education (Department of Health)

[125]Australian Nursing & Midwifery Accreditation Council, 2014, Midwife Accreditation Standards 2014: https://www.anmac.org.au/sites/default/files/documents/ANMAC_Midwife_Accreditation_Standards_2014.pdf

[126]Lyn Ebert, Olivia Tierney, Donovan Jones, 'Learning to be a midwife in the clinical environment; tasks, clinical practicum hours or midwifery relationships', Nurse Education in Practice, Volume 16, Issue 1, 2016, Pages 294-297, ISSN 1471-5953

[127]Emeritus Professor Steven Schwartz (2019), Educating the Nurse of the Future: Report of the Independent Review of Nursing Education (Department of Health

[128]Western Sydney University, Bachelor of Midwifery: https://www.westernsydney.edu.au/future/study/courses/undergraduate/bachelor-of-midwifery.html [accessed 19/03/2021]

[129]Australian Nursing & Midwifery Accreditation Council, 2019, Registered Nurse Accreditation Standards 2019: https://www.anmac.org.au/sites/default/files/documents/registerednurseaccreditationstandards2019_0.pdf; Australian Nursing and Midwifery Accreditation Council, 2021, Midwife Accreditation Standards 2021: https://www.anmac.org.au/sites/default/files/documents/06920_anmac_midwife_std_2021_online_05_fa.pdf

[130]Emeritus Professor Steven Schwartz (2019), Educating the Nurse of the Future: Report of the Independent Review of Nursing Education (Department of Health)

[131]My Health Career, ATAR for nursing – your guide to the ATAR for every nursing course in Australia in 2020: https://www.myhealthcareer.com.au/nursing/atar-for-nursing-2020/

[132]NSW Government, Becoming a registered Nurse: https://www.health.nsw.gov.au/nursing/careers/Pages/registered-nurse.aspx

[133]Australian Nursing & Midwifery Accreditation Council, 2017, Review of Registered Nurse Accreditation Standards Consultation Paper 1: https://www.anmac.org.au/sites/default/files/documents/RNAS_Consultation_Paper_1_Sept_2017.pdf

[134]Southern Cross University, RL Guide – Bachelor of Nursing: https://www.scu.edu.au/health/rpl-guide-bachelor-of-nursing/

[135]Australian Nursing & Midwifery Accreditation Council, 2019, Registered Nurse Accreditation Standards 2019: https://www.anmac.org.au/sites/default/files/documents/registerednurseaccreditationstandards2019_0.pdf

[136]Emeritus Professor Steven Schwartz (2019), Educating the Nurse of the Future: Report of the Independent Review of Nursing Education (Department of Health)

[137]My Health Career, ATAR for nursing – your guide to the ATAR for every nursing course in Australia in 2020: https://www.myhealthcareer.com.au/nursing/atar-for-nursing-2020/

[138]Master of Midwifery Practice – HLM001, University of Canberra, https://www.canberra.edu.au/coursesandunits/course?course_cd=HLM001&version_number=1&title=Master-of-Midwifery-Practice&location=BRUCE&rank=CCC&faculty=Faculty-of-Health&year=2020

[139]Australian Nursing and Midwifery Accreditation Council, 2021, Midwife Accreditation Standards 2021: https://www.anmac.org.au/sites/default/files/documents/06920_anmac_midwife_std_2021_online_05_fa.pdf

[140]Stomski N. et al., 'The influence of situation awareness training on nurses' confidence about patient safety skills: A prospective cohort study, Nurse Education Today, 63, 2018:

[141]Fagan A., Lea J., Parker V., 'Conflict, confusion and inconsistencies: Pre-registration nursing students' perceptions and experiences of speaking up for patient safety,' Nursing Inquiry, 28:1, 2020:

[142]Birks M. et al., 'Uncovering degrees of workplace bullying: A comparison of baccalaureate nursing students' experiences during clinical placement in Australia and the UK, Nurse Education Today, 2017:

[143]McInnes S., Halcomb E. J., Huckel K., Ashley C., 'Experiences of registered nurses in a general practice-based new graduate program: A qualitative study', University of Wollongong Faculty of Science, Medicine and Health, 2019,

[144]Lyn Ebert, Olivia Tierney, Donovan Jones, 'Learning to be a midwife in the clinical environment; tasks, clinical practicum hours or midwifery relationships', Nurse Education in Practice, Volume 16, Issue 1, 2016, Pages 294-297, ISSN 1471-5953

[145]Commonwealth of Australia, Department of Health (2014), Aboriginal and Torres Strait Islander Health Curriculum Framework https://www1.health.gov.au/internet/main/publishing.nsf/Content/72C7E23E1BD5E9CFCA257F-640082CD48/$File/Health%20Curriculum%20Framework.pdf

[146]Congress of Aboriginal and Torres Strait Islander Nurses and Midwives, 2017, The Nursing and Midwifery Aboriginal and Torres Strait Islander Health Curriculum Framework: https://www.catsinam.org.au/static/uploads/files/nursing-midwifery-health-curriculum-framework-final-version-1-0-wfff-egyedblq.pdf

[147]Kurtz D. L. M. et al, 'Health Sciences cultural safety education in Australia, Canada, New Zealand, and the United States: a literature review,' International Journal of Medical Education, 2018

[148]Kunst E. L. el al., 'A Scoping Review of the Use and Contribution of Simulation in Australian Undergraduate Nurse Education', Clinical Simulation in Nursing, 19, 2018:

[149]Bogossian F. et al., 'Best practice in clinical simulation education – are we there yet? A cross-sectional survey of simulation in Australian and New Zealand pre-registration nursing education', Collegian, Volume 25, Issue 3, 2018, pp. 327-334

[150]Andersen H., et al, 'The effects of a virtual learning environment compared with an individual handheld device on pharmacology knowledge acquisition, satisfaction and comfort ratings', Nurse Education Today. 2020:

[151]NCNZ, Abouts us: https://www.nursingcouncil.org.nz/Public/About/NCNZ/About.aspx?hkey=53ee9e4d-1124-4f63-97bd-d6d759b8c525 [accessed 26/03/2021]

[152]MCNZ, About us: https://www.midwiferycouncil.health.nz/Public/About-Us/Public/04.-About-Us/About-Us.aspx?hkey=c52044d6-4140-4243-b160-3812dd70e8fb [accessed 26/03/2021]

[153]NCNZ, Registered Nurse: https://nursingcouncil.org.nz/Public/Education/How_to_become_a_nurse/Registered_nurse/NCNZ/Education-section/Registered_Nurse.aspx?hkey=b7246e10-b2ac-463e-b735-308667320bbd [accessed 18/03/2021]

[154]New Zealand College of Midwives, How to Become a Midwife: https://www.midwife.org.nz/midwives/midwifery-in-new-zealand/how-to-become-a-midwife/ [accessed 22/03/2021]

[155]NCNZ, 2020, Handbook for Pre-registration nursing programmes: https://www.nursingcouncil.org.nz/Public/Education/Schools_Handbook/NCNZ/Education-section/Schools_Handbook.aspx

[156]MCNZ, 2019, Standards for approval of pre-registration midwifery education programmes and accreditation of tertiary education organisations (3 rd edition): https://www.midwiferycouncil.health.nz/common/Uploaded%20files/Registration/Pre-reg%20standards%20final%20for%20publication%20161219.pdf

[157]Handbook for Pre registration nursing programmes, Nursing Council of New Zealand, January 2020, https://www.nursingcouncil.org.nz/Public/Education/Schools_Handbook/NCNZ/Education-section/Schools_Handbook.aspx

[158]https://www.auckland.ac.nz/en/study/study-options/find-a-study-option/bachelor-of-nursing-bnurs.html [accessed 19/03/2021]

[159]NCNZ, 2020, Handbook for Pre-registration nursing programmes: https://www.nursingcouncil.org.nz/Public/Education/Schools_Handbook/NCNZ/Education-section/Schools_Handbook.aspx

[160]NCNZ, 2020, Handbook for Pre-registration nursing programmes: https://www.nursingcouncil.org.nz/Public/Education/Schools_Handbook/NCNZ/Education-section/Schools_Handbook.aspx

[161]NCNZ, 2020, Handbook for Pre-registration nursing programmes: https://www.nursingcouncil.org.nz/Public/Education/Schools_Handbook/NCNZ/Education-section/Schools_Handbook.aspx

[162]Gilkison, A et al, 'Midwifery education in New Zealand: Education, practice and autonomy', Midwifery, 33 (2016) 31-33

[163]MCNZ, 2019, Standards for approval of pre-registration midwifery education programmes and accreditation of tertiary education organisations (3 rd edition): https://www.midwiferycouncil.health.nz/common/Uploaded%20files/Registration/Pre-reg%20standards%20final%20for%20publication%20161219.pdf

[164]Gilkison, A et al, 'Midwifery education in New Zealand: Education, practice and autonomy', Midwifery, 33 (2016) 31-33

[165]https://www.aut.ac.nz/study/study-options/health-sciences/courses/bachelor-of-health-science-in-midwifery [accessed 22/03/2021]

[166]MCNZ, 2019, Standards for approval of pre-registration midwifery education programmes and accreditation of tertiary education organisations (3 rd edition): https://www.midwiferycouncil.health.nz/common/Uploaded%20files/Registration/Pre-reg%20standards%20final%20for%20publication%20161219.pdf

[167]Midwifery Council, Aotearoa, Midwifery education in Aotearoa, New Zealand: Pre-registration Programmes of Education: https://www.midwiferycouncil.health.nz/Public/Midwifery-in-Aotearoa--New-Zealand/I-want-to-be-a-midwife-in-Aotearoa--New-Zealand/Midwifery-education-in-New-Zealand/Public/07.-I-want-to-be-a-midwife-Aotearoa--New-Zealand/1.-Midwifery-education-in-New-Zealand.aspx?hkey=eee21da3-f7d7-430c-a6ea-48e0d6852100

[168]MCNZ, 2019, Standards for approval of pre-registration midwifery education programmes and accreditation of tertiary education organisations (3 rd edition): https://www.midwiferycouncil.health.nz/common/Uploaded%20files/Registration/Pre-reg%20standards%20final%20for%20publication%20161219.pdf

[169]MCNZ, 2019, Standards for approval of pre-registration midwifery education programmes and accreditation of tertiary education organisations (3 rd edition): https://www.midwiferycouncil.health.nz/common/Uploaded%20files/Registration/Pre-reg%20standards%20final%20for%20publication%20161219.pdf

[170]Midwifery Council, Aotearoa, New Zealand graduate registration: https://www.midwiferycouncil.health.nz/Public/07.-I-want-to-be-a-midwife/2.-New-Zealand-graduate-registration.aspx [accessed 19/03/2021]

[171]Gilkison, A et al, 'Midwifery education in New Zealand: Education, practice and autonomy', Midwifery, 33 (2016) 31-33

[172]Patterson J., 'Evaluation of the learning components of a blended Bachelor of Midwifery programme: student perceptions of how these contributed to their learning and their readiness for practice', New Zealand College of Midwives Journal, 51, 2015:

[173]Gilkison, A et al, 'Midwifery education in New Zealand: Education, practice and autonomy', Midwifery, 33 (2016) 31-33

[174]Montayre J. et al., 'New Zealand nursing students' perceptions of biosciences: A cross-sectional survey of relevance to practice, teaching delivery, self-competence and challenges', Nurse Education Today, 79, 2019:

[175]Kurtz D. L. M et al, 'Health Sciences cultural safety education in Australia, Canada, New Zealand, and the United States: a literature review,' International Journal of Medical Education, 2018

[176]Zambas S. I., Dutch S., Gerrard D., 'Factors influencing Māori student nurse retention and success: An integrative literature review,' Nurse Education Today, 91, 2020:

[177]Patterson J. et al. 'Strategies for improving the experiences of Māori students in a blended Bachelor of Midwifery programme,' New Zealand College of Midwives Journal, 53, 2017:

[178]According to NCSBN, there were 4,096,607 registered nurses in USA in October 2019 (NCSBN, 2020, NCSBN's Environmental Scan A Portrait of Nursing and Healthcare in 2020 and Beyond: https://www.journalofnursingregulation.com/action/showPdf?pii=S2155-8256%2820%2930022-3)
With a population of 328.2 million, this equates to 12.48 registered nurses per 1,000.

[179]According to NCSBN, there were 6,250 certified nurse midwives (CNM) in USA in May 2018 (NCSBN, 2020, NCSBN's Environmental Scan A Portrait of Nursing and Healthcare in 2020 and Beyond: https://www.journalofnursingregulation.com/action/showPdf?pii=S2155-8256%2820%2930022-3)
With a population of 328.2 million, this equates to c. 0.019 CNMs per 1,000. This figure is likely be an under-estimation as it does not include the number of certified midwives or certified professional midwives.

[180]Hong Lu Jie Li, Hu Rui, 'A review of the definition and scope of practice of midwives in five representative countries', Frontiers of Nursing, 5:3 (2018)

[181]Marzalik P R et al., 'Midwifery education in the U.S. - Certified Nurse-Midwife, Certified Midwife and Certified Professional Midwife', Midwifery, 60 (2018), pp. 9-12

[182]Monti Janice, 2021, How to Become a Registered Nurse, Nurse Journal: https://nursejournal.org/registered-nursing/how-to-become-a-rn/

[183]East Carolina University, 2019, Master of Science in Nursing Nurse-Midwifery: https://nursing.ecu.edu/wp-content/pv-uploads/sites/226/2018/09/cnm.pdf

[184]Marzalik P R et al., 'Midwifery education in the U.S. - Certified Nurse-Midwife, Certified Midwife and Certified Professional Midwife', Midwifery, 60 (2018), pp. 9-12

[185]Hayden J. (2010). Using simulation in nursing education: National survey results. Journal of Nursing Regulation, 1(3), 52–57.

[186]OHSU, Nurse Midwifery Graduate Academic Programme: https://www.ohsu.edu/school-of-nursing/nurse-midwifery-graduate-academic-program [accessed 19/03/2021]

[187]Bowling et al, 'No evidence to support number of clinical hours necessary for nursing competency', Journal of Pediatric Nursing, 39 (2018) 27-36

[188]Daisha J. Cipher, Judy L. LeFlore, Regina W. Urban, Mary E. Mancini, 'Variability of clinical hours in prelicensure nursing programs: Time for a reevaluation?', Teaching and Learning in Nursing' Volume 16, Issue 1, 2021, Pages 43-47, ISSN 1557-3087

[189]Bowling A, et al 'No Evidence to Support Number of Clinical Hours Necessary for Nursing Competency', Journal of Pediatric Nursing, Volume 39, March-April 2018, Pages 27-36

[190]Spencer, N et al, 'Board of Nursing Approval of Registered Nurse Education Programmes', Journal of Nursing Regulation, Volume 8/Issue 4, January 2018

[191]Hayden J. (2010). Using simulation in nursing education: National survey results. Journal of Nursing Regulation, 1(3), 52–57

[192]Aebersold M., 'Simulation-based learning: No longer a novelty in undergraduate education', Online Journal of Issues in Nursing, 23 (2018)

[193]Alexander M., Durham C. F., Hooper J. I., Jeffries P. R., Goldman N., Kardong-Edgren S. & Tillman C. (2015). 'NCSBN simulation guidelines for prelicensure nursing programs.' Journal of Nursing Regulation, 6(3), 39–42

[194]Monti Janice, 2021, How to Become a Registered Nurse, Nurse Journal

[195]Monti Janice, 2021, How to Become a Registered Nurse, Nurse Journal

[196]Monti Janice, 2021, How to Become a Registered Nurse, Nurse Journal

[197]Spector N., Hooper J. I.; Silvestre J. and Qian H., 'Board of Nursing Approval of Registered Nurse Education Programs', Journal of Nursing Regulation, 8:4 (2018)

[198]American College of Nurse-Midwives (2017) Comparison of Certified Nurse-Midwives, Certified Midwives, Certified Professional Midwives Clarifying the Distinctions Among Professional Midwifery Credentials in the U.S.

[199]Marzalik P R et al., 'Midwifery education in the U.S. - Certified Nurse-Midwife, Certified Midwife and Certified Professional Midwife', Midwifery, 60 (2018), pp. 9-12

[200]Li Jie, Lu Hong, Hu Rui, 'A review of the definition and scope of practice of midwives in five representative countries', Frontiers of Nursing, 5:3 (2018)

[201]Marzalik P R et al., 'Midwifery education in the U.S. - Certified Nurse-Midwife, Certified Midwife and Certified Professional Midwife', Midwifery, 60 (2018), pp. 9-12

[202]Marzalik P R et al., 'Midwifery education in the U.S. - Certified Nurse-Midwife, Certified Midwife and Certified Professional Midwife', Midwifery, 60 (2018), pp. 9-12

[203]Flott E.A. & Linden L. (2016) 'The clinical learning environment in nursing education: a concept analysis', Journal of Advanced Nursing, 72(3), 501-513

[204]Hickerson, K. A., et al (2016) 'The preparation – Practice gap: An integrative literature review', Journal of Continuing Education in Nursing, 47(1), 17–23

[205]Cipher, D. J., Judy L. LeFlore, Regina W. Urban, Mary E. Mancini, 'Variability of clinical hours in prelicensure nursing programs: Time for a reevaluation?, Teaching and Learning in Nursing, Volume 16, Issue 1, 2021, Pages 43-47, ISSN 1557-3087

[206]Potter K. Hussey, L. Ojeda, M, 'Clinical hours and program types effects on NCLEX pass rates', Teaching and Learning in Nursing, 000 (2021), 1-4.

[207]Plemmons, C., M. Clarke, D. Feng, 'Comparing student clinical self-efficacy and team process outcomes for a DEU, blended, and traditional clinical setting: A quasi-experimental research study', Nurse Education Today, 62, 2018

[208]The concept of self-efficacy, coined by psychologist Albert Bandura, denotes a personal judgment of one's own capabilities within a given situation. Clinical self-efficacy is therefore similar to self-confidence in a clinical setting, in that students with higher clinical self-efficacy generally have higher clinical self-confidence.

[209]Marzalik P R et al., 'Midwifery education in the U.S. - Certified Nurse-Midwife, Certified Midwife and Certified Professional Midwife', Midwifery, 60 (2018), pp. 9-12

[210]Cohen S. R., Thomas C. R., Gerard C., 'The Clinical Learning Dyad Model: An Innovation in Midwifery Education', Journal of Midwifery and Women's Health, 2015.

[211]Rowbotham M. and Owen R. M., 'The effect of clinical nursing instructors on student self-efficacy', nurse Education in Practice, 15, 2015

[212]Onovo G., 'Fundamentals of Nursing Practice and the Culturally Diverse ESL Nursing Students: The Students' Perspectives for Teaching and Learning in Nursing', Teaching and Learning in Nursing, 14, 2019.

[213]Hayden, J et al, 'The NCSBN National Simulation Study: A Longitudinal, Randomized, Controlled Study Replacing Clinical Hours with Simulation in Prelicensure Nursing Education', Journal of Nursing Regulation, Vol 5, Issue 2, July 2014 Supplement

[214]Blakeslee Janine R., 'Effects of high-fidelity simulation on the critical thinking skills of baccalaureate nursing students: A causal-comparative research study', Nurse Education Today, Volume 92, 2020, 104494, ISSN 0260-691

[215]Warren, J et al, 'A systematic review of the effectiveness of simulation-based education on satisfaction and learning outcomes in nurse practitioner programs', Nurse Education Today, Volume 46, 2016, Pages 99-108, ISSN 0260-6917, https://doi.org/10.1016/j.nedt.2016.08.023.

[216]Doolen at al, 'High-Fidelity Simulation in Undergraduate Nursing Education: A Review of Simulation Reviews', Clinical Simulation in Nursing, Volume 12, Issue 7, P290-302, July 01, 2016

[217]Smiley, R., 'Survey of Simulation Use in Prelicensure Nursing Programs: Changes and Advancements', 2010-2017, Journal of Nursing Regulation, Volume 9, Issue 4, P. 48-61, January 01, 2019

[218]Miller, J., L., et al., 'Emergency Birth Hybrid Simulation with Standardized Patients in Midwifery Education: Implementation and Evaluation', Journal of Midwifery and Women's Health, 60:3, 2015

[219]Philippine Statistics Authority, 2020, Philippine National Health Accounts: https://psa.gov.ph/pnha-press-release/node/163258

[220]According to the Philippine Statistics Authority, there were 6,520 registered nurses in 2015. (Philippine Statistics Authority, 2015, Metadata on Gender and Special Population Groups: Number of Government Doctors, Nurses, Dentists, and Midwives by Year, Personnel and Region: https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__3E__CH__HN/0053E3D5160.px/table/tableViewLayout1/?rxid=92da9299-b7d8-4a7f-9f7d-c1e2e9005ec5) The 2015 census recorded the population of the Philippines at c. 101 million. This equated to 0.06 nurses per 1,000.

[221]According to the Philippine Statistics Authority, there were 17,649 registered nurses in 2015. (Philippine Statistics Authority, 2015, Metadata on Gender and Special Population Groups: Number of Government Doctors, Nurses, Dentists, and Midwives by Year, Personnel and Region: https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__3E__CH__HN/0053E3D5160.px/table/tableViewLayout1/?rxid=92da9299-b7d8-4a7f-9f7d-c1e2e9005ec5) The 2015 census recorded the population of the Philippines at c. 101 million. This equated to 0.17 midwives per 1,000.

[222]Bachelor of Science in Nursing in the Philippines, Courses.com.au, https://www.courses.com.ph/bsn-bachelor-of-science-in-nursing-philippines/ [accessed 13/02/2021].

[223]CHED, 2007, Policies and Standards for Midwifery Education: https://ched.gov.ph/wp-content/uploads/2017/10/CMO-No.33-s2007.pdf

[224]ILO, 2014, National nursing: core competency standards: training modules: Philippines: https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---ilo-manila/documents/publication/wcms_316218.pdf

[225]Sarmiento, C. et al., 2020, 'Assessment practices in Philippine higher STEAM education', Journal of University Teaching and Learning Practice, 17:5: https://ro.uow.edu.au/cgi/viewcontent.cgi?article=2174&context=jutlp.

[226]Republic Act No 9173, or the Philippine Nursing Act of 2002, Appendix A Article IV: https://www.prc.gov.ph/sites/default/files/Nursing%20-%20Board%20Law_0.pdf

[227]Oducado, F., et al., 2020, 'English Language Proficiency and Its Relationship with Academic Performance and the Nurse Licensure Examination,' Nurse Media Journal of Nursing: https://www.econstor.eu/bitstream/10419/221752/1/28564-86822-1-PB.pdf (p. 47)

[228]Republic of the Philippines, Commission on Higher Education (CHED), 2017, Policies, Standards and Guidelines for the Bachelor of Science in Nursing (BSN) Programme: https://ched.gov.ph/wp-content/uploads/2017/10/CMO-15-s-2017.pdf

[229]CHED, 2017, Policies, Standards and Guidelines for the Bachelor of Science in Nursing (BSN) Programme: https://ched.gov.ph/wp-content/uploads/2017/10/CMO-15-s-2017.pdf

[230]Senate Bill No. 747 / An act instituting reforms in the profession of midwifery, amending for the purpose Republic Act N. 7392 or the Philippine Midwifery Act of 1992, and for other purposes, section 17: http://legacy.senate.gov.ph/lisdata/80966568!.pdf

[231]CHED, 2007, Policies and Standards for Midwifery Education: https://ched.gov.ph/wp-content/uploads/2017/10/CMO-No.33-s2007.pdf

[232]Republic Act No. 7392 / Philippine Midwifery Act of 1992, Article III https://www.chanrobles.com/republicactno7392.htm#.YDImxegzaUm

[233]CHED, 2007, Policies and Standards for Midwifery Education: https://ched.gov.ph/wp-content/uploads/2017/10/CMO-No.33-s2007.pdf

[234]CHED, 2007, Policies and Standards for Midwifery Education: https://ched.gov.ph/wp-content/uploads/2017/10/CMO-No.33-s2007.pdf

[235]CHED, 2007, Policies and Standards for Midwifery Education: https://ched.gov.ph/wp-content/uploads/2017/10/CMO-No.33-s2007.pdf

[236]Castro-Palaganas E., et al. 'An examination of the causes, consequences, and policy responses to the migration of highly trained health personnel from the Philippines: The high cost of living/leaving-a mixed method study,' Human Resources for Health, 15:25, 2017

[237]Pálsdóttir B., et al. 'Training for impact: the socio-economic impact of a fit for purpose health workforce on communities', Human Resources for Health, Pálsdóttir, 14:49 (2016)

[238]Barcelo J. M.,'Medical laboratory science and nursing students' perception of academic learning environment in a Philippine university using Dundee Ready Educational Environment Measure (DREEM)', Journal of Educational Evaluation for Health Professionals, 13:33 (2016):

[239]Factor E. M. R., de Guzman, A. B.'Explicating Filipino student nurses' preferences of clinical instructors' attributes: A conjoint analysis,' Nurse Education Today, 55, 2017

[240]Factor E. M. R., de Guzman, A. B.'Explicating Filipino student nurses' preferences of clinical instructors' attributes: A conjoint analysis,' Nurse Education Today, 55, 2017

[241]Oducado R. M. F. et al., 'Correlation Between Theoretical Classroom Instruction and Related Learning Experiences: Evidence From a Philippine Nursing University', International Journal of Scientific & Technology Research, 8:12, 2019

[242]Ubas-Sumagasyay N. A., Oducado R. M. F., 'Perceived competence and transition experience of new graduate Filipino nurses, Jurnal Keperawatan Indonesia, 23:1 (2020):

[243]NMC (2020) 'Mid-year update 1 April – 30 September 2020': https://www.nmc.org.uk/globalassets/sitedocuments/nmc-register/september-2020/nmc-register-september-2020.pdf

[244]This indicator is presented as a total of “Government/compulsory”, “Voluntary”, “Out-of-pocket” and is measured as a share of GDP, as a share of total health spending and in USD per capita (using economy-wide PPPs)

[245]Data taken from ‘Health spending’: https://data.oecd.org/healthres/health-spending.htm#indicator-chart. 2019 or latest available.

[246]Nurses are defined as all the “practising” nurses providing direct health services to patients, including self-employed nurses. However, for some countries (France, Ireland, Italy, the Netherlands, Portugal, Slovakia, Turkey and the United States), due to lack of comparable data, the figures correspond to “professionally active” nurses, including nurses working in the health sector as managers, educators, researchers, etc. For Austria and Greece, the data include only nurses working in hospitals. Midwives and nursing aides (who are not recognised as nurses) are normally excluded although some countries include midwives as they are considered specialist nurses

[247]Data taken from ‘Nurses’: https://data.oecd.org/healthres/nurses.htm#indicator-chart 2019 or latest available.

[248]Nursing graduates refer to the number of students who have obtained a recognised qualification required to become a licensed or registered nurse. They include graduates from both higher level and lower level nursing programmes. They exclude graduates from Masters or PhD degrees in nursing to avoid double-counting nurses acquiring further qualifications.

[249]Data taken from ‘Nursing graduates’: https://data.oecd.org/healthres/nursing-graduates.htm. 2019 or latest available.

[250]Nursing and Midwifery Council (2018) ‘Part 3: Standards for pre-registration nursing programmes’

[251]Nursing and Midwifery Council (2019) ‘Part 3: Standards for pre-registration midwifery programmes’

[252]Nursing and Midwifery Council (2018) ‘Part 3: Standards for pre-registration nursing programmes’

[253]Nursing and Midwifery Council (2018) ‘Part 3: Standards for pre-registration nursing programmes’

HARLOW CONSULTING

NMC Nursing & Midwifery Council