



Nurses of the Future

Exploring Competencies, Tasks and Labour Market
Trends in Nursing

Renate F. Wit



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Exploring Competencies, Tasks and Labour Market Trends in Nursing

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Summary in Dutch (Nederlandstalige samenvatting)

Geschiedenis van het verpleegkundig beroep

Dit proefschrift gaat over ontwikkelingen in het beroep en de arbeidsmarkt van verpleegkundigen. Het verpleegkundig beroep is in de loop van de tijd veranderd van liefdadigheidswerk naar een professioneel beroep. Eind 19e eeuw werden in Nederland de eerste scholen voor verpleegkunde opgericht, wat leidde tot officiële opleidingen en een bredere erkenning van het vak. In 1921 werd het verplicht om een verpleegkunde diploma te hebben om als verpleegkundige te mogen werken.

Na de Tweede Wereldoorlog werden de zorg en opleidingen van verpleegkundigen steeds professioneler. De inservice opleidingen werden vervangen door mbo- en hbo- verpleegkunde opleidingen en er kwamen ook master-opleidingen voor verpleegkundig specialisten en verplegingswetenschappers. Deze ontwikkelingen zorgden ook voor verdere professionalisering van het verpleegkundig beroep. Daarbij regelt de Wet BIG (Beroepen in de individuele gezondheidszorg) titelbescherming en de bevoegdheden van onder meer verpleegkundigen.

Heden en toekomst van de verpleging

Er zijn momenteel grote uitdagingen in de zorg, zoals de toenemende zorgvraag door de vergrijzing van de bevolking en stijgende zorgkosten. Ook nemen de tekorten aan zorgpersoneel toe, wat leidt tot een hoge werkdruk onder verpleegkundigen en artsen.

Om deze problemen aan te pakken, is door het Ministerie van VWS en andere landelijke partijen in de zorg, in 2022 het Integraal Zorgakkoord (IZA) opgesteld. Dit akkoord richt zich op versterking van samenwerking, preventie, zelfredzaamheid, digitalisering en eerstelijnszorg. Het doel is om zorg meer naar de thuissituatie te verplaatsen en patiënten waar mogelijk voor zichzelf te laten zorgen, ondersteund door hun netwerk en door digitale technologieën die zorg toegankelijker en betaalbaarder moeten maken.

Ook taakverschuivingen tussen artsen en verpleegkundigen kunnen helpen om de zorg efficiënt en betaalbaar te houden. Daarbij is het essentieel dat er duidelijkheid is over wie verantwoordelijk is voor welke taken. Naast wettelijke kaders zijn beroepsprofielen van verpleegkundigen hierbij belangrijk, omdat ze bepalen welke rollen, kennis en vaardigheden horen bij het beroep. In Nederland en andere landen worden beroepsprofielen regelmatig aangepast om te zorgen dat ze blijven aansluiten bij veranderingen in de zorg en beroepsuitoefening.

Verwacht wordt dat er in de komende jaren nog meer focus komt op preventie, digitale zorg (eHealth) en zorg die is afgestemd op de behoeften van patiënten. Verpleegkundigen zullen daarmee deels andere en mogelijk meer verantwoordelijkheden krijgen. Dit kan het beroep aantrekkelijker maken, maar tegelijkertijd is ook gericht arbeidsmarktbeleid nodig om

personeelstekorten aan te pakken en ervoor te zorgen dat verpleegkundigen hun belangrijke rol in de zorg kunnen blijven vervullen.

Doel en onderzoeksvragen

Dit proefschrift heeft als doel meer inzicht te geven in de taken, competenties (kennis en vaardigheden) en ontwikkelingen in het beroep van verpleegkundigen en verpleegkundig specialisten in Nederland; met speciale aandacht voor taakverschuivingen en arbeidsmarktontwikkelingen.

Het proefschrift geeft antwoorden op vier hoofdvragen:

1. Welke competenties worden beschreven in beroepsprofielen voor verpleegkundigen en verpleegkundig specialisten, en hoe wordt taakverdeling hierin besproken?
2. Welke medische taken voeren verpleegkundigen in de wijk en ziekenhuizen in Nederland uit, en hoe zijn deze taken veranderd tussen 2012 en 2022?
3. Wat zijn de perspectieven van verpleegkundigen in de wijk en in huisartsenpraktijken in Nederland op taken die in de toekomst belangrijker zullen worden?
4. Wat zijn de verwachte trends in de komende jaren in het aanbod en vraag naar verpleegkundigen in Nederland, en welke strategieën kunnen helpen om het tekort aan verpleegkundigen te verminderen?

Resultaten

Competenties en taakverdelingen beschreven in beroepsprofielen

Uit een systematische analyse van beroepsprofielen voor verpleegkundigen en verpleegkundig specialisten blijkt dat er overeenkomsten zijn in de beroepsprofielen van verschillende Westerse landen, qua aandacht voor klinische zorg, communicatie en samenwerking. Er zijn echter ook verschillen die invloed kunnen hebben op de uitvoering van het werk. Zo leggen de beroepsprofielen uit Nederland en België veel meer nadruk op de rol van verpleegkundigen bij zelfmanagementondersteuning dan die uit het Verenigd Koninkrijk, de Verenigde Staten en Canada.

Anders dan verwacht, besteden geen van de bestudeerde beroepsprofielen ruime aandacht aan de taakverdeling tussen verpleegkundigen, artsen en andere zorgprofessionals. Dit kan leiden tot onduidelijkheid en problemen in de samenwerking.

Medische taken van verpleegkundigen

Verpleegkundigen in de wijk en ziekenhuizen voeren verschillende medische taken uit, vaak in opdracht van een arts. Mede omdat vooral gespecialiseerd verpleegkundigen en verpleegkundig specialisten de afgelopen jaren meer bevoegdheden hebben gekregen om

zelfstandig medische taken uit te voeren, was de verwachting dat de uitvoering van medische taken door verpleegkundige professionals was toegenomen. Uit ons vragenlijstonderzoek blijkt dat het voorschrijven van vrij verkrijgbare medicijnen toegenomen was tussen 2012 en 2022. Er was echter geen toename te zien van medische taken die de wet BIG 'voorbehouden handelingen' noemt, zoals medicatie voorschrijven waar wel een recept voor nodig is. Veel verpleegkundigen vinden uitvoeren van medische taken aantrekkelijk, maar tegelijkertijd zien zij dat hun werkdruk er door kan stijgen. Dit kan het risico op uitval uit het verpleegkundig beroep vergroten. Het is dus belangrijk het pakket van medische taken goed af te stemmen op andere rollen en taken, zoals die in de huidige en toekomstige beroepsprofielen gedefinieerd worden.

Perspectieven van verpleegkundigen op taken in de toekomst

Verpleegkundigen in de wijk en in huisartsenpraktijken verwachten dat in de toekomst in hun beroepsuitoefening meer nadruk zal liggen op zelfmanagement, preventie en het betrekken van familie in de zorg. Ook digitale communicatie met de patiënt en het gebruik van eHealth zal volgens verpleegkundigen waarschijnlijk toenemen. Vragenlijstonderzoek en focusgroepen lieten zien dat er meer kennis en scholing nodig zijn om verpleegkundigen toe te rusten voor digitale communicatie in de zorg en dat verpleegkundigen daar ook behoefte aan hebben. Dit is ook belangrijk omdat vanuit het gezondheidszorgbeleid steeds meer nadruk ligt op 'digitale zorg'.

Arbeidsmarkt voorspellingen

Op basis van analyses van bestaande gegevens over de arbeidsmarkt van verpleegkundigen, wordt een toenemend tekort aan verpleegkundigen voorspeld. Het tekort zal naar verwachting van 5,7% in 2023 oplopen naar 14,6% in 2033. Om de groei van dit tekort te beperken, blijkt het volgens scenario-simulaties vooral belangrijk om verpleegkundigen in de praktijk te behouden en het aantal uren per week dat een verpleegkundige werkt te verhogen. Recent onderzoek laat zien dat dit kan door de werkomstandigheden te verbeteren en door loopbaanontwikkelingsmogelijkheden te bieden.

Conclusies en beschouwing

Dit proefschrift laat zien dat het beroep van verpleegkundigen aan veranderingen onderhevig is. Er komt meer focus op het bevorderen van zelfmanagement, preventie en het betrekken van naasten. Digitale toepassingen zullen in de toekomst waarschijnlijk nog belangrijker worden, waarvoor ook meer training in digitale vaardigheden gewenst is.

Verpleegkundigen zullen waarschijnlijk meer medische taken gaan uitvoeren, ook al was die verwachte trend nu in het vragenlijstonderzoek nog niet duidelijk te zien. Dit roept nieuwe vragen op, over de rollen van verpleegkundigen in de toekomst, over de verdeling van taken

tussen verpleegkundigen en artsen, en ook tussen verpleegkundige professionals met verschillende opleidingsniveaus. Een belangrijke bevinding in dit verband is dat de huidige beroepsprofielen voor verpleegkundigen en verpleegkundig specialisten nog weinig of niets zeggen over die taakverdelingen en rollen ten opzichte van verschillende professionals. Dit biedt aanknopingspunten om de beroepsprofielen op die punten te verbeteren, zowel in Nederland als internationaal. Door taakverdelingen en verantwoordelijkheden te (her) definiëren, kan ook de samenwerking tussen zorgprofessionals beter worden.

Een andere uitdaging betreft het tekort aan verpleegkundigen, dat de komende jaren waarschijnlijk alleen maar groter zal worden; zowel in Nederland als in andere landen. Naast strategieën om meer verpleegkundigen aan te trekken en te behouden, zoals betere werkomstandigheden, zal ook meer ingezet moeten worden op preventieve en digitale zorg, om de tekorten aan en werkdruk van verpleegkundigen te verlagen.

Ten slotte wordt aangeraden om vervolgonderzoek te doen naar hoe de taken, de benodigde competenties van verpleegkundigen en de taakverdelingen met andere professionals zich de komende jaren verder ontwikkelen. Ook het monitoren van veranderingen in de zorgvraag en technologische ontwikkelingen waar verpleegkundigen mee te maken (zullen) hebben is van belang. Dat kan ertoe bijdragen dat verpleegkundigen zich goed kunnen voorbereiden en reageren op veranderende zorgbehoeften en zorgmogelijkheden van de toekomst.

Chapter 1

Synthesis

Context and relevance of this dissertation

Nursing has been profoundly transformed over the past centuries, and has evolved into a regulated profession.¹ Until about 150 years ago, nursing was closely tied to religious and charitable work, with little or no formal education or professional recognition for nurses.¹ The pivotal shift began in the late 19th and early 20th centuries with the establishment of official nursing schools, which marked the transition of nursing into a recognized profession.^{1,2} In the Netherlands, the first nursing school started in 1878.² This period saw significant milestones, such as the creation of standardized nursing curricula and the formalization of nursing as a distinct profession.

In the course of the 20th century, the role of nurses expanded significantly, driven by societal changes such as the women's rights movement, and medical and technological advancements.¹⁻³ Nurses increasingly took on more complex responsibilities, moving beyond the provision of care or treatments ordered by physicians to becoming integral players in coordinating and delivering patient care.⁴ In 1921 the Legal Protection of the Diploma in Nursing Act was passed in the Netherlands. This act stipulated that practitioners could only call themselves nurses if they had received proper training and obtained a diploma.⁴ After the Second World War, technological innovation and the professionalization of the nursing profession advanced at a rapid pace, and they continue to do so today.⁴ In 1988, the first national competency framework (in Dutch: *beroepsprofiel*) for nurses was published.⁵ Whereas previously nurses were often still seen as the 'extended arms of doctors', this competency framework gave a basis for nursing as a distinct profession by focusing on nurses' expertise and working systematically within the nursing process.

The development of the nursing profession in the Netherlands is also illustrated by developments in nursing education. At the end of the last century, the in-service education programmes in hospitals, psychiatric institutions and care organizations for the disabled came to an end.⁴ They were replaced by vocational nursing education programmes at regional training centres (in Dutch: *middelbaar beroepsponderwijs*, *mbo*) and Bachelor nursing education programmes at universities of applied sciences (in Dutch: *hoger beroepsponderwijs*, *hbo*). In addition, in 1980 the first university degree programme in nursing science started in the Netherlands. This resulted in more and more nursing scientists and nursing professors in the years that followed. Although Dutch nursing scientists do not often continue to work as nurses in practice, they do influence the further professionalization of nurses through research, policy and advocacy.

Furthermore, from the turn of the century, Master programmes in Advanced Nursing Practice were introduced at universities of applied sciences, leading to a growing group of advanced practice nurses (APNs; in Dutch: *verpleegkundig specialisten*).

Recent history of the nursing profession and health policy in the Netherlands

The Individual Healthcare Professions Act (in Dutch: *Wet op de beroepen in de individuele gezondheidszorg, Wet BIG*) regulates the qualifications and responsibilities of healthcare professionals in the Netherlands.⁶ The act is intended to safeguard the quality of professional practice in the case of specific groups of healthcare professionals, including nurses, while also protecting patients from unqualified practitioners or negligent actions by these professionals. To achieve this, the act includes provisions on matters such as title protection, registration and reserved medical procedures.⁷

For title protection, specific groups of medical and nursing professionals must be registered in the BIG register. Within the BIG register, a distinction is made between advanced practice nurses (APNs) with a Master's degree and registered nurses (RNs). However, no differentiation is made based on the educational level of registered nurses (between RNs with a vocational qualification and RNs with a Bachelor's degree). In 2019 the BIG-II bill was proposed, which would have made a clearer differentiation between the roles and tasks of vocationally trained and Bachelor-trained nurses.⁸ This proposed BIG-II was initially an explicit wish of the professional nursing association V&VN (in Dutch: *Verpleegkundigen en Verzorgden Nederland*), which considered function differentiation between nurses depending on their level of education to be important in better meeting the increasingly complex care demands. Bachelor-educated nurses would primarily be given a role in the coordination of care, while vocationally-educated nurses would have a more operational role. However, after significant opposition from practising nursing professionals, the proposal for the BIG-II bill was officially withdrawn by the government at that time,⁸ which stated that distinctions in functions and roles between vocationally-educated and Bachelor-educated nurses are better addressed within care organizations, in agreements between employers and nurses, rather than through changes in legislation.⁸

Current developments in the profession and practice of nurses must be seen in the context of the growing labour market challenges in the Netherlands. The nursing profession, like the medical profession, is faced with a rapidly growing group of older and chronically ill people with often complex care needs. At the same time, shortages of healthcare personnel are becoming more acute. The Integral Care Agreement (in Dutch: *Integraal Zorgakkoord, IZA*) reflects the current views of the Dutch government, the nursing association V&VN and other national stakeholders on how to maintain high-quality care in this era with major staff shortages and a need to curb increasing healthcare costs.⁹ The IZA is focused on more cooperation between professionals, on prevention, and on strengthening primary care to bring about a transition from care in residential settings to care in the home and community settings.⁹ The IZA also emphasizes the importance of promoting self-management by patients and their relatives, as well as the use of digital health technologies to maintain healthcare quality while

controlling rising costs.⁹⁻¹² Another current national health policy programme, the WOZO programme on housing, support and care for older persons,¹³ also encourages care in the home instead of care in an institution, and the use of digital resources. The new Dutch cabinet, installed in 2024, aims to continue and implement the policies as described in the IZA and WOZO.¹⁴

Theoretical framework and factors influencing the nursing profession

The theoretical basis for this dissertation, in particular Chapters 2, 3, and 4, is grounded in the sociology of professions as articulated by sociologists such as Freidson,¹⁵ Abbott,¹⁶ and Kroezen.¹⁷

According to the sociology of professions, a profession is shaped by both internal and external factors. Internally, the increasing numbers of nurse scientists and advanced practice nurses (APNs), for example, has led to more emphasis on evidence-based care, informed by the latest scientific knowledge.¹⁸ The rise of APNs, with autonomy in some medical tasks like prescribing medications, as well as the increase in RNs with specializations in e.g. oncology, diabetes mellitus or lung diseases have also impacted the nursing profession.¹⁹⁻²³

External factors include, for example, the above-mentioned increase in numbers of people with complex care needs, which requires more care coordination and collaboration between nurses, physicians, and other professionals.^{24,25} In addition, the current healthcare policy, as described in the previous section, impacts the nursing profession by requiring new competencies in nurses, e.g. regarding self-management support and more cooperation with professionals in the medical, housing and welfare domains.²⁴ Additionally, the rise of ICT and labour-saving technologies will continue to shape the nursing profession.^{26,27}

The above are all examples of internal factors within the profession as well as external factors within society and policy that shape the nursing profession today and in the future.

Task divisions and task shifting

The sociology of professions also assumes that a profession is shaped by collaboration and competition with other professions.^{16,17,23} Task divisions and task shifting are relevant research subjects in this regard. The World Health Organization (WHO) defines task shifting as the delegation of tasks from more specialized to less specialized care professionals.²⁸ Task shifting is expected to optimize efficiency and reduce workforce shortages.²⁸

Task shifting can take place between professions, e.g. between the medical and nursing professions, but also within professions, between nurses with different levels of education.

Task shifting does not happen automatically; it is often triggered by external pressures, such as governmental policy or labour market shortages.

The sociology of professions assumes that professions often lack clarity about their responsibilities and tasks and there may be competition between professional groups about which is responsible for (new) tasks. This is one of the reasons why, in Chapters 2 and 3 on international comparisons of competency frameworks, we also focus on what these frameworks state about task divisions between nurses and physicians, and also between nursing professionals depending on their education levels.

Building on the theoretical framework of the sociology of professions, Dutch researchers Roodbol,²⁹ Kroezen,²³ and Van der Boom³⁰ previously explored how nurses took over some medical tasks in a way that had repercussions for the medical profession. They also found that task shifting may prompt discussions between physicians and nurses about which professional group has jurisdictional (formal) control over the substituted tasks. Abbott defines jurisdiction as the formal link between a profession and its tasks, accompanied by competition between professional groups.¹⁶ However, task enhancement and task substitution also have various potential advantages: when nurses take on tasks previously performed only by physicians, this results in a broader scope of practice that might make nursing more attractive, which in turn is critical for recruitment and retention and may help to reduce nursing shortages.^{31,32} As the nursing profession continues to evolve, nurses are increasingly allowed to take on tasks previously restricted to physicians, like the prescription of medicines^{33–35} In the Netherlands, advanced practice nurses (APNs) have been legally allowed to prescribe medicines in their area of expertise since 2012, nurses specialized in diabetes mellitus or asthma/COPD since 2014, and oncology nurses since 2015, under the condition that their prescribing authority is registered in the BIG register.³⁶ Prescription of medicines by nurses is not allowed in all countries, and earlier research also showed that even when they are legally allowed to do this, there are differences between countries regarding the jurisdictional control over the prescribing task.³⁵ As described by Abbott¹⁶ and Kroezen,²³ jurisdiction can take various forms:

- Subordination: one professional group (e.g. physicians) continues to control tasks that have been passed on to another professional group (e.g. nurses);
- Intellectual jurisdiction: one profession continues to control the knowledge and expertise of the other profession that has taken over a task;
- Division of labour: some subtasks are divided between professional groups into interdependent but structurally equal parts;

- Advisory jurisdiction: one professional group advises the other professional group that has taken over a task, while the latter professional group takes action to gain as much jurisdiction over the task as possible;
- Client differentiation: division of client groups between professions in which one profession performs a certain task for that specific client group and has jurisdiction over it.

The forms of jurisdiction reflect the dynamics between professional groups. Who has jurisdiction over certain (medical) tasks, and what form this jurisdiction takes, is not always clear in practice. Therefore, it is important that professional competency frameworks address these issues. In examining the professional competency frameworks of nurses and of advanced practice nurses (in Chapters 2 and 3), we initially expected to see considerable attention being paid to how tasks are divided between medical and nursing professionals, as well as some of the aforementioned types of jurisdiction.

Although this dissertation does not explore the competition about jurisdictional control over tasks in detail, it shows how task shifting (enhancement and substitution) is changing the nursing profession, both now and in the future.

Professional competency frameworks

Professionals, according to the sociology of professions, gain certain power and status by defining their professional domain and distinguishing it from other professions.^{15,16} Professional competency frameworks are a means to describe their own professional roles and the required competencies.¹⁶ In nursing, these frameworks guide nursing practice and education by outlining the skills, knowledge, and behaviours nurses must have to meet the care demands of patients.^{37,38} They provide a structure for professional development, help to standardize nursing practice, and make sure nurses are equipped to deliver high-quality care.

Educational models, such as the widely-known CanMEDS model,³⁹ can be used to structure the description of the required competencies.³⁷ CanMEDS is the abbreviation of Canadian Medical Educational Directives for Specialists and describes roles such as Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, and Professional.³⁹ In the Netherlands, this model is used not only to structure nurses' education but also to design the professional competency frameworks for registered nurses and advanced practice nurses,^{40,41} which helps align practice with education.⁴² Such frameworks also provide definitions of professional roles and competencies, reinforcing the legitimacy and authority of the nursing profession within the broader healthcare landscape. By articulating the specific skills and responsibilities, these frameworks help delineate the boundaries of the nursing profession that separate it from

other professions, thereby enhancing the profession's status and its jurisdictional claims, as emphasized in the sociology of professions.

In the Netherlands, the current competency framework for advanced practice nurses dates from 2019, and the one for registered nurses from 2016.^{40,41} As we described in previous sections, various internal and external factors continuously impact the nursing profession. Therefore, competency frameworks must be updated regularly. At present, work is being done on updating the competency frameworks under the auspices of the professional association V&VN. Therefore, the fact that this dissertation also includes international comparisons of relevant competency frameworks is highly relevant, as this information can feed into the development of the new Dutch competency frameworks.

The future of nursing

Looking to the future, the competency frameworks for nurses are likely to evolve further to address emerging challenges and opportunities, such as the rise of artificial intelligence. Also, the current ageing of the population and the associated increase in numbers of people with complex care demands, coupled with the growing shortage of nurses, is shaping nursing, today and in the future. Nursing is expected to place a greater emphasis in future on prevention, well-being, and the use of digital health technologies.^{43,44} Additionally, nurses will be expected to further develop skills in health promotion, disease prevention, and utilizing e-health tools to monitor and communicate with patients remotely.^{43,45} This trend aligns with a broader trend towards more proactive and patient-centred care, where nurses play a crucial role in maintaining patient health and well-being.⁴³ Alongside these changes, leadership and interprofessional collaboration skills are expected to become increasingly important, as care delivery grows more complex and team-based. Nurses, who are often at the forefront of patient care, are expected to be able to lead teams, make critical decisions, and collaborate effectively with other professionals in the medical and welfare domains, to ensure that patients receive coordinated and comprehensive care.^{44,46}

Additionally, these trends in healthcare underscore the importance of continuous professional development. Therefore, nurses have to engage in lifelong learning to keep their skills and knowledge up to date and adapt to new technologies and practices.^{45,47} By continuously updating their competencies, nurses can better prepare themselves to meet the evolving needs of their patients and the healthcare system.

Workforce challenges and projections

As nurses commit to lifelong learning to stay up to date with new technologies and practices, they become better prepared to address the broader challenges in healthcare. Workforce demands also drive this need for continuous professional development. Shortages of healthcare

professionals are huge in many Western countries with ageing populations. In the Netherlands, the demand for healthcare workers is projected to shift from one in six currently to one in four citizens in the working age population to work in healthcare by 2040 to meet growing needs, a change deemed unsustainable due to its impact on healthcare costs.⁹ Strategies to manage this include optimizing task distribution, where e.g. nurses take on more responsibilities in care coordination and complex care.⁴⁸ At the same time, the nursing workforce is confronted with high work pressure and is experiencing increased sickness absence rates.^{49,50} Nurses who frequently work night shifts have an increased risk of both short-term and long-term sickness absence.^{51,52} This, combined with the rising healthcare demand and complexity, is widening the gap between the supply and demand of nurses.^{53,54} Effective workforce projections are crucial but challenging, e.g. due to their dependence on government policies.⁵⁵ Meanwhile, in the Netherlands there is a notable shift towards more Bachelor-educated nurses, reflecting a growing need for advanced skills to address healthcare complexities and a desire for continuous training and career development among new generations.^{56,57} Ensuring a sustainable nursing workforce requires equipping nurses with future-proof competencies and adapting to evolving healthcare demands.

Research aim and questions, and outline of this dissertation

This research aims to understand and explain the competencies, tasks, and workforce trends of registered and advanced practice nurses in the Netherlands, with a focus on task shifting and future developments.

In this dissertation, four main research questions will be addressed:

1. What are the competencies of registered nurses and advanced practice nurses as described in professional competency frameworks, and how do these frameworks address divisions of tasks?
2. What medical tasks do registered nurses working in community care and in hospitals in the Netherlands currently perform? And what changed in the execution of these tasks between 2012 and 2022?
3. What are the views of registered nurses working in community care or in general practices in the Netherlands regarding tasks that will be increasingly used in the future?
4. What are the projected trends in the supply of and demand for registered nurses in the Netherlands over the next decade, and what strategies offer potential solutions for the expected shortages?

Outline of this dissertation

Chapter 2 presents the competencies and tasks of registered nurses as described in professional competency frameworks. Ten generic domains were identified in competency frameworks for nurses in five countries (Belgium, Canada, the Netherlands, the United Kingdom, and the United States). This chapter addresses research question 1.

Chapter 3 describes a similar study in the same countries but for professional competency frameworks of advanced practice nurses. In this study, twelve generic domains were identified in these frameworks. Together with Chapter 2, this chapter provides answers to research question 1.

In **Chapter 4**, views of nurses in the Netherlands on medical tasks are identified, together with the changes in these tasks over the past ten years. This chapter is based on surveys using the nationwide Nursing Staff Panel, and addresses research question 2.

Chapter 5 outlines the required future tasks of Dutch nurses and how these relate to their daily practices and skills. This chapter is also based on a questionnaire sent to the Nursing Staff Panel, in combination with focus group discussions. This chapter provides answers to research question 3.

Chapter 6 of this dissertation describes the prospective developments in the labour market for nurses, and gives projections of the future supply and demand of nurses in the Netherlands. This study uses data sourced from the Dutch continuous monitor of the Healthcare and Welfare Labour Market (in Dutch: *Arbeidsmarkt Zorg en Welzijn (AZW)*) and provides an answer to research question 4.

Data and methods

The data used for this dissertation were derived from content analysis of the professional competency frameworks of registered nurses and advanced practice nurses (Chapters 2 and 3), quantitative surveys (Chapters 4 and 5), qualitative focus group discussions (Chapter 5), and secondary analysis of labour market data (Chapter 6).

Qualitative content analysis of documents describing professional competency frameworks

The document analysis of professional competency frameworks for registered nurses and advanced practice nurses was conducted between November 2021 and April 2022. It aimed to identify the required competencies and task delineation of nurses in the five countries (Belgium, Canada, the Netherlands, the United Kingdom, and the United States). Professional competency frameworks were derived from the websites of professional associations and

government websites in each of the chosen countries, resulting in a total of five pertinent professional competency frameworks (one for each chosen country). Inductive content analysis was used to analyse competency frameworks. ‘Generic’ competency domains that were covered by all frameworks were identified by repeatedly comparing the codes within and between the frameworks as well as by grouping similar codes. The software program MAXQDA was used for the coding and analysis process.

Quantitative survey data from the Nursing Staff Panel

In 2012 and 2022, questionnaires were sent to members of the Nursing Staff Panel.⁵⁸ This panel consists of a nationwide sample of nursing staff in the Netherlands working in various healthcare sectors. In 2012, the nurses completed the survey either online or by filling in a printed questionnaire, while in 2022 only an online survey was used. Non-respondents received up to two reminders, approximately 14 and 28 days later. In addition, the survey was open to responses from non-members of the Panel recruited through relevant social media channels and through the nursing association V&VN. The analyses were conducted using descriptive statistics, as well as logistic and linear regression models. All statistical analyses were performed using STATA.

Qualitative focus groups

Focus group discussions were held to gain insight into the views of nurses working in primary care on nurses’ competencies and tasks that will be increasingly important in the future, and how this can be anticipated in training. The qualitative data from the focus groups appeared to complement the quantitative survey data presented in Chapter 5 well, as the discussions between participants provide additional insights on likely developments in the profession. The focus group sessions were transcribed and subjected to a thematic analysis, using the program MAXQDA.

Secondary analyses of Dutch labour market data

The analyses in this chapter are based on existing data sourced from the Dutch continuous monitor of the Healthcare and Welfare Labour Market (in Dutch: *Arbeidsmarkt Zorg en Welzijn* (AZW)). This monitor provides data and information about different sectors, occupations, and regions in the Dutch healthcare labour market. When analysing the data about nursing professionals to answer research question 4, we used a forecasting model that is available within the AZW monitor and portal.⁹

Findings

Research Question 1: Competencies of registered nurses in different countries

This section answers the first main research question of this dissertation:

1. *What are the competencies of registered nurses and advanced practice nurses described in professional competency frameworks, and how do these address divisions of tasks?*

Nursing competency frameworks are essential tools that outline the knowledge, skills, and attitudes that nurses must possess to provide safe, effective, and high-quality care.^{37,38} These frameworks are designed to guide nursing practice, education, and professional development. We expected that the competencies required for registered nurses (RNs) and advanced practice nurses (APNs) might vary between countries, e.g. due to differences in healthcare systems and cultural contexts.

Chapter 2 presents the results from content analyses of competency frameworks for registered nurses that are currently in use in the Netherlands, Belgium, the United Kingdom, Canada, and the United States.

Overall, there were some similarities between the frameworks in the competency domains they describe. We identified the following ten generic domains: Professional Attitude, Clinical Care in Practice, Communication and Collaboration, Health Promotion and Prevention, Organization and Planning of Care, Leadership, Quality and Safety of Care, Training and Continuing Education, Technology and e-Health, and Support of Self-Management and Patient Empowerment.

Despite the commonalities in the competency domains, the frameworks differ in their categorization and specific descriptions of these competencies. As Chapter 2 also describes, the Netherlands' competency framework for registered nurses was structured using the CanMEDS model, while the relevant competency framework from Belgium aligns with European directives, and the one from the US uses an inter-professional framework adaptation. Moreover, the frameworks provide little or no guidance on the division of tasks between RNs, physicians, and other professionals. Information is lacking about the division of tasks between nursing professionals with different levels of education. This is a remarkable finding, as the sociology of professions emphasizes that clear task divisions are essential for establishing professional autonomy and clarity about jurisdictional control. Without explicit statements

about professional authority and responsibilities, it becomes challenging to delineate nurses' professional roles and tasks, and this can potentially complicate inter-professional collaboration. The differences between the countries' competency frameworks can lead to cross-country differences in nursing practice and potential barriers to international labour mobility.

Furthermore, the studied competency frameworks lack clarity regarding nurses' responsibilities and jurisdictional control in the performance of medical tasks. This may be a barrier to nurses' leadership roles and decision-making authority. While all the frameworks pay attention to leadership roles, such as coordinating care, the specifics of their authority vary. Leadership and decision-making authority (in Dutch: *zeggenschap*) are increasingly important in nursing, as e.g. highlighted by the nursing association V&VN and the Dutch national action plan (*Landelijk Actieplan Zeggenschap*).^{59,60} When competency frameworks are updated in the future, more clarity about nurses' responsibilities and jurisdictional control over e.g. medical tasks would further strengthen RNs' professional authority.

Chapter 3 presents a content analysis of competency frameworks for advanced practice nurses (APNs). APNs could bridge the traditional gap between nursing and medical professions, as they are legally allowed to independently perform certain restricted medical tasks, such as prescribing medication within their area of expertise. There were also some similarities between these competency frameworks regarding the competency domains they address. We found that for APNs in Belgium, Canada, the Netherlands, the United Kingdom, and the United States the competencies in the frameworks can be categorized in twelve domains: Clinical Care in Practice, Independent Practice, Professional Attitude, Scientific Research & Evidence-Based Practice, Leadership, Health Promotion and Public Healthcare, Communication and Collaboration, Organization of Care and Policy, Support of Self-Management and Patient Empowerment, Quality and Safety of Care, Teaching and Continuing Education, and Technology and e-Health. The competency frameworks describe how APNs are permitted to operate with a high level of autonomy, integrating both medical and nursing knowledge to diagnose and treat conditions, and manage care. APNs may also play significant roles in leadership, mentorship, and research, which is described in the competency domains.

However, there are differences in the extent to which the competency frameworks pay attention to APNs' required competencies for performing restricted high-risk medical procedures. While the competency frameworks in Belgium and the Netherlands pay some attention to this issue, the relevant competency frameworks in the other included countries do this to a lesser degree.

None of the competency frameworks for APNs provide detailed descriptions of task divisions — neither between physicians and APNs nor between APNs and other nursing professionals.

This lack of clarity is concerning, and there is almost nothing in these frameworks about jurisdiction over medical tasks.

This absence of detail about the delineation and jurisdiction over certain medical tasks, like prescribing medication and assessing a medical diagnosis can create ambiguity. Role ambiguity relating to tasks can lead to confusion among APNs, collaborating medical professionals, and patients alike. This can undermine the effectiveness of care delivery and hinder collaborative practices. Kroezen's study on nurse prescribing highlights the fact that, despite the legal authority of APNs to prescribe medicines, inconsistent implementation of this policy in practice creates ambiguity in role definitions and jurisdictional boundaries, often leading to physicians continuing to control the medical tasks that have been passed on to APNs (jurisdictional subordination) and to uncertainty about responsibilities.⁶¹

As said, although there are between-country differences in competency frameworks for RNs and APNs, all the frameworks pay attention to self-management support, leadership, and prevention. However, there are distinct variations in categorization, the terms used, and specifics. These discrepancies can create confusion between nurses from different countries and with different educational levels about professional roles. Clarifying these distinctions can help reduce confusion about professional roles, develop personal leadership, and enhance nurses' sense of responsibility for their development and the nursing profession as a whole.⁶²

Research Question 2: Current medical tasks and changes between 2012 and 2022

This section answers the second main research question of this dissertation:

2. *What medical tasks do registered nurses working in community care and in hospitals in the Netherlands currently perform, and what changed in the execution of these tasks between 2012 and 2022?*

As said, the nursing profession has developed further over the past decades, and the proportion of highly qualified nurses is growing. We expected that this would be reflected in increased task shifting between medical and nursing professionals. This would potentially improve care efficiency and would help meet the growing healthcare demands of an ageing population and patients with chronic conditions. In Chapter 4, we present survey research conducted in 2012 and repeated in 2022, asking RNs in community care and hospitals about additional tasks they might have taken on. The survey mainly focused on medical tasks that are restricted by the BIG Act: they can only be performed by specific groups of medical professionals, or by APNs in as far as these tasks fall within their area of expertise. The restricted medical tasks as indicated in the BIG Act include e.g. prescribing medication requiring a prescription, giving

injections, and bladder catheterization. APNs and some specific groups of specialized registered nurses have a broader authority to perform these tasks, but other RNs are only allowed to perform these restricted medical tasks at the request of a medical professional.

Only nurse prescribing of over-the-counter medication saw a significant increase in the period between 2012 and 2022; this is not a restricted procedure that could only be done at the request of a medical professional. Interestingly, the findings that prescribing over-the-counter medications was the sole task with a significant increase do not align with our initial expectations, as we had anticipated a broader expansion of medical tasks performed by RNs, reflecting global trends in task shifting as described in previous studies.^{32,63,64} Typically, this trend was expected to result in nurses assuming a wider range of medical tasks to meet escalating healthcare demands and workforce shortages among physicians. While most nurses in the survey viewed shifting some medical tasks from physicians to nurses positively—highlighting enhanced professional autonomy and a more attractive nursing role—they reported concerns regarding an accompanying rise in their workload. In 2022, a concerning 72.7% of nurses reported an increase in workload due to task shifting.

Furthermore, the survey showed that the potential for conflicts with physicians and strains on interprofessional relationships may increase with task shifting. The limited expansion of medical tasks may indicate a hesitance within the nursing profession to fully redefine roles and responsibilities, potentially undermining the profession's authority. If more task shifting could be realized in the future, this could enhance nurses' professional autonomy and the attractiveness of the profession, but it might also lead to greater workload pressures and an increased risk of burnout, as similar studies in other countries have shown.⁶⁵

If more tasks are shifted from physicians to nursing staff, it is advisable to also be explicit about the jurisdictional control. Should this be 'subordination', where physicians continue to control medical tasks that have been passed on to nurses, or should it be, for example, 'advisory jurisdiction' where physicians advise nurses on certain medical tasks, but where nurses gain jurisdiction over the execution of the tasks?

Research Question 3: Views on future tasks

This section answers the third main research question of this dissertation:

3. *What are the views of registered nurses working in community care or general practices in the Netherlands on tasks that will be increasingly used in the future?*

Nurses, their organizations, and policymakers face challenges in this century with rising, often complex care demands and rising healthcare costs. To ensure efficient and high-quality care, now and in the future, tasks that may become more and more important include supporting patient self-management, communication via electronic means, prevention, and engagement of family members in the care. The study presented in Chapter 5 explored Dutch primary care nurses' views on the time spent on these tasks, and the perceived importance, required competencies, and attractiveness of these tasks. We used a mixed-methods approach, combining an online quantitative survey and qualitative focus group discussions.

RNs working in community care or general practices do indeed foresee increasing emphasis in their daily work on self-management, preventive care, and the involvement of relatives. These are tasks that they currently already spend considerable time on, but they expect these tasks to expand further, e.g. due to healthcare policy. However, at present little use is made of digital means, like eHealth and online remote care; only 37% of the survey participants reported that they dedicated substantial time to communication through electronic means. These findings point to a gap between healthcare policy (e.g. expressed in the IZA and WOZO programmes), which highlight a crucial role for digital health technologies, on the one hand and current nursing practice on the other hand.^{9,13} This finding also indicates a pressing need for targeted training to enhance nurses' skills in this regard.

The findings of the survey and the focus groups reflect a development in the nursing profession regarding e.g. the increasing focus on self-management and preventive care. Yet the currently limited use of digital means suggests that so far nurses have not adapted to expectations and demands from e.g. the government as far as the use of these new means is concerned. In the present decade, a broad range of clinical guidelines and other quality documents for nurses are being developed and authorized by the professional nursing association V&VN.⁶⁶ It is recommended that these guidelines pay attention to the integration of eHealth or other digital means in care delivery. The recently started V&VN Knowledge Institute also emphasizes the connection between guidelines and the professionalization of nursing.⁶⁶ To expand the use of digital means, nursing training and continuing education on this issue is important as part of ongoing professional development. Without proper training and support, the benefits of digital innovations may go unrealized, disadvantaging both patients and care professionals. The challenge is to empower nurses to meet these demands while ensuring they have the competencies, infrastructure, and resources to use such innovations.

Research Question 4: Labour market prospects for nurses

This section answers the fourth research question of this dissertation:

4. *What are the projected trends in the supply of and demand for registered nurses in the Netherlands over the next decade, and what strategies offer potential solutions for the expected shortages?*

The nursing workforce is confronted with an increasing workload and is experiencing increased sickness absence rates.^{50,53} Rising healthcare demand is putting a significant strain on the nursing workforce, leading to increased pressure and absenteeism among nurses. In response, various initiatives are being implemented to ensure sustainable healthcare provision amid this growing demand. Our study in Chapter 6 aims to project the future supply and demand for registered nurses in the Netherlands and explores the potential of factors that influence the nursing shortage to mitigate this issue. This study used data from the Dutch Continuous Monitor of the Healthcare and Welfare Labour Market (AZW) and applied a forecasting model to assess the supply and demand of registered nurses in a range of scenarios. The analysis involved adjusting four factors—average weekly working hours, absenteeism rate, and nurse entry and exit rates—to investigate their effect on projections of the future nursing workforce.

The study presented in Chapter 6 indicates that the relative shortage of RNs in the Netherlands is projected to rise significantly, from 5.7% of the total demand in 2023 to 14.6% by 2033. We found that potential shortages are exacerbated by a high turnover rate among nurses, which can be addressed through strategies aimed at improving nurse retention. Specifically, our analysis reveals that the most effective approach of the scenarios we evaluated is to reduce nurse exits by 20% and to increase weekly working hours by 1.5 hours. This combination could potentially reduce the projected shortage of nurses to as little as 1.4% by 2033. We conclude from this study that addressing the nursing shortage requires focusing on retention and increases in working hours, rather than just recruitment. Countries facing similar challenges, such as the US and Canada, have seen shortages worsened by high demand and burnout, while Australia anticipates significant shortages by 2035.^{67–69} Recruiting international nurses is another option but comes with challenges, including integration issues and the ‘brain drain’ of source countries.^{70–72} Moreover, a barrier to employing nurses from abroad may be that there are differences between countries in the competencies of RNs and what are considered essential tasks of nurses.⁷³ Furthermore, in line with previous research on future predictions about the labour market in the healthcare sector, it is suggested that reducing the overall demand for healthcare services is essential in bridging the gap between the supply and demand and achieving a sustainable nursing workforce.⁷⁴ Preventive healthcare measures, like those that reduce chronic conditions, alongside prioritizing high-value care—interventions with strong health outcomes and cost-effectiveness—can help reduce the strain on nurses.⁷⁵ In sum, the combination of better retention, manageable increases in hours, and reduced healthcare demand could offer a balanced approach. This provides an important subject for further research on nursing workforce challenges worldwide.

Reflections on the realization of the research aim

The overall aim of this dissertation is to understand and explain the competencies, tasks, and workforce trends of nurses in the Netherlands, currently and in the future. Our findings underscore the importance of competencies with regard to self-management support, prevention, and digital skills, all of which are expected to increase in importance in the future. This aligns with other initiatives and research, such as the recent international competency framework for oncology nurses, which prioritizes patient self-management support, while a scoping review indicates nurses' increasing need for training in digital skills and an anticipated rise in digital communication.^{76,77} While Dutch RNs increasingly prescribe over-the-counter medications, our research did not find broader uptake of medical tasks. Yet task shifting may have various advantages. An international overview of review studies found that task shifting from physicians to nurses in primary care could improve several patient outcomes, such as blood pressure and mental health, while achieving cost savings.⁷⁸

With regard to the workforce trends addressed as part of our research aim, we found that the projected nursing shortages and high turnover rates underline the importance of retention strategies and workload management. Research during and following the COVID-19 pandemic has extensively examined nurse retention, stress, and work engagement.^{79–81} These studies, echoing our recommendations, emphasize how proactive workforce strategies like more flexible working hours, good working conditions, and organizational support from boards and managers may help retain nurses and facilitate collaborative, efficient care delivery.^{79–81}

Strengths, limitations, recommendations, and implications

Strengths, limitations, and recommendations for further research

In this final part, we reflect on the strengths and limitations of the studies included in this dissertation.

A key strength lies in its diverse range of perspectives on the development of the nursing profession. From a theoretical standpoint, the dissertation builds on key concepts of the sociology of professions to inform its findings. Furthermore, the content analysis of the competency frameworks for APNs and RNs paints a picture of how the essence of nursing is viewed at the policy level. Moreover, the nursing perspective is explored in the surveys and focus groups, which brings in the voices and experiences of nurses, ensuring relevance to professionals in the field. Lastly, we applied a scenario perspective, incorporating projections about workforce capacity given different values for four key factors, addressing both current and emerging challenges in the labour market of nurses. These various perspectives create a comprehensive understanding of how these factors shape the nursing profession now and in the future.

Also, the use of various data sources and study types enriches the findings and conclusions about competencies and tasks of the nursing profession, now and in the future. The dissertation is based on qualitative content analysis of professional competency frameworks, quantitative surveys, and qualitative focus group discussions among nurses. Finally, projections regarding future workforce capacity address the current challenge of how to tackle increasing shortages in a quantitative manner, by using scenarios to explore the potential of policy options to achieve a sustainable nursing practice. This complements the other parts of this dissertation with ex-ante policy evaluations, urgently needed to address pressing workforce issues such as high turnover, absenteeism, and increasing healthcare demands. The assessment of these policy options stands out from the broader, more theoretical insights in previous chapters, offering feasible steps for sustaining the nursing workforce.

One limitation concerning the two document studies in this dissertation is the inclusion of only five countries in the analyses of professional competency frameworks in Chapters 2 and 3. For these studies, we analysed the most recent professional competency frameworks for RNs and APNs in Belgium, Canada, the Netherlands, the UK, and the US. This selection obviously does not represent all Western countries, but it was intentionally made as the selected countries have – in a cultural sense — much in common with the Netherlands (particularly our neighbouring country Belgium) or are countries with well-established nursing practices and advanced roles in nursing. To have a broader understanding of the core competencies of nurses in other countries, it is important to study the professional competency frameworks for RNs and APNs in for instance Australia and Japan. This would provide valuable insights into how different cultural contexts influence the required nursing competencies and the division of tasks. In addition, including a wider range of countries would probably also enrich the analysis, which could support the development of more comprehensive and internationally applicable competency frameworks, thereby enhancing international collaboration and mobility among nursing professionals, like the WHO recommends.^{82,83}

Another limitation concerns the two studies based on survey research (Chapters 4 and 5), which only included nurses working in hospitals, community care settings, or general practice (GP) settings. This inclusion decision was made because relatively large numbers of nurses work in these settings (in particular in hospitals), and because the current policy is aimed at providing care in primary care settings as much as possible. However, this selection limits the generalizability of these findings to other healthcare settings, such as psychiatry or residential elderly care. Future research in these settings would provide a more comprehensive understanding of the development of the nursing profession. In future research in these settings, it would also be beneficial to explore the shifting of medical tasks to APNs, as the numbers of APNs in these settings are rising. Also, in elderly care employing APNs is considered a strategy for maintaining high-quality care in an era of shortages of elderly care physicians.⁸⁴

Another recommendation for future research on how the nursing profession is evolving is to also take into account the various internal factors (e.g. the rise of APNs and specialized RNs) and external factors (e.g., the ageing of the population, and the rise of new technologies and artificial intelligence). Future research repeating and complementing sub-studies in this dissertation could help to understand how the profession develops in response to such factors.

Future research could also help to explain the dynamics of task divisions between nursing and medical professionals, and between nurses with different levels of education and carers. Insights into task divisions between these professionals, and into the jurisdictional control over tasks, may also provide building blocks for updating competency frameworks. This is relevant for addressing the gaps identified in the current competency frameworks of APNs and RNs which fail to pay proper attention to task divisions.

We recommend that future research also focuses on studying the further development of nurses' required competencies, and how they are included in competency frameworks. This can be done by systematically examining the new or revised professional competency frameworks that will be published in the coming years, and how they were developed in comparison with the earlier versions that we analysed in Chapters 2 and 3. Repeating this approach enables the accurate documentation of changes in competency frameworks, which are intended to guide nursing practice, policy, and education. Future research will help to determine whether shifts in nursing practice—e.g. regarding task shifting and cooperation between nursing and medical professionals—are mirrored in these frameworks, and vice versa.

Lastly, we recommend that the labour market of nurses is closely monitored in the coming years. While it is generally expected that the shortage of nursing staff will increase, monitoring the differences between different groups of nurses in terms of education and healthcare settings is crucial in tailoring human resource policies to effectively mitigate growing shortages. From a nursing perspective, it is also important to continuously monitor the expectations regarding the number of practising nurses in order to better anticipate future workforce needs and adapt strategies accordingly.

Implications for policy and practice

One finding is that the analysed professional competency frameworks for RNs and APNs pay little or no attention to task divisions with respect to other professionals and jurisdictional control over tasks. When we reviewed the frameworks for RNs (Chapter 2), we expected that the competency frameworks for APNs would provide more guidance on these issues, particularly as APNs bridge medical and nursing domains and have greater authority to

perform medical tasks than RNs, as is indicated in the BIG Act. This expectation was especially strong for the competency frameworks in countries like the US, the UK, and Canada, given their relatively long history of Master-level education for nurses.^{85,86} However, we found that professional competency frameworks for APNs were no more explicit about task division than those for RNs, even in these Anglo-Saxon countries.

This observation highlights an opportunity for nursing associations to enhance nursing competency frameworks by defining role divisions in interprofessional collaboration, which would support better scoping of nursing responsibilities within healthcare systems.⁶² At a national level, professional nursing associations (such as V&VN in the Netherlands) could play a crucial role in improving the competency frameworks in this regard. At an international level, organizations like the EFN (European Federation of Nurses' Associations) and ICN (International Council of Nurses) could play a pivotal role in encouraging attention to task division with respect to other professionals and jurisdictional control over tasks in international frameworks, supporting consistency and clarity in nursing competencies across countries.

By creating clearer, coherent competency frameworks, nursing associations and other relevant policy parties (e.g. patient organizations and employer organizations) can help improve role clarity, enhancing collaboration and effectiveness in nursing practice across countries and healthcare settings. This would be in line with the WHO's call for global standards in nursing education.⁸²

Relevant policy and advocacy parties will also have to continuously anticipate nursing staff shortages in the coming years. Our study in Chapter 6 concluded that, without action, the shortage of nurses in the Netherlands will continue to grow. In addition to HR policy instruments to reduce the number of nurses leaving the profession and increase the inflow, we suggest that integrating preventive initiatives to reduce demand for direct nursing services would also be a relevant policy approach for care organizations employing nurses. Preventive initiatives may include programmes that educate individuals in self-care. In addition, care organizations could implement initiatives to help reduce the demand for nursing staff by empowering families to perform non-complex medical or nursing tasks at home. Family could also be trained directly by e.g. community care nurses in areas like basic wound care, mobility support, and chronic disease management. Community-based programmes could be offered, both online and at the locations of local care organizations, to ensure accessibility and uptake. Although there are limitations to what relatives can and want to do in medical and nursing tasks, such initiatives may help reduce nurses' workload and enable efficient resource allocation.

Based on the findings from Chapter 5, another recommendation for policy and practice emerges. As digital health technologies become increasingly important in nursing practice, while Dutch primary care nurses still report limited digital skills, targeted needs-based training is recommended, to be offered by the care organizations that employ nurses. These programmes could focus on both technical skills and the integration of digital tools into daily practice, e.g. to support patient self-management and preventive care.

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Chapter 2

International comparison of professional competency frameworks for nurses: a document analysis

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Abstract

Background: Nursing competency frameworks describe the competencies; knowledge, skills and attitudes nurses should possess. Countries have their own framework. Knowledge of the content of professional competency frameworks in different countries can enhance the development of these frameworks and international collaborations.

Objective: This study examines how competencies and task divisions are described in the current professional competency frameworks for registered nurses (RNs with a Bachelor's degree) in the Netherlands, Belgium, the United Kingdom (UK), Canada and the United States (US).

Methods: Qualitative document analysis was conducted using the most recently published professional competency frameworks for registered nurses in the above-mentioned five countries.

Results: All the competency frameworks distinguished categories of competencies. Three of the five frameworks explicitly mentioned the basis for the categorization: an adaptation of the CanMEDS model (Netherlands), European directives on the recognition of professional qualifications (Belgium) and an adapted inter-professional framework (US). Although there was variation in how competencies were grouped, we inductively identified ten generic competency domains: (1) Professional Attitude, (2) Clinical Care in Practice, (3) Communication and Collaboration, (4) Health Promotion and Prevention, (5) Organization and Planning of Care, (6) Leadership, (7) Quality and Safety of Care, (8) Training and (continuing) Education, (9) Technology and e-Health, (10) Support of Self-Management and Patient Empowerment. Country differences were found in some more specific competency descriptions. All frameworks described aspects related to the division of tasks between nurses on the one hand and physicians and other healthcare professionals on the other hand. However, these descriptions were rather limited and often imprecise.

Conclusions: Although ten generic domains could be identified when analysing and comparing the competency frameworks, there are country differences in the categorizations and the details of the competencies described in the frameworks. These differences and the limited attention paid to the division of tasks might lead to cross-country differences in nursing practice and barriers to the international labour mobility of Bachelor-educated RNs.

Introduction

Since the late 19th century, the nursing profession in the Netherlands and many other Western countries, like the United Kingdom and the United States of America, has become a paid profession with specific nursing training [1, 2]. Nursing is not a static profession, but constantly evolving under the influence of external and internal factors, i.e. developments affecting the context of the profession and developments within the profession [3].

External factors that influence professional development include demographic and epidemiological developments. For instance, the increase in patients with chronic conditions and high-aged people with multimorbidity requires nurses to be able to provide complex care and support across multiple (physical, psychological and social) domains [4]. Also, healthcare policies increasingly focus on prevention and promoting a healthy lifestyle [5, 6]. Developments in ICT also have an impact: nurses increasingly use web information, electronic records and online communication [7–10]. In addition, much attention is paid in society and healthcare policy to the autonomy of the individual professional and their degree of control [11, 12]. Also in nursing practice, self-management support and the promotion of the autonomy of those in need of care has become increasingly important [13, 14].

Internal factors also influence the nursing profession. Internal factors concern, for instance, the continuing academic development in nursing. The number of university departments of nursing science is growing in Western countries, as is the number of nursing scholars; this is associated with the increased attention paid to evidence-based nursing practice [15, 16]. Another factor concerns the labour market; most countries in the Western world have shortages of skilled health workers [17, 18]. Together with the shortage of physicians, the increase in the specializations in nursing is leading to or enabling task shifts between physicians and nurses [19–21]. Task shifting is one aspect of the changing division of tasks, whereby the task is allocated in part or in full to another profession. Examples are task shifts from physicians to (specialized) nurses in the prescription of medication and the monitoring and treatment of people with chronic conditions [22, 23].

It can be expected that such internal and external factors, and their influence on the nursing profession, are reflected in the professional competency frameworks for nurses. Equally, up-to-date professional competency frameworks influence the nursing profession. In this paper, we define a professional competency framework as a document describing the competencies a nurse must have. ‘Competencies’ are the knowledge, skills and attitudes, and the ability to perform tasks successfully within the professional context [11, 24].

Professional competency frameworks are often developed and/or authorized by national professional nursing associations [11, 24]. There is no standard procedure or guide for developing a professional competency framework for healthcare professionals. However, an existing educational model, such as CanMEDS, might be used as the foundation for the description of competencies [11] as this is sometimes used for structuring nursing education curricula [25] and for example the professional competency framework in the Netherlands [26]. CanMEDS is the abbreviation of Canadian Medical Educational Directives for Specialists and describes roles such as Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar and Professional [27]. We expected this model would be used as the point of departure in some of the professional competency frameworks of nurses in other Western countries.

Up-to-date professional competency frameworks are important as they provide guidance to nursing practice, but also reflect the required core competencies of the nursing profession in a specific country. Under the influence of internal and external factors, the content of the nursing profession evolves in a dynamic institutional process. This means that professional competency frameworks have to be revised regularly. For instance, in the Netherlands and Belgium, nursing associations are currently preparing a new competency framework for nurses. For the development of future professional competency frameworks, it is relevant to know the content of professional frameworks in other countries: what competencies and tasks performed by nursing staff do they describe? By comparing them, developers of professional competency frameworks in one country can learn from other countries.

This document analysis therefore describes the competencies and task divisions between nurses and other professionals in the current professional competency frameworks for Bachelor-educated registered nurses (RNs) in five countries: the Netherlands, Belgium, the United Kingdom (UK), Canada and the United States (US). First, the choice for the Netherlands is based on the motherland of the authors, and Belgium is chosen as an interesting neighbouring country that has similarities with the Netherlands culturally, geographically and in terms of its language (Dutch is spoken by over half the Belgian population). The three Anglo-Saxon countries (UK, Canada and US) were selected because they have strongly influenced the global development of the nursing profession. This is particularly the case for the UK which initiated modern nursing through the pioneering role of Florence Nightingale, which first spread to Canada and the US as two countries that are historically and culturally strongly related to the UK. In these three countries, the nursing profession progressed rapidly in the second half of the 20th century due to factors such as advanced academic education for nurses and federal funding and support for nursing research [28, 29]. The five selected countries have a strong international orientation in common and have been previously analysed in a literature study into the roles and positions of nursing staff [30].

The following research questions were answered:

1. In each country, what is the educational model and/or base for the categorizations of the key competencies described in the professional competency frameworks for registered nurses (Bachelor educational level)?
2. What are the competencies described in the professional competency frameworks, and how do these differ or agree between the countries analysed?
3. How do the professional competency frameworks address the division of tasks between nurses and other healthcare professionals?

In addressing these research questions, we chose to focus on nurses with a Bachelor of Science/in Nursing, because that is the level of education that is most comparable between countries [30].

Methods

Searches and inclusion criteria

We performed a qualitative document analysis, a systematic procedure for reviewing or evaluating documents [31], of professional competency frameworks. To be included in this document analysis, documents had to:

- be a national professional competency framework for registered nurses with a Bachelor of Science in Nursing. If there was no separate competency framework for Bachelor-educated nurses, the framework for registered nurses in general was eligible for inclusion.
- be from the Netherlands (NL), Belgium (BE), Canada (CA), the United Kingdom (UK) or the United States (US).
- concern a general competency framework covering nursing in various healthcare sectors and various patient groups.
- be developed by or in collaboration with a national or international nursing association.
- be published in Dutch or English.
- be the most recent competency framework.

Documents focusing solely on education or nursing specialisations (e.g. intensive-care nursing) or specific settings (e.g. community nursing) were excluded.

We identified five relevant professional competency frameworks (one for each selected country) between November 2021 and March 2022 through website searches of professional

nursing associations and government sites. Our search for nationwide professional frameworks and nursing associations revealed only one nationwide general professional competency framework for registered nurses with a bachelor's degree in each respective country.

RW and AF independently reviewed the documents against the inclusion criteria. Then the documents were checked to see whether they were the most recent versions by contacting experts (representatives of professional nursing associations and professors in Nursing) in the different countries.

Analysis

The competency frameworks were analysed using a qualitative document analysis [31]. All competency frameworks were read thoroughly and repeatedly to become familiar with their content and to identify which educational model or other base the competency frameworks had used to categorize competencies in specific domains. Relevant fragments about competencies and competency domains were open-coded inductively. By performing constant comparisons of codes within and between the competency frameworks, and by grouping similar codes, we identified 'generic' competency domains that were addressed in all frameworks. The identified domains and competencies were discussed on various occasions within the research team (RW, AF, RB and AV), and the researchers returned to the texts of the competency frameworks several times to ensure that the results were grounded in the texts of the competency frameworks. This analysis process was performed in a similar way and partly in parallel to address the research question on task division. The coding and analysis process was supported by the use of MAXQDA 2022 [32].

To ensure the internal validity of the findings, both the pre-definitive results section and the schematic overview of the results (in Appendix 1) were presented for verification to experts from the respective countries. The pre-definitive results and the schematic overview were verified by country experts for the Netherlands, Belgium and the UK. The country experts we contacted for the frameworks of Canada and the US did not use the opportunity to verify our results.

Results

General characteristics of professional competency frameworks

Five professional competency frameworks were included; an overview of the included frameworks can be found in the Declarations under the section Availability of data and materials. The competency framework for the Netherlands (2015) was developed in collaboration with the Nursing Association in the Netherlands (V&VN) [26]. This country has competency frameworks for different educational levels of nurses bundled in one document.

For this document analysis, only the competencies described for registered nurses at the Bachelor level have been analysed.

In Belgium (BE), in addition to higher education, there is also vocational training available for nurses. However, the existing framework does not have a separate framework or distinct section for nurses holding a Bachelor's degree. The Belgian competency framework was published in 2016 and authorized by the Federal Council for Nursing [33]. This framework was published in Dutch and French. We used the Dutch version.

The frameworks for the UK and Canada were both published in 2018, by the Nursing & Midwifery Council (NMC) and the Canadian Council of Registered Nurse Regulators (CCRNr) respectively [34, 35]. In both countries, the competency frameworks only focussed on nurses with a Bachelor's degree.

The US framework was published in 2021 by the American Association of Colleges of Nursing (AACN) [36]. It consisted of competencies at two levels: (1) entry-level competencies for registered nurses; and (2) advanced-level competencies (for advanced nursing practice). For this study the entry-level competencies were analysed; they concern the entry level for RNs with a Bachelor's degree in Nursing [37].

Basis for the categorizations

Three of the five professional competency frameworks mentioned explicitly what their point of departure was for the categorization of the competencies into specific domains: an adaptation of the CanMEDS model (NL), European directives on the recognition of professional qualifications (BE) and an adapted inter-professional framework (US).

In the UK competency framework, no reference was provided concerning the origin of the categories of the competencies. The Canadian framework does not mention the point of departure of the categorization of competencies either, but the categorization looks similar to the domains of the CanMEDS model.

Ten identified generic competency domains for RNs

Although the original categorization and description of competencies differed between the countries, through the document analysis (see Methods) we were able to extract and distinguish ten 'generic' domains of competencies that are addressed in all competency frameworks (see Appendix 1, only online, published with the article). The ten generic domains were:

1. Professional Attitude;
2. Clinical Care in Practice;
3. Communication and Collaboration;
4. Health Promotion and Prevention;
5. Organization and Planning of Care;
6. Leadership;
7. Quality and Safety of Care;
8. Training and (continuing) Education;
9. Technology and e-Health;
10. Support of Self-Management and Patient Empowerment.

As can also be seen in Appendix 1 (published online with the article), four of the ten generic domains have a similar title in the frameworks. These are the generic domains 'Professional Attitude', 'Clinical Care in Practice', 'Health Promotion and Prevention' and 'Organization and Planning of Care'. Regarding the other six generic domains, there is more variation in the headings used in the competency frameworks.

Furthermore, the generic domain 'Support of Self-Management and Patient Empowerment' is not described in any framework as a separate domain (with a similar title), although all competency frameworks present this as a core element of nursing and pay substantial attention to the need to support the self-management and empowerment of patients.

All competencies described in the professional competency frameworks fit in one or other of the ten generic domains.

Competencies within the generic domains

Professional attitude

The first generic domain concerns Professional Attitude. This is defined in our study as the willingness and ability to act professionally as a nurse complying with laws and regulations, evidence-based knowledge and ethical standards. This domain can be found as a separate domain in all frameworks, with the term 'professional' in the heading. The US competency framework names this domain 'Professionalism', although the content of the domain is largely similar to that of the other countries, which use the heading 'Professional attitude' for this domain. For all countries, the main competencies falling under this domain were 'Ethical practice', 'Comply with laws, policies and regulations', 'Self-reflection' and, for the UK and the US, also 'Person-centred care'. For all countries, 'accountability' was also a core aspect of Professional Attitude.

Clinical care in practice

The generic competency domain Clinical Care in Practice is described in roughly the same way in all competency frameworks, as providing safe, evidence-based care while engaging with the patient in a caring relationship. This domain comprises competencies both for basic nursing care and for medical-technical care. As can also be seen in Appendix 1 (published with the article), it is a separate domain in all frameworks but with varying headings: 'Care provider' (NL), 'Independently make a nursing diagnosis using current theoretical and clinical knowledge for the necessary nursing care' (BE), 'Providing and evaluating care' (UK), 'Clinician' (CA) and 'Person-centred care' (US).

The Dutch competency framework described competencies such as gathering information in various ways about the person requiring care and at a more generic level; analysing, interpreting and applying this information; entering into a caring relationship; and carrying out restricted and high-risk actions. The Belgian framework emphasises the ability of RNs to independently make nursing diagnoses using evidence-based assessment techniques and deliver nursing care. In the UK, there is a focus on providing evidence-based compassionate and safe interventions, demonstrating knowledge to respond proactively and demonstrating the ability to provide nursing intervention and support. In the Canadian competency framework, RNs provide safe, competent, ethical, compassionate and evidence-informed care. The US framework describes competencies such as person-centred care focusing on the individual within multiple complicated contexts, delivering regenerative or restorative care and establishing caring relationships.

Communication and collaboration

The generic competency domain Communication and Collaboration is described in four of the frameworks under two separate competency headings. The exception is the US, where it is described under one main heading and where individual competencies that refer to communication and collaboration are found under several of the framework headings. As communication and collaboration are closely related, we have grouped them into one domain.

In the Dutch competency framework, the relevant competencies are described under 'Communicator' (respectful and proficient, verbal, nonverbal and digital communication) and 'Collaborator' (working with patients, their network, professionals, multidisciplinary teams, and efficient and effective reporting). The Belgian framework refers to competencies regarding communication and collaboration under 'Communicating professionally with clarity' (active listening, emphasizing, respecting opinions and reporting and sharing information) and 'Cooperation' (working together with patients, their network and interdisciplinary teams). Additionally, one specific competency was found under another heading, namely building a culture of collegiality, respect and professional relationships. In the UK framework,

communication and collaboration competencies are grouped under 'Leading and managing nursing care and working in teams' (play an active and equal role in the interdisciplinary team) and 'Coordinating care' (apply the principles of partnership, collaboration and interagency). Furthermore, three competencies were identified in other domains. In the Canadian framework, competencies are described under 'Communicator' (create and maintain professional relationships, share information, foster therapeutic environments, engage in active listening and effective communication in complex situations, report clearly) and 'Collaborator' (play an integral role in the healthcare team, initiate collaboration and determine their own professional and inter-professional role). In the US competency framework, RNs' communication and collaboration competencies are grouped under 'Inter-professional partnerships' (intentional collaborations with care team members, patients, communities and other stakeholders to optimize care), while the competencies 'communicating effectively with individuals' and 'promoting collaboration by clarifying responsibilities' are described under other headings.

Health promotion and prevention

The generic competency domain Health Promotion and Prevention concerns health promotion and prevention by RNs, both directed at individual persons and public health in general. It is described in all frameworks as a separate domain, but under varying headings.

For the Netherlands, this is described under the heading of 'Health Promotor' with competencies like carrying out interventions, collective prevention and health education, and providing input for policy-makers. The Belgian competency framework requires RNs to promote patient health and a healthy environment under 'Empowering individuals, families and groups to adopt healthy lifestyles and care for themselves'. This involves providing information and teaching behaviour change strategies to the patient. For the UK, competencies are described under 'Promoting health and preventing ill health' and focus on improving and maintaining health and understanding and applying health promotion goals. In the Canadian framework, health promotion and prevention are discussed under 'Advocate'. Additionally, two competencies under another heading align with Health Promotion and Prevention: use strategies to promote wellness, prevent illness, and to minimize disease and injury in clients, self, and others; and implement evidence-informed practices for infection prevention and control. In the US competency framework, relevant competencies under 'Population Health', include disease management of populations and evidence-based patient teaching materials.

Organization and planning of care

The generic competency domain Organization and Planning of Care has two aspects: the domain encompasses competencies regarding the planning of care and competencies regarding the system for organizing care, both within the institution and together with other healthcare

institutions. It is described as a separate domain in all five frameworks, but individual competencies are also described under other headings.

In the Dutch competency framework, competencies related to organization and planning of care are mainly described under 'Organizer'. These include being able to make decisions about policy, and coordinating and evaluating patient care. For Belgium, relevant competencies are described under 'Managing the care process', which involves utilizing available resources efficiently and planning nursing care. In the UK, organizational competencies are primarily described under 'Assessing needs and planning care' including developing person-centred care plans, understanding the mechanism to influence organizational change, and coordinating, leading and managing the needs of people. In the Canadian framework, competencies are described under the role of 'Coordinator'. RNs should help clients to navigate healthcare systems, develop care plans, consider organizational culture and use resources wisely. Under the heading 'Systems-based practice', the US competency framework describes competencies for coordinating resources, applying knowledge of systems to work effectively, developing a care plan and organizing and coordinating care.

Leadership

The generic competency domain Leadership is addressed differently across the countries. Competencies regarding leadership are described under various headings in the Dutch and Belgian competency frameworks, while in the other three competency frameworks they are described as a separate domain.

In the Dutch competency framework, relevant competencies are described under the headings: 'Professional and personal leadership', 'Perform the job confidently and assertively' and 'Fulfil a coordinating role within a multidisciplinary team'. The relevant competencies described in the Belgian competency framework, are nursing leadership (taking the initiative in coordinating care), demonstrating professional leadership by participating in activities aimed at guiding policy and health services, making services more accessible, and organizational leadership. These competencies are described in different parts of the competency framework. In the UK competency framework, relevant competencies are described under the heading 'Leading and managing care and working in teams'. The competency framework describes RNs' leadership competencies in coordinating the care, acting as a role model and understanding the principles of effective leadership. Under the heading 'Leader', the Canadian competency framework describes RNs' role as leaders who influence and inspire others, enhance the quality of a professional and safe practice environment and demonstrate self-awareness. In the US competency framework, competencies are grouped under the heading 'Personal, professional and leadership development'. The competencies in this section include

demonstrating commitment to personal health and wellbeing, showing professional maturity and developing leadership capacity.

Quality and safety of care

The generic domain Quality and Safety of Care is described as a separate domain for all countries except Canada, where it is covered extensively under other headings. This generic domain concerns competencies regarding evidence-based practice, evaluation and documentation, assessing risks to safety and enhancing quality of care. All competency frameworks describe the competencies required for safe and high-quality care, e.g. competencies for evidence-based care, evaluation of care and improving the quality of care. The five competency frameworks use slightly different terms and differ in whether they focus on no harm (Canada and the US) rather than safe care (Netherlands, Belgium, and the UK).

More specifically, the Dutch competency framework, competencies regarding quality and safety of care are described under the heading 'Professional and quality promotor'. In the Belgian competency framework, the competencies are described under 'Analyse, evaluate and ensure the quality of care provision in order to improve one's practice', and in the UK under 'Improving safety and quality of care'. As said, in the Canadian competency framework the quality and safety of care are not described in a separate domain. Competencies are listed in various parts of the competency framework, under the headings 'Clinician', 'Professional' and 'Advocate'. In the US framework, the relevant competencies are mainly described under 'Quality and Safety'.

Training and (continuing) education

The generic domain Training and (continuing) Education encompasses lifelong learning for nurses and providing or assisting in education. It is a separate domain in Canada and the US, but is described in the frameworks of the other three countries as well. Competencies regarding Training and (continuing) Education are described most extensively in the Netherlands, Belgium and the UK.

In the Dutch competency framework, relevant competencies are addressed under different headings. These include supervising and coaching colleagues, keeping up with professional literature, self-reflection, giving and receiving feedback and acting as a role model. For Belgium, relevant competencies are described under various headings in the framework. It emphasizes that RNs should evaluate themselves and sharpen their competencies through training and participating in research and the education of students and colleagues. In the UK competency framework, competencies for training and continuing education are described under various headings. This includes self-reflection and professional skill development, supporting and supervising students and providing constructive feedback. In Canada,

competencies are described under 'Educator' and 'Scholar'. 'Educator' includes competencies in selecting, developing and using relevant teaching and learning theories and strategies for diverse clients and contexts. 'Scholar' encompasses lifelong learning commitment, supporting research activities and developing research skills. In the US framework, competencies under 'Scholarship for nursing discipline', concern generating, synthesising, translating, applying and disseminating nursing knowledge to improve health and transform care. Other competencies are described under different headings including educating individuals and families, engaging in peer evaluation and self-reflection, and identifying role models and mentors to support professional growth.

Technology and e-Health

The generic domain Technology and e-Health addresses competencies for digital literacy and the professional use of e-health. Only in the US is this described under a separate heading ('Informatics and healthcare technologies'). In the other countries it is covered throughout the framework under various headings.

In the Netherlands, competencies include digital literacy, reporting digitally and working with electronic patient files, utilizing social media, remote care and e-health technologies. For Belgium, relevant competencies concern using technology and ICT to store, access and record data for improved healthcare access and patient outcomes. The framework refers to clear digital communication and digital literacy for RNs. According to the UK competency framework, RNs need numeracy, literacy, digital and technological skills to meet the needs of people in their care and to ensure safe and effective nursing practice. They should be able to utilize digital technologies for accessing information, recording vital signs, and interpreting data. The Canadian competency framework refers to using social media and ICT to uphold public trust in nurses. It also includes competencies for ICT communication, assisting patients with ICT, strengthening nursing informatics and identifying and analysing technologies that may change. In the US, technology and e-health competencies are bundled under 'Informatics and healthcare technologies'. This includes the competencies to gather (digital) data, describe information and use communication technology tools for care delivery and documentation support.

Support of self-management and patient empowerment

The generic domain Support of Self-Management and Patient Empowerment is addressed in all the competency frameworks but not as a separate domain. The domain includes competencies aimed at enabling self-management by patients and empowering patients to take control of their health and to be involved in decisions about care and care interventions. In the Netherlands, Belgium and the UK, Support of Self-Management and Patient Empowerment is described in the introduction to the competency framework as a 'core

value’ of nursing. From that perspective, it is logical that the domain is not found under a separate heading but is discussed throughout the competency framework. References to self-management support and empowerment in Canada and the US are found under headings like: ‘Support and empower clients in making informed decisions about their health care’ and ‘Promote self-care management’.

Division of tasks between RNs and other professionals

Professional competency frameworks not only refer to competencies, but also outline some tasks and may highlight aspects of the task division between RNs and other professionals. All five frameworks discuss at least one aspect of the division of tasks between RNs and other healthcare professionals. Most of the time, no details are given about healthcare professionals in terms of their discipline or whether they are other nursing staff with specific educational levels. Some competency frameworks mention delegating tasks from RNs to other healthcare professionals (Belgium, US) while others emphasize the coordination and organization of care or the delegation of tasks to other nursing staff (Netherlands). The UK framework mentions both delegating tasks and coordinating/organizing care. However, the specifics of task division and delegation are often unclear, with limited descriptions. For instance, one competency framework (Canada) only states that RNs must have knowledge of the delegation process. Information might partially overlap with the competencies described under the generic domain Communication and Collaboration.

In the Netherlands the division of tasks was described in the general description of the field of expertise of an RN with a Bachelor of Science in Nursing. This part describes the direction, organization, and coordination of the care process, including shared decision-making with the patient and other healthcare professionals, without specifying the disciplines of these other professionals. In addition, the Dutch competency framework states that for several restricted actions (in Dutch ‘*voorbehouden handelingen*’), the Bachelor-educated RN can have independent authority (in Dutch ‘*zelfstandige bevoegdheid*’), provided that the RN has the competency for the specific restricted action. If the RN has the required competency, the RN also has the authority to determine the indication for the restricted action, to perform the action herself, and to give orders to another healthcare professional (as referred to in Article 38 of the Individual Healthcare Professions Act) to perform the restricted procedure. Details are not given in the framework about who the other healthcare professionals can be, what the specific restricted actions with independent authority are or what the required competencies are. Regarding the independent authority there is a footnote stating that some medicines may be prescribed by specific groups of specialized nurses which is further explained in the appendix part of the document. In other restricted actions, the RN has functional independence (in Dutch ‘*functionele zelfstandigheid*’), which means that a competent RN can perform these without supervision but only after being instructed to do so by a doctor

or other authorized healthcare professional. These restricted actions concern injections, catheterization of the bladder, insertion of a tube or drip and venipunctures.

In the Belgian framework, the task division between RNs and other professionals is described as delegating certain care aspects to an expert caregiver in an effectively and safely and accepting delegated activities that are in line with the RN's competencies and legal professional field. Who these 'expert caregivers' are is not mentioned. The task division between RNs and physicians is described in a section about legal aspects. Nurses are allowed to contribute to the medical diagnosis by the physician, to execute the treatments prescribed by the physician and to carry out technical and nursing care actions for which a medical indication is not required. These tasks may be related to the physician's diagnosis, the treatment prescribed by the physician, the administration of preventive medicines, and other medical actions that may be entrusted to a RN by a physician. The Belgian competency framework does not describe whether nurses have functional independence to perform actions related to medical treatments and if so, under what conditions. Neither does this professional competency framework mention whether physicians have full jurisdictional control (professional control) over all the actions of RNs related to medical treatments.

The competency framework for the UK describes task division firstly in relation to the RN's competencies to safely and effectively lead and manage the nursing care of a group of people, demonstrating appropriate prioritization, delegation and assignment of care responsibilities to others involved in providing care. Secondly, task division is discussed in relation with the RN's competency to show leadership as a role model in delivering high-quality nursing care. They are responsible for managing nursing care and are accountable for the appropriate delegation and supervision of care provided by team members and lay carers. RNs need to provide clear information and instructions when delegating or handing over care responsibilities. They should also demonstrate effective supervision, teaching, and performance appraisal by using clear instructions and explanations.

In the Canadian competency framework, task division is discussed is addressed under 'Coordinator' focussing on RNs' competency in understanding the delegation process. No other references to task division were found in the professional competency framework. Moreover, this framework does not give any information on which tasks can be delegated and to which types of professional.

The US competency framework pays attention to the delegation of tasks, firstly in relation to RNs' competency to delegate appropriately to team members and, secondly, their ability to delegate work based on team members' roles and competencies. However, the framework

does not specify the professional backgrounds of team members, which specific tasks can be delegated, or who has jurisdictional control over those tasks.

Discussion

Three of the five professional competency frameworks included in this document analysis explicitly identify their point of departure in categorizing the competencies of RNs, namely the CanMEDS model (NL), European directives on the recognition of professional qualifications (BE) or an adapted inter-professional framework (US). The point of departure was not mentioned in the competency frameworks for the UK and Canada. In addition, one competency framework (BE) made no distinction between Bachelor-educated nurses and registered nurses with a vocational qualification.

Since there is no 'golden standard' for creating a professional competency framework for nurses, it is only to be expected that the categorizations and descriptions of competencies will differ between countries. However, variation in competency frameworks might be a barrier to the international exchange of the developing body of nursing knowledge and make it harder for nurses to work abroad. Within the European Union, there are minimum requirements for the training of general nurses in terms of content, placements, and time spent in clinical practice to facilitate the free movement of EU citizens [38, 39]. These are described in the EU directives 2005/36/ EC and 2013/55/EU and have been used as a base for the Belgium professional competency framework [33, 38, 39]. Since European countries are required to incorporate these directives into nursing training and a specific guideline for implementation was provided by the European Federation of Nurses Associations (EFN) [40], we expected the EU directives were also referred to in the basis of the RNs professional competency frameworks in the Netherlands and UK, but this was not the case.

Around the world, shortages of skilled healthcare workers are high, but the need is more urgent in some countries than in others [41–43]. The further ageing of the population and the increase in complex care needs related to multimorbidity [4, 44] call for a strong and flexible health workforce in the future. The World Health Organization (WHO) recently published a roadmap to support countries and strengthen the nursing and midwifery professions in Europe [45]. In this roadmap, the WHO recommends aligning the competencies in different countries and creating good preconditions for international exchange. In addition, this roadmap discusses labour migration as a solution for country-specific workforce shortages.

Although the underlying model or base of the categorizations varied between countries, there were similarities in the competencies. We identified ten generic competency domains. These generic competency domains reflect the core of nursing and what is considered

essential in today's healthcare and in society in a broader sense. In particular the generic competency domains (4.) Health Promotion and Prevention, (9.) Technology and e-Health and (10.) Support of Self-Management and Patient Empowerment reflect the current focus of policy makers and practitioners on disease prevention, the use of ICT, and the promotion of patients' self-reliance and autonomy. These developments are partly driven by the increasing shortages of nursing staff.

Although these three generic domains are addressed in all the included competency frameworks, there are also differences. Support of Self-Management and Patient Empowerment received less attention in the competency frameworks of Canada and the US than in frameworks for the Netherlands, Belgium, and the UK. Future international empirical research can show whether these differences are also found in daily nursing practice.

All professional competency frameworks address the division of tasks between nurses and other healthcare professionals but to a varying extent. Relatively most attention is paid to task division in the competency frameworks of the Netherlands and Belgium. These frameworks address the question of responsibility for medical actions carried out by the RNs, with both competency frameworks referring to legislation.

Only the Dutch and Belgian competency frameworks explicitly mention physicians regarding the division of tasks or task delegation, although all competency frameworks mention 'other professionals' in general when discussing task divisions or task delegation. The lack of clarity and explicitness regarding the specific tasks involved in the division of tasks is striking, especially as we have indications from previous research that task shifts, e.g. when prescribing medication or monitoring chronic conditions, occur increasingly in nursing practice [46]. This is also surprising because clarity and explicitness about which tasks belong to the nursing profession does justice to nursing as a profession. For instance, Abbott states in his contribution to the sociology of professions that each profession has autonomy and control over its work [47]. It was also expected that this would be reflected in the competency frameworks for RNs as this is the place to describe task divisions. However, it is not always clear how the jurisdiction (professional control) over tasks is divided between professions, both legally and in practice. For instance, the jurisdiction in prescribing medicine, a task originally belonging to the domain of the physician, varies greatly between countries, from RNs sharing jurisdiction to RNs being in a subordinate position [48]. Moreover, previous research has shown that task shifts from physicians to nurses are increasing and may lead to lower costs and similar or even better patient satisfaction and health outcomes [49–51]. As task shifting may be a solution for the shortages of healthcare workers, the WHO has recommended this as a strategy for countries to strengthen health systems [52, 53] and the European Union is looking for ways to implement this [54, 55]. In Western countries, specialized RNs and nurses with Master's degrees in

Advanced Nursing Practice are increasingly being allowed to take over tasks that belong to the domain of the physician, like prescribing medicine and diagnosing patients [56, 57]. In her research, Maier describes the considerable variation in the legal authority and control over these tasks, e.g. in who has prescription authority (nurses or physicians) [57].

The fact that our document analysis concerned 'generic' professional competency frameworks that transcend care settings and patient groups may partly explain why so little attention is paid to registered nurses' specific tasks and why they are often described in imprecise terms. It is expected that more specific information on task division will be found in, for instance, competency frameworks for RNs specialized in the care for a specific patient group or nurses with a Master's degree in Advanced Nursing Practice since they may have a more specific role within the nursing staff and also in relation to physicians.

Limitations and strengths

A limitation of this document analysis concerns the selection of the five countries. Although a deliberate decision was made to include these specific countries, this does have consequences for the generalizability of the findings to the competency frameworks for RNs in other countries. For future research, it is recommended to extend this document analysis to include the professional competency frameworks of more countries.

Another limitation is that only the latest versions of the professional competency frameworks were included. As a result, we have not been able to identify possible changes over time. Some countries, like the Netherlands and Belgium, are currently revising the professional competency frameworks for RNs. When new frameworks are published, it would be interesting to compare them with the current version to see how the COVID-19 pandemic, for example, has affected the required competencies and tasks, e.g., in relation to the increasing use of e-health and online communication between RNs and patients.

The last limitation is that we only addressed the required competencies and task divisions as described in the competency frameworks. This research did not examine whether the framework is implemented in practice or is legally binding. For instance, in the Netherlands the professional competency framework is published but has not been anchored in the law or national regulations. Together with the variation in health systems between countries this could also be a possible explanation for the differences we found.

A strength of this document analysis is that it is the only known international study to date that compares current competency frameworks in different Western countries. This is especially interesting for nurses and nursing associations that develop new professional competency frameworks for RNs in collaboration with other stakeholders (e.g., governments and patient

organizations). This analysis can also serve as input for the future alignment of competency frameworks between countries.

Another strength of this research is the involvement of experts from the respective countries, who were consulted both when retrieving the current competency frameworks and during the validation of the results for their respective countries.

Conclusions

Ten generic domains were identified during the analysis and comparison of the professional competency frameworks. However, there are differences across countries in how the competencies of Bachelor-educated RNs are categorized and described in the frameworks. Moreover, limited information is available regarding the division of tasks between nurses, physicians and other healthcare professionals, particularly in Canada and the US. These variations and gaps in information may result in differences in nursing practice among countries and could impede the cross-border labour mobility for RNs.

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Chapter 3

International comparison of professional competency frameworks for advanced practice nurses: a document analysis

Submitted as:

International Comparison of Professional Competency Frameworks for Advanced Practice Nurses: a Document Analysis

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Abstract

Background: Advanced Practice Nurses (APNs) have become established professionals in many healthcare systems. APNs combine nursing with medical expertise, bridging the boundaries of the traditional professions of nursing and medicine. This study focuses on the content of professional competency frameworks for APNs in various countries to determine how those frameworks (1) define the competencies of APNs and (2) address the division of tasks between APNs and physicians.

Methods: A document analysis has been carried out on the competency frameworks for APNs in Belgium, Canada, the Netherlands, the United Kingdom and the United States.

Results: In Belgium, the Netherlands, the UK and the US, the framework is based on an existing model, whereas the framework in Canada does not refer to a model. The analysis revealed twelve generic competency domains for APNs: 1. Clinical Care in Practice, 2. Independent Practitioner, 3. Professional Attitude, 4. Scientific Research & Evidence-Based Practice Care, 5. Leadership, 6. Health Promotion and Public Healthcare, 7. Communication and Collaboration, 8. Organisation of Care and Policy, 9. Support of Self-Management and Patient Empowerment, 10. Quality and Safety of Care, 11. Teaching and (continuing) Education, 12. Technology and E-Health. Overall, the results show that APNs integrate medical and nursing knowledge, diagnose, treat, prevent, and coordinate care with a high level of autonomy and have adopted leadership roles. They also mentor other healthcare professionals, participate in scientific research and use evidence-based practice to guide clinical decision-making and improve patient outcomes. Lastly, the results show some differences in explicitly describing high-risk procedures per country. Not much attention is generally paid to task division and delegation in most of the frameworks except those of Belgium and the Netherlands.

Conclusion: Despite variations in the basis of professional competency frameworks for each country and country-specific influences, twelve generic competency domains with similar competencies were identified. It is recommended that the development of a global standardised competency framework for APNs should be encouraged, including clear descriptions of task division and delegation, to optimise their role in delivering high-quality healthcare services.

Introduction

Along with the further development of the nursing profession, the role of Advanced Practice Nurses (APNs) became established in Western healthcare.^{1,2} This relatively new profession has developed extensively in the past two decades and continues to evolve as the idea of advanced practice nursing spreads worldwide.¹⁻³

The International Council of Nurses (ICN) describes the APN as “[...] a generalist or specialised nurse who has acquired, through additional graduate education (minimum of a master’s degree), the expert knowledge base, complex decision-making skills and clinical competencies for Advanced Nursing Practice, the characteristics of which are shaped by the context in which they are credentialed to practice” (adapted from ICN, 2008).⁴

The rise of the APN as a profession has been influenced by numerous factors in modern healthcare after initially emerging to meet healthcare needs (especially those of patients).² For example, technical developments in anaesthesia resulted in a need for specialised professionals who could focus on administering anaesthesia. In the United States and other countries, this led to the APN profession of Nurse Anaesthetists.² Nowadays, the term APN is an umbrella term and includes various advanced nursing roles, like the Clinical Nurse Specialist or the Nurse Practitioner.^{1,3-6} Subsequently, inconsistency in language and defined roles has led to confusion and has been described as a challenge to the development and complete utilisation of the APN.^{1,3-5}

The APN profession will likely continue to evolve in the future due to the continuous shortages of physicians.^{3,5,6} Additionally, Western societies are ageing, and more people have chronic conditions and comorbidities that require specialised care.^{3,7-10} Moreover, care policy for aged patients with complex care needs is shifting from residential care to care in people’s homes, and preventive care and health promotion are increasingly being prioritised. As a result of these developments, there will be an increasing need for APNs, particularly within primary care.^{1,3,7}

Although the task packages of APNs may vary within and between countries, a general picture is that the APN combines nursing with medical expertise, thus bridging the boundaries of the traditional professions of nursing and medicine. APNs carry out advanced tasks that were restricted in the past to physicians. For example, APNs in the Netherlands are allowed to make a medical diagnosis and prescribe medicines and other medical treatments within their specific area of expertise, independently from a physician.^{11,12} This redistribution of tasks and responsibilities in healthcare is also known as task shifting.

Abbott discussed in his book *The System of Professions* how divisions of tasks and substitution tasks between professions are often accompanied by competition and discussion about which profession has jurisdiction, the formal control over tasks.¹³ With the APN as a new profession, it is important to clarify who has formal responsibility for specific medical tasks: the APNs or the physicians. We expected this to be reflected in country-specific professional competency frameworks for APNs. A professional competency framework describes the competencies that a professional – in this case, an APN – must have. These competencies concern knowledge, skills and attitudes, and the ability to perform tasks within a professional context.^{14,15} Professional competency frameworks are often developed by national professional nursing associations and are vital as they guide advanced nursing education and practice and reflect the advanced nursing profession in a specific country.^{14,15}

The APN's scope of practice as described in competency frameworks might reflect country-specific factors, such as the organisational structures of healthcare, health policy and regulations and human resources. This may be associated with different terminology defining the APN in various countries.^{1,3,16,17} Despite these differences, there are probably similarities in the competency domains and task divisions between APNs and physicians across different countries. Recognising these similarities can help national and international nursing associations advance the APN profession and mobilise the potential of APNs.^{1,3,16,17} To explore the existence of a generic competency framework for APNs, this paper takes a scientific and policy-oriented perspective to compare the roles and practices of APNs in five selected countries: the Netherlands, Belgium, Canada, the United Kingdom and the United States. Furthermore, we will examine the division and delegation of tasks between APNs and other professionals, as described by the professional competence frameworks. The choice for the first two countries is related to the fact that the authors are from the Netherlands, and Belgium is culturally and geographically strongly comparable to the Netherlands. Together with these two countries, the UK also belongs to Europe, which might make the three more comparable. The three English-speaking countries (UK, Canada and US) were selected because they were among the first countries to experience this type of rapid development, including nursing at a Masters level, during the last decades of the 20th century. This was partly due to advanced academic education, federal funding, and support for nursing research.^{18,19}

So far, no comparative analysis has been done regarding the general competency frameworks for the APN. However, such analysis was recently performed for Bachelor-educated RNs, showing that little attention is paid to task divisions between RNs and physicians and other healthcare professionals.²⁰ In the professional competency frameworks for APNs, we expected more emphasis on this topic as APNs work both in the nursing and medical domains. It is also expected that the status of the development of frameworks is related to the type of healthcare system in a country. Specifically, it is expected that countries with more centralised

healthcare systems, such as the UK with the National Health Service (NHS), would have a greater capacity to develop their frameworks due to higher service and education requirements.

For the comparative analysis of the competency frameworks for APNs, the following research questions were answered:

1. In each country, what is the basis used (e.g. a theoretical or educational model) to describe and categorise the competencies of the professional competency frameworks for APNs?
2. What are the competencies of the advanced practice nurses described in the professional competency frameworks, and how do these differ or correspond among the countries analysed?
3. How do the professional competency frameworks address the task division between APNs and physicians?

Methods

Searches and inclusion criteria

For this study, a document analysis of the most recent professional competency frameworks for APNs in Belgium, Canada, the Netherlands, the United Kingdom (UK) and the United States of America (US) was carried out. This study aimed to make an international comparison and describe the competencies of APNs and task divisions and delegations between APNs and other professionals.

In October 2022, professional associations' and governments' websites in each chosen country were searched to find the most recent professional competency frameworks of APNs (one for each chosen country). The inclusion criteria for this document analysis required that the documents were national professional competency frameworks for Advanced Practice Nurses and covered a general competency framework across various healthcare sectors and patient groups. Therefore, we excluded frameworks focussing on solely one group of APNs while multiple roles exist in a country, e.g., a professional competency framework for Nurse Practitioners.

Competency frameworks found were independently reviewed according to the inclusion criteria by researchers RW and SN. After that, representatives of professional nursing associations and nursing professors from each country were approached and asked to confirm whether the competency framework found for their country was the correct and most recent one.

Analysis

For this document analysis, inductive content analysis was used to analyse the competency frameworks.²¹ All competency models were thoroughly re-read so that researchers became familiar with their content and determined what basis the competency frameworks used for categorising competencies in particular domains. Relevant text fragments about competencies and competency domains were first open-coded inductively. After this first coding round, fragments were also selectively coded with the previously identified codes.

In parallel with categorising the competency domains, the documents were searched to identify text fragments addressing the division of tasks between APNs and other professionals.

The research team discussed the specified domains, task divisions, themes, sub-themes, and competencies at various points. The researchers returned to the competency framework texts to ensure that conclusions had a sound basis.

The computer program MAXQDA 2022 was used to help with the coding and analysis.²² To ensure the internal validity of the findings, the same experts from the respective countries who were contacted earlier were approached to review the draft results and a schematic overview. For Canada and the US, we reached out to a different expert since the expert we initially contacted was unwilling to review our findings. For all countries (except Canada), expert feedback was provided

Results

General characteristics

This study compared five recent competency frameworks for APNs published by nursing associations from Belgium, Canada, the Netherlands, the UK and the US (see Box 1). All frameworks except the Belgian one are based on previous versions of the respective professional competency frameworks.

Some frameworks distinguish between speciality areas and roles, while others solely refer to generic competencies. The framework for APNs in the Netherlands refers to a legal division between two speciality areas: somatic care and mental care. The two speciality areas share a basis of generic competencies, but two additional chapters within the framework describe the competencies related to each speciality area. Moreover, the Canadian framework distinguishes between two different APN roles: the clinical nurse specialist and the nurse practitioner. Generic competencies for APNs are mentioned in the competency framework. However, the preamble to the Canadian framework describes some differences between the scope of practice of the two roles. The American framework consists of competencies on

two levels: 1) Entry-level competencies for Registered Nurses and 2) Advanced-level competencies (for APNs). This study has analysed the advanced-level competencies. The other two frameworks do not differentiate between different speciality areas or roles of APNs and thus solely refer to generic competencies of APNs.

Box 1: Origin of the professional competency frameworks for APNs.

<p>Belgium. The Advanced Practice Nurse in Belgian Healthcare and Welfare: Competency Framework (Belgium Think Tank, 2021).</p> <p>Canada. Advanced Practice Nursing. A Pan-Canadian framework (Canadian Nurses Association, 2019)</p> <p>The Netherlands. Nurse Practitioner professional competency framework (Nursing Association in the Netherlands (V&VN), 2019)</p> <p>The United Kingdom. Advanced Level Nursing Practice (Section 2: Advanced level nursing practice competencies) of the RCN Standards for advanced level nursing practice, advanced nurse practitioners, RCN accreditation and RCN credentialing (UK Royal College Of Nursing, 2018)</p> <p>The United States of America. The essentials: core competencies for professional nursing education (American Association of Colleges of Nursing, 2021)</p>
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The basis of the frameworks

There is variation between countries in terms of the basis they use to describe and categorise the competencies of the APN. Only the Netherlands and Belgium both use the same one: CanMEDS (Canadian Medical Educational Directives for Specialists).²³ This model is used to structure nursing education curriculums by outlining a standard range of seven roles: Expert, Communicator, Collaborator, Leader, Health Advocate, Scholar, and Professional.²³

In addition to CanMEDS, the Dutch framework also represented competencies based on the 'T-shaped professional' model. The T-shaped professional model is also a concept in nursing education that describes desired nursing competencies, although it focuses on developing general and expert skills. Within the T-shaped model, the horizontal bar of the T stands for a broad range of general knowledge and skills, while the vertical bar represents the knowledge and skills of a speciality area.

The UK and US frameworks are likewise based on existing models. The conceptual framework for advanced practice of Manley²⁴ (UK) operationalised the advanced nurse role into four pillars of advanced practice nursing incorporated into the UK framework. The interprofessional framework of Englander (US) defines a common taxonomy for health professions and physicians.²⁵ The professional competency framework of the US has ten domains that describe the core principles of nursing. Within the framework, the domains are identical for RNs and APNs. However, sub-competencies describe the advanced nursing level of the APN.

The Canadian framework does not mention any specific model used and categorises six roles without describing its development.

Generic domains of competencies for Advanced Practice Nurses

Despite the differences in the bases underpinning the frameworks and the differences in headings used, similarities were identified through inductive content analysis. While four to ten prominent domains are defined and used in the various frameworks to categorise the competencies of APNs, we were able to define 12 common (i.e. generic) competency domains across the five countries. An overview of the twelve generic domains identified, their sub-domains, headings used and examples of competencies from each framework can be provided upon request.

Twelve generic domains identified

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|--|--|
| 1. <i>Clinical Care in Practice</i> | 7. <i>Communication and Collaboration</i> |
| 2. <i>Independent Practitioner</i> | 8. <i>Organisation of Care and Policy</i> |
| 3. <i>Professional Attitude</i> | 9. <i>Support of Self-Management and Patient Empowerment</i> |
| 4. <i>Scientific Research & Evidence-Based Practice Care</i> | 10. <i>Quality and Safety of Care</i> |
| 5. <i>Leadership</i> | 11. <i>Teaching and (continuing) Education</i> |
| 6. <i>Health Promotion and Public Healthcare</i> | 12. <i>Technology and E-Health</i> |

Competencies within the generic domains

1. Clinical Care in Practice

The first generic domain identified is ‘Clinical Care in Practice’, which refers to the APN as leading and steering the care process, and integrating medical and nursing knowledge in clinical care. Overall, the APN has an advanced role in diagnosis, treatment and preventive care. All frameworks have some similar headings – such as ‘Clinical expert and practitioner’ (BE) and ‘Clinical/Direct Care’ (UK) – to describe the role of the APN in clinical care. Moreover, the frameworks refer to some similar competencies regarding care coordination, e.g. developing a care plan, managing an episode of care from admission to discharge, and referring patients to health professionals.

All competency frameworks pay to varying extents attention to high-risk medical procedures that require specialised skills and training and may only be performed by qualified healthcare personnel. Compared to other frameworks, the Dutch framework provides more explicit details of the medical procedures that APNs are authorised to perform. The term used for these procedures in the Dutch framework is restricted procedures (in Dutch: “*voorbehouden handelingen*”) and the restricted procedures that Dutch APNs are allowed to perform differ according to speciality area (somatic and mental healthcare). For instance, APNs in somatic

care can carry out restricted procedures such as specific surgical procedures, endoscopies, punctures, elective cardioversion and defibrillation, as well as issuing medical prescriptions.

Restricted procedures are referred to in less detail in the frameworks of other countries. The Belgian and UK competency frameworks state that the APN can independently prescribe medication, conduct diagnostic assessments and diagnose. For instance, the UK framework says that APNs carry out interventions, some of which are usually not performed by RNs, e.g. prescribing medication and ordering and interpreting diagnostic tests. Moreover, the Belgian framework emphasises the authority of the APN to decide on assessments and medical, pharmacological or psychotherapeutic interventions. The US and Canadian frameworks do not describe competencies regarding the APN's ability to prescribe medication within their competency framework. Nevertheless, the definition of the APN in the glossary of the US framework refers to the APN as educationally prepared to prescribe medication. Additionally, the preamble to the Canadian framework addresses competencies regarding ordering and interpreting diagnostic tests, diagnosing and pharmacological and other treatment interventions as part of the scope of practice of the APN's role as a Nurse Practitioner. Moreover, the preamble to the Canadian framework states that APNs with the Clinical Nurse Specialist role do not have this legal authority.

The integration of advanced nursing knowledge, medical knowledge and knowledge from other related fields in practice is referred to within all frameworks. The US framework pays a relatively large amount of attention to integrating nursing knowledge within clinical practice. It is the only one with a separate heading for competencies addressing the influences of the nursing lens of the APN on clinical practice, including nursing decision-making models and nursing history.

Furthermore, all frameworks provide competencies about preventive care at the level of the individual patient, such as health promotion and early detection. However, there are some differences in the extent to which preventive care is addressed within the frameworks. For instance, the Belgium framework emphasises preventive care more than other countries by describing competencies related to preventive care under the separate heading 'Health advocate'. Moreover, according to the Canadian framework, the APN has an additional monitoring role in personal preventive care and is expected to recognise the need for outcome measurements, e.g. monitoring the length of stay, to determine the success of a particular intervention or treatment.

2. Independent Practitioner

The second generic domain identified is that of the ‘Independent Practitioner’, referring to the APN’s advanced knowledge that lets them work as independent practitioners, making autonomous decisions about the treatment process within their speciality area.

The Dutch and Belgian frameworks pay a relatively large amount of attention to this position as an independent practitioner. Within the Belgian framework, the APN is stipulated to be a practitioner who initiates and leads specialist care autonomously. Examples are competencies regarding decision-making about interventions, providing consultations in complex situations and having the final responsibility. In the Dutch framework, competencies for this role are stated throughout the framework rather than in one separate domain. There is an emphasis on the APN as an independent practice authority within their speciality area and spectrum of treatment. The competencies commonly mentioned are about having the skills to work independently and position themselves as independent practitioners (as either the main or conjoint care provider). Moreover, the competencies are about autonomously carrying out specific restricted procedures and independently making decisions that influence the patient journey (for instance, referring patients to other practitioners and determining natural or unnatural death).

The UK framework refers less extensively to the APN as an independent practitioner. When alluding to this topic, they use autonomous and self-directed practitioner as terminology. The role of the APN as an independent practitioner is notable in the consulting competency of the APN within their own and other professions.

Although the Canadian and US frameworks do not use the term “independence” to describe the role of Advanced Practice Nurses (APNs), the Canadian framework does show some level of independence through the competency related to the ability of the APN to provide consultation and recommendations or treatment. Additionally, the preamble to the framework describes the APN as a practitioner with a high degree of autonomy for a specific patient group despite a lack of competencies referring to autonomy. Contrarily, within the US framework, there is less emphasis on professional autonomy and the independent position of APNs. However, there is attention to the leading role of the APN in clinical care. Competencies mainly refer to the APN’s leading and collaborating roles within a team to develop a care plan.

3. Professional Attitude

The generic domain of the ‘Professional Attitude’ that we identified concerns professional behaviour on ethical reasoning and accountability for their own actions in the workplace.

Moreover, competencies related to this domain address the responsibility of APNs to adhere to guidelines and regulations and contribute to a positive workplace culture.

Ethics and accountability are prominent in the Belgian, US and Dutch frameworks. The Belgian framework refers to competencies regarding a pioneering role for APNs in detecting and discussing ethical dilemmas, creating a positive ethical work environment, and developing ethical frameworks. Moreover, the framework extensively mentions competencies that describe the need for APNs to be accountable to colleagues, patients, society and stakeholders for their position as APNs. The Dutch framework explicitly mentions acting within the limits of the APN's expertise and being responsible and accountable for actions. Furthermore, the Dutch framework describes professionalism by competencies such as providing honest, sincere and committed care and emphasises the role of the APN in addressing ethical matters. The American framework has a specific heading 'Professionalism' which mainly addresses ethics and accountability. However, ethical practice and accountability competencies also reoccur in many other domains regarding, e.g. technology, research and policy. Examples are being accountable for care delivery, modelling ethical behaviour, using ethical frameworks and suggesting solutions for ethical dilemmas.

The frameworks of the UK and Canada do not have specific headings that describe the professional attitude of the APN. However, competencies in understanding and applying ethical trends and developments and being accountable and responsible for actions are mentioned throughout the UK framework. Moreover, the UK framework explicitly says that the boundaries of practice are defined in a professional code of conduct. Within the Canadian framework, an ethical attitude is described in one competency that notes the need to demonstrate self-awareness and behaviour aligned with ethical values. However, the preamble to the framework states that APNs should be able to explain and apply the theoretical, empirical, ethical and experimental foundations of nursing practice and provide leadership in identifying and resolving ethical problems.

4. Scientific Research & Evidence-Based Practice Care

The generic domain of 'Scientific Research & Evidence-Based Practice Care' that was identified refers to the APN's responsibility to generate scientific evidence and integrate evidence-based practice in care. The APN illustrates these competencies as a researcher and scientific promoter who is continuously aware of scientific development and actively participates in academia. All frameworks except the UK have separate headings to describe the role of the APN as a researcher. However, competencies regarding integrating evidence in practice are often mentioned in the generic domains related to clinical care.

The position of the APN in scientific research and evidence-based practice was prominent in all frameworks. Common competencies include critically evaluating research, identifying knowledge gaps, initiating and presenting research, and developing standards and guidelines. Within the frameworks of Belgium, the Netherlands and the US, applying correct research methodology and being aware of research ethics are considered competencies. In contrast, the frameworks of the UK and Canada do not allude to the APN's role concerning research ethics. Moreover, all frameworks state that the APN is expected to disseminate research findings, e.g. at congresses and knowledge networks. Additionally, attention is paid to promoting knowledge translation (transferring research into practical use), for example, by developing evidence-based interventions or addressing the importance of evidence-based practice to colleagues.

5. Leadership

The generic domain identified and named 'Leadership' addresses the pioneering and representative role of the APN. The APN is often referred to as a role model responsible for helping professionalise the role of APNs and their speciality area. All frameworks have a specific heading to describe competencies regarding leadership.

However, the APN's duty to function as a role model is mentioned multiple times under several headings in the Belgian, Dutch and US frameworks. The US framework has a heading named "Personal, professional and leadership development", yet taking a leading role is mentioned multiple times throughout the framework. For example, demonstrating leadership skills in times of uncertainty and crisis.

Moreover, the Belgian, Canadian, Dutch and UK frameworks mention the APN's commitment to help professionalise the APN as a profession. The Belgian framework addresses the competency to lead in associations and working groups that advocate professionalisation. The Canadian framework mentions promoting nursing and APNs through involvement in academic activities, associations and interest groups. In addition, the frameworks from the Netherlands and the UK also allude to the importance of substantiating the added value of APNs in the medical field.

6. Health Promotion and Public Healthcare

The identified generic domain 'Health Promotion and Public Healthcare' notes the APN's role in monitoring and managing health needs and preventive care at a population level. Moreover, this domain encompasses health equity and cultural sensitivity. Within the different frameworks, competencies regarding this domain are mainly described under headings such as health advocate (Dutch and Belgium) or population health (US).

All frameworks list a role for the APN in epidemiology. Common competencies address knowing the principles of epidemiological data and trends and considering the influences of demographic factors on health (for example, socioeconomic status, culture and gender). However, compared to other frameworks, the Canadian framework describes competencies related to epidemiology less explicitly. The framework does not cover competencies related to the influences of demographic factors on health at a population level. However, it does mention analysing the complex interaction of sociological and psychological processes and key determinants of health.

Moreover, all countries address the APN's role in addressing population health needs by signalling health risks at a social level and initiating plans to address this. All countries except Canada and the UK describe competencies related to preventive care at a population level. Compared to other countries, the US delves deeper into managing population health than other countries by stating that the APN is leading in disaster planning and preparedness. Moreover, the US emphasises competencies related to developing a collaborative approach with stakeholders, influencing policy to address population health needs, and evaluating risks associated with globalisation.

Most of the competency frameworks studied prioritise attaining health equity and cultural sensitivity within their frameworks. The Belgian framework mentions working with groups to address determinants that influence access to care at a system level and discussing diversity-related topics. The Dutch framework mentions competencies regarding awareness of culture-related views on health. The Canadian framework briefly addresses the need to understand sociopolitical issues that influence health policy and improve access to healthcare and healthy public policy. However, again particularly in the framework of the United States, there is a notable emphasis on health equity. In the US framework, competencies related to this topic are not limited to one heading but recur throughout the framework. Examples are addressing structural racism, challenging biases and creating partnerships to achieve health equity. Contrarily, the UK framework briefly addresses epidemiology and population health but does not address health equity or preventive care for specific groups or at the level of society as a whole. Nevertheless, it does note the importance of holistic care and a person-centred approach.

7. Communication and Collaboration

The seventh general domain identified is 'Communication and Collaboration'. The APN's competencies include communicating and collaborating effectively with patients, their families and other healthcare professionals to ensure high-quality care.

Within the frameworks, communication skills are commonly addressed as essential competencies for APNs, including adjusting communication style to best suit each patient's needs, motivational interviewing, conflict resolution, and accurate documentation. The Dutch and US frameworks acknowledge the need for communication skills in challenging situations such as having bad news conversations. Moreover, the Belgian and Dutch frameworks separate communication and collaboration skills into two headings: 'the communicator' and 'collaboration partner'. Along with communication skills, they highlight the importance of providing patients with accurate information to make informed decisions. The Canadian framework mentions competencies regarding a collaborative approach and engaging clients in resolving issues. However, it does not elaborate on communication styles or documentation. The framework does mention the need for communication skills and knowledge in management and resolution, coalition building and change management.

Moreover, the competency frameworks studied (except those from the UK and Canada) refer to the need to build a treatment relationship with patients. For example, the US framework mentioned the need to foster an intentional presence, while the Dutch framework also mentions having an eye for care recipients and their loved ones. The UK and Canadian frameworks do not mention creating a patient-treatment relationship. However, providing direct support to patients and clients is described as a competency in the UK framework.

All frameworks highlight the need for proficiency in communication and collaboration skills across professions. Competency frameworks address multidisciplinary and interprofessional work forms and mention the APN as leading and facilitating this process. Examples include providing and seeking consultation and communicating effectively with management, policymakers, and people outside the organisation to optimise care and encourage interprofessional partnerships.

8. Organisation of Care and Policy

The generic domain of 'Organisation of Care and Policy' focuses on the ability of APNs to navigate through various healthcare structures and suggest or influence policy change. Moreover, it addresses the need for APNs to adhere to legislation and describes their role in financial management.

In all frameworks, organisational planning and healthcare structures are prominent. However, the US and the Canadian frameworks are the only ones to devote a separate heading explicitly to this topic (US: 'system-based practice' and Canada: 'optimising health system competencies'). These frameworks both elaborate on the APN's role in helping organisational planning and system-wide initiatives to improve care. The Canadian framework describes a significant management role for the APN through competencies such as strategic planning, contributing

to recruitment and retention activities, and applying management theory and skills. Moreover, within the US framework, there is an emphasis on the APN's role in cost-effectiveness and policy. Examples include formulating, documenting and disseminating the return on investment for interventions and evaluating the effect of legal and regulatory policies. The UK framework describes the competency to implement policy, understand legal implications, and the need to strive to improve healthcare by leading organisational and systemic change and considering financial acumen in planning care. The Dutch framework mentions maintaining a network, being aware of organisational structures and settings, adhering to legislation, and collaborating to manage policy and cost-effectiveness. Contrarily, the Belgium and Canadian frameworks mention cost-effectiveness and formulating policy, yet legislation (apart from confidentiality and respect for privacy) is not extensively addressed.

9. Support of Self-Management and Patient Empowerment

The generic domain identified as 'Support of Self-Management and Patient Empowerment' refers to the APN's role in empowering patients to take control of their health by teaching patients self-management skills using counselling techniques and health education. However, this domain also includes adapting care according to the patient's wishes, creating an empowering climate, addressing health equity and advocating for patients' interests.

This topic is described extensively within the Belgian framework under the headings 'health advocate' and 'collaboration partner'. Competencies include developing self-management education, guarding and underlining the patient's voice in the interprofessional team and discussing controversial and diversity-related themes. Moreover, according to the Belgian framework, the APN should know and facilitate the importance of self-determination.

This aligns with the Dutch framework in which the importance of health as experienced is frequently mentioned. Additionally, it outlines the importance of involving the patient's social network. One example is a competency stating that the APN should implement self-management to support patients and their families in making decisions like continuing or ending the treatment.

As mentioned before, the UK framework emphasises holistic and person-centred care. They do not have one specific heading to describe this topic. However, they do address that adapting implementations to the patients' preferred learning style, motivation and developmental stage is essential to enable learning. The UK framework does not describe competencies related to patient advocacy within their framework. Similarly to the UK framework, the Canadian framework addresses the need for a holistic approach and client and family-centred care. Other competencies in this framework describe the need to plan educational programmes based on needs, anticipate clients' responses to health problems

and recommend action. However, competencies related to empowerment or teaching self-management skills are not listed.

The US framework accentuates person-centred care and has a separate heading dedicated to the topic. It underlines the importance of respecting all individual differences and considering the full context of the patient's life during decision-making processes. The US framework describes the importance of implementing self-management strategies and building relationships with community organisations to improve self-management.

10. Quality and Safety of Care

The generic domain that we identified of 'Quality and Safety of Care' refers to the role of the APN in monitoring, evaluating, protecting and improving the quality and safety of care in practice. It includes competencies on the leading role of the APN in integrating the best quality of care, preventing adverse events, working and developing standards, and contributing to other improvement projects. Apart from the Canadian framework, all countries had a specific heading about the quality of care.

There is an emphasis in the Belgian framework on the APN taking a leading position in quality improvements. Competencies are e.g. detecting shortages in quality in practice, developing nurse-led models, guaranteeing continuity of care, and developing and implementing protocols and guidelines. Moreover, the framework describes raising and managing internal and external funds for quality improvements as a competency. For the Dutch framework, there seems to be a focus on organising and redesigning care processes, for example shortening waiting times and increasing the continuity and availability of care. Other competencies relate to evaluating quality in the workplace, playing a role in working groups and developing standards. The Canadian framework also describes collaborating with members of the healthcare team and stakeholders to develop quality improvements and risk management strategies. Moreover, the framework describes competencies related to collecting data about APNs and evaluating the effects of APNs on client outcomes. The UK framework describes the need for a proactive attitude towards developing quality improvement initiatives, being consistent with (or better than) national and international standards and leading change from individual to system level if necessary. The US framework also emphasises the leading role of the APN in quality, for instance by developing a business plan for quality improvements and evaluating emergency preparedness plans. The US framework also describes competencies for addressing work environment hazards, such as advocating for policies that prevent workplace risks and injury.

11. Teaching and (continuing) Education

The generic domain of 'Teaching and (continuing) Education' that was identified refers to the expectation that APNs will continuously develop within their profession and coach and

teach others. The frameworks show that APNs must be able to receive and give feedback, participate in self-reflection, maintain a work-life balance, and promote their expertise within and outside their organisation.

The Belgian and Dutch frameworks have no separate headings but do describe competencies related to this topic multiple times throughout the framework. For example, the Belgian framework describes the APN as having a role in detecting knowledge shortages among colleagues and changing the education pathway based on this. Moreover, they address the need for APNs to participate in peer review and develop a personal portfolio with a study plan to improve their practice. The Dutch framework describes the role of the APN in supervising, coaching and instructing RNs and other healthcare professionals as well. Moreover, the Dutch framework addresses the need to follow training, attend congresses, and be subject to peer reviews. Within the Canadian framework, APNs are also referred to as promoters of continuous learning and have a role in developing education for other professionals. There is an emphasis on sharing knowledge and functioning as a coach or mentor. In the UK, APNs are stated as having a role in evaluating and auditing themselves and others at the individual and system levels and playing a role in their own development and that of others. Unlike the other countries, the UK and Canada do not describe competencies related to maintaining their personal well-being. Within the US framework, competencies like self-care and a commitment to personal health are significant. Moreover, they describe the need for APNs to communicate their unique knowledge to strengthen interprofessional relationships and promote activities that support a culture of lifelong learning, as well as mentoring others.

12. Technology and E-Health

The generic domain identified as 'Technology and E-Health' refers to the role of the APN in initiating and implementing technological innovations. Moreover, it notes the APN's role in evaluating the use of technology and technological safety. The US is the only country with a specific heading dedicated to technological innovation (Informatics and healthcare technologies). In its framework, using communication technology to gather data and evaluating the use of technology on workplace flow and healthcare outcomes are mentioned as competencies. Moreover, the use of security strategies and recommendations for new security strategies and policies to protect health information are described.

The Belgian framework describes the APN's role in improving and implementing e-health and testing technological innovation in effectiveness. The Dutch framework describes the need to think outside the box regarding innovation. APNs must follow technological developments and propose and implement innovation in their field. Moreover, they describe the need for adequate use of technology to transfer information. However, the Dutch framework does not note technology evaluation in practice. In the UK framework, only one

competency describes the use of technology, namely the need for APNs to use existing and emerging resources. Unlike the other frameworks, the Canadian framework does not mention technological development or e-health. The only competency related to this topic is the need to identify and implement innovations to improve care.

Task division and task delegation between APNs and physicians, and other professionals

All the frameworks, to some extent, also contain elements relating to the division of tasks between APNs and physicians and other healthcare professionals. Tasks are often derived from competence descriptions as competency frameworks are studied.

The Belgian framework describes in the preamble that the APN's care covers a broad area (combining nursing knowledge with knowledge from the medical and other related fields), which enables the shifting of tasks from other professionals to the APN. Descriptions within the framework related to the delegation of tasks from physicians to APNs are creating a treatment and care plan based on available evidence and/or reasoned choices, in which diagnostic, therapeutic and preventive interventions or interventions aimed at early detection are initiated, carried out and/or delegated. Moreover, the preamble states that the APN differentiates itself from other specialised RNs through final responsibility, autonomy in medical procedures and decision-making authority in their specialisation domain. APNs work is complementary to other nursing professionals. Another task refers to delegating or referring to other healthcare professionals to guarantee the quality of care. There is no disclosure on the definition of healthcare professionals and the scope of these tasks. The APN has a guiding and advising role towards other RNs and coaches students, RNs, healthcare professionals and members of the interprofessional team.

In the Canadian framework, the delegation of tasks is not mentioned, nor is there a description of the division of tasks between the APN and physicians or other healthcare professions. However, the preamble to the framework provides information about the legal jurisdiction of the APN with a Nurse Practitioner role and the increased collaborative practice between APNs and physicians. For instance, the Canadian Nurses Protective Society and the Canadian Medical Protective Association suggest the need for individual professional liability protection due to increased collaborative practice between APNs (specifically nurse practitioners) and physicians. Moreover, the preamble states that an APN with a nurse practitioner role is legally authorised to refer to a specialist physician independently. Additionally, in the preamble of the framework, it is noted that the APN framework builds on the RN framework. The competencies that are described are in addition to the competencies of RNs.

Within the framework itself, competencies on the position of the APN compared to other healthcare workers relate to the educating role of APNs to APN students and other healthcare professionals. However, healthcare professionals are not further defined.

The Dutch competency framework provides more detail about task shifting and task delegation than the other frameworks. The appendix describes how a structural reallocation of tasks from physicians to APNs has allowed APNs to carry out and delegate reserved procedures and become independent practice authorities. Additionally, the redistribution of tasks is not limited to physicians' tasks, as APNs now perform tasks previously reserved for psychologists and psychotherapists. The preamble to the Dutch framework portrays the APN as both a generalist and specialist who operates from both medical and nursing perspectives.

The APN works alongside physicians as an independent practitioner and can delegate reserved procedures according to Dutch law to (for instance) care assistants, RNs, and coordinating nurses. The delegation of tasks is described as instructing the authorised person to carry out specific activities. The appendix states that delegating reserved procedures means that the APN must possess competencies related to problem recognition, description, physical examination, problem analysis, documentation and registration, and the selection, performance, and evaluation of reserved procedures.

Examples of competencies described within the framework and related to the APN's ability to delegate tasks include independently selecting, carrying out, and delegating reserved procedures such as diagnosis, needs assessment, treatment, referral and discharge. The scope of reserved procedures differs with the specialisation (e.g. somatic care or mental care). For instance, according to legislation, the APN in somatic care should be able to perform and delegate surgical procedures, endoscopies, catheterisations, injections, punctures, elective cardioversion and defibrillation, as well as prescribing medicine. Other competencies that suggest delegation of tasks or refer to the APN's relationship with other professionals are about knowing the principles for appropriate referral of patients to other healthcare professionals and the coaching, supervising and educating role of the APN towards care assistants, RNs and physicians. The APN works closely with nurse scientists and physician assistants, but there is no defined delineation or division of tasks.

The UK framework alludes to the fact that APNs now perform tasks previously not part of nursing practice. The framework explicitly mentions physical examination, ordering and interpreting diagnostic tests, and advanced health needs assessments as examples. However, the framework does not specify to which professional these tasks formerly belonged. Moreover, the framework briefly addresses the delegation of tasks (without specifying to whom) and

the referral of patients as a competency by mentioning delegating as appropriate for optimising health outcomes and resource use.

The US framework does not explicitly outline task delegation and division as a competency for APNs, nor does it address the relationship with physicians. However, the RN competency framework, which is combined with that of APNs, includes the ability to delegate tasks to team members based on their roles and skills. The framework does not specify the professional background of these team members or the tasks that can be delegated. Additionally, the APN competency framework emphasises the integration of nursing and other sciences and competencies related to mentoring and consulting others. However, it does not specify who may benefit from their mentoring.

Discussion

This study focused on the content of professional competency frameworks for APNs in various countries to determine how the frameworks describe the competencies of APNs and address the division of tasks between APNs and physicians. The first question addressed the various bases used for categorising the competencies in the frameworks, and we found little overlap between the bases. Only Belgium and the Netherlands use the same basis; the CanMEDS model. Similar results were found in comparable research for RNs.²⁰ Studies examining the competencies and scope of advanced practice nursing have reached a similar conclusion that there is a significant lack of consensus concerning the bases of frameworks between countries.^{26,27} The WHO advises international accreditation standards and competency-based education for nursing and midwifery, including advanced practice nursing.^{28,29}

Country-specific characteristics and competencies were also found within the frameworks. For instance, the UK framework is relatively concise, while the US framework provides contextual statements for each domain. Moreover, the Dutch framework is the only one that describes competencies, including restricted procedures, related explicitly to speciality areas (somatic and mental healthcare). Within the US framework, the APN seems to have a prominent role in population health and leading preparedness for man-made and other disasters.

The second question addressed the identification and comparison of the required competencies of APNs, for whom the study identified 12 generic domains. APNs integrate medical and nursing knowledge, diagnose, treat, prevent and coordinate care with high autonomy. They have leadership roles, mentor other healthcare professionals, participate in scientific research and use evidence-based practice to guide clinical decision-making and improve patient outcomes. Within each domain, there are differences between countries. For instance, in

the frameworks of Belgium and the Netherlands, there is a greater emphasis on the independent practitioner role, while the US framework prioritises population health and technology.

Worldwide, multiple domains define the APN profession. A literature review found six leading roles embedded differently in country-specific regulations.²⁶ However, similarly to our research, this study stated that competency domains such as ‘research’, ‘clinical and professional leadership’, ‘mentoring and coaching’ and ‘expert clinical judgement’ were prominent in more than half of the countries studied.²⁶ Additionally, the ICN provides guidelines for advanced practice nursing around the globe.⁴ They define characteristics of APNs that are comparable to the competencies identified in the frameworks included in this study. Examples are the capability to manage full episodes of care, integrate research (evidence-informed practice), an extended and broader range of autonomy, case management and advanced assessment, judgement, decision-making and diagnostic reasoning skills.⁴

This guideline encourages a global discussion on the status of advanced practice nurses (APNs). While the frameworks in Belgium and the Netherlands refer to this particular ICN guideline, the Canadian and US frameworks refer to the ICN rather than the ICN guideline for APNs. As the Canadian framework was published before the ICN guideline, this framework could not refer to this guideline. On the other hand, the UK framework does not mention the ICN at all.

Differences within the content of the generic domains distinguish APNs from RNs by reflecting the advanced practice level of APNs. A previous document analysis of competency frameworks of bachelor-level RNs showed that ten generic domains could be identified [see Chapter 2]. The same ten generic domains could be identified in the frameworks for APNs. The additional domains for the APN cover ‘Independent Practitioner’ and ‘Scientific Research & Evidence-Based Practice Care’. However, even within the domains that are similar for the APN and the RN, there are differences corresponding to the advanced practice level of the APN. The main distinctions in competencies between APNs and RNs are that APNs are authorised to perform tasks and procedures outside the traditional scope of practice for an RN, such as prescribing medication, ordering and interpreting diagnostic tests, and providing advanced clinical decision-making.

This study’s third and final question addressed how task division and delegation between APNs, physicians and other healthcare professionals is described in the competency frameworks of the different countries. Task division and delegation to other health professionals are described to varying extents in the frameworks. The Belgian and Dutch frameworks, which bear more resemblance to each other, offer more comprehensive explanations of task division and delegation compared to the others. The Belgian framework describes the APN’s final

responsibility, autonomy, and decision-making authority, and the Dutch framework allows APNs to carry out and delegate reserved procedures and work as independent practitioners alongside physicians. The Canadian and UK frameworks briefly address task delegation, while the US framework focuses on integrating nursing and other sciences and competencies related to mentoring and consulting.

Lack of consistency and clarity about task division and delegation could partly be explained by the organisation of healthcare in a country and the corresponding centralisation or decentralisation of laws and regulations specific to each country.²⁷ For example, medication prescribing can be used as an indicator for tasks shifting from physicians to APNs.³⁰ In the US, which has a mostly private healthcare system, APNs' licences are state-regulated.³¹ APNs should check if they meet a state's requirements, including certification and experience, before working there.³¹ Tasks and responsibilities are also regulated by the states.³¹ Over time, nursing autonomy has increased in the US and APNs (more specifically NPs) who had greater freedom in their scope of practice achieved superior results in patient-reported outcomes such as available time, listening skills and understandable explanations.^{32,33} Regulation of APNs in Canada is similar to the US, with a legal scope of practice that is defined by regulatory bodies varying by province or territory.³⁴ From a legal standpoint, nurse practitioners in Canada are authorised to conduct high-risk medical procedures, whereas clinical nurse specialists in Canada are not permitted to do so as they have the same regulated scope as RNs.³⁵ In addition to a generic framework for APNs, Canada has a separate framework specifically for the NP role.³⁶ This framework provides a more detailed exploration of the tasks and responsibilities that NPs are authorised to undertake. As the UK consists of four countries, each of those has country-specific documents on advanced nursing practice as well.³⁷ According to the Dutch framework, the authority to perform reserved procedures is embedded in legislation. It is relevant to note that the APN in the Netherlands has been a legally protected profession since 2009.³⁸ Although Belgian law considers APN as a protected title, specific implementing regulations that legally establish the task differentiation and authorities of the APN are still missing. Additionally, Belgian lawmakers have stated that the APN's restricted actions must be performed "in close concert with the physician or other healthcare experts."³⁹ Previously, only phrases like "under supervision" and "with a medical prescription" were used in the law.³⁹ The new term "close concert" suggests that APNs have some independence in their actions and are on the same level as physicians with no hierarchy.³⁹

Although the APN profession is shaped by various regulations, roles, and external influences, the analysed frameworks had a broad and generic focus. Therefore, the competencies belonging to specific roles (e.g., the clinical nurse specialist) or speciality areas (e.g., mental care) are barely described. According to Sastre-Fullana *et al.*,²⁶ the relationship between the APN and the specific competencies of the different roles of the APN is a gap that might create

grey areas in the definition of roles and responsibilities. Moreover, as an APN is an RN with a master's degree in Nursing, we expected to find more about task division and delegation between APNs and physicians in the professional competency frameworks of APNs compared to those of RNs. However, the introduction of APN roles has not been without controversy, primarily due to the formal transfer of responsibilities and duties from medical professionals to nursing professionals. This controversy can also be a factor in the limited emphasis on task division and delegation in the frameworks.

Additionally, despite the pioneering role of nursing science in English-speaking countries (Canada, United Kingdom, United States), there has been no link with more advanced competency frameworks. Nevertheless, all these countries have implemented specific laws about interpreting the nursing profession. Our findings did not support our expectation that the development of frameworks would be associated with the type of healthcare system in a given country. We did not observe any correlation between a country's healthcare system and the status of framework development. Further emphasis should be placed on the importance of developing competency frameworks on a theory-driven base and a clear description of the division of tasks to be able to utilise the APN profession to its full extent.

Strengths and Limitations

This study is the first to compare competency frameworks for advanced practice nurses (APNs) in various Western countries. The twelve domains identified can be used for the future development of professional competency frameworks. One of the strengths of this study is the involvement of experts from various countries who were consulted while retrieving current competency frameworks and were asked to provide feedback on results of this study for their respective countries.

A limitation of this study is the selection of only these five specific countries, which may affect the generalisability of the findings to competency frameworks for APNs in other countries. In addition, this research only addresses the required competencies and task divisions as described in the competency frameworks and does not examine the implementation or legal binding of those frameworks.

Future implications

Nursing associations and other stakeholders can use this study to compare APN services at the national or international level and in the development of new frameworks, which is also relevant for international recognition of diplomas and exchange programmes. Moreover, interdisciplinary collaboration among healthcare providers, including APNs, physicians and other healthcare professionals, can be improved by defining roles and their position towards

each other. This might also improve the attractiveness of the nursing profession and retention of nurses if they have more opportunities for professional development.

Future research can investigate the effectiveness of current APN competency frameworks in meeting the profession's and patients' needs by aligning with healthcare trends such as e-health and chronic disease management. Ongoing research can also focus on developing competency frameworks incorporating new technologies and promoting diversity, equity and inclusivity in healthcare. Ultimately, these efforts aim to ensure that APN competency frameworks continue to provide a solid foundation for delivering high-quality, patient-centred care in the years to come.

Conclusion

Overall, the study found that APN competency frameworks differ in the basis of the frameworks and names of competency domains. However, thorough analysis shows that competencies can be divided into twelve generic domains that cover the entirety of competencies. Overall, little attention is paid to task division and delegation in most frameworks except within the frameworks of Belgium and the Netherlands. Policymakers and healthcare professionals can use these findings to develop and implement professional competency frameworks that reflect the unique needs of their respective countries, ensuring that APNs are adequately prepared to meet the challenges of contemporary healthcare practice.

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Chapter 4

Task shifting in Dutch nursing practice: A repeated cross-sectional analysis of nurses' experiences

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Abstract

Aim: This study aims firstly to identify shifts in the execution of medical tasks by nurses in the past decade. Secondly, it aims to explore nurses' perspectives on task shifting: how they think task shifting affects the quality of care, the attractiveness of nursing practice and their collaboration with physicians.

Design: A quantitative repeated cross-sectional study.

Methods: A nationwide survey was conducted among Dutch registered nurses (RNs) working in hospitals and community care, first in 2012 and again in 2022, with sample sizes of 359 and 362, respectively. Analyses were based on descriptive statistics and logistic and linear regressions.

Results: Between 2012 and 2022, there was a significant increase in the execution of only one medical task by nurses, namely prescribing over-the-counter medication. The majority reported in both years that task shifting has positive impact on their professional autonomy and the attractiveness of nursing practice. However, most nurses also reported that task shifting increased their workload (72.7% in 2022) could lead to conflicts in care teams (20.9% in 2022 compared to 14.7% in 2012) and may cause physicians to feel threatened (32.8% in 2022 and 29.9% in 2012). There were no significant changes in nurses' perception of the impact of task shifting on quality of care, the attractiveness of nursing practice and the nurse–physician relationship.

Conclusion: There was an increase in the execution of prescribing over-the-counter-medication by nurses between 2012 and 2022. However, both in 2012 and in 2022, as the majority of nurses reported that task shifting increased their workload, there is reason to worry about this negative consequence of task shifting, e.g. with regard to labour market issues. Further research, also among the medical profession, is needed to better understand and address the implications of task shifting for the nursing profession.

Implications for the Profession: Implications for the nursing profession include potential scope expansion with complex tasks, attracting more individuals to nursing careers, although an eye must also be kept on what that means for the workload of nurses and the relationship with physicians.

Impact: Nurse prescribing medicines was more executed in 2022 compared to 2012. Nurses had a predominantly positive perspective on task shifting, but still felt it can cause conflicts in care teams, high workload and physicians feeling threatened. These results can help during

implementation of task shifting and in monitoring the perceived effects of task shifting among nurses.

Introduction

The number of people with chronic diseases and highly aged people with multi-morbidity is increasing (Nguyen et al., 2019; O'Connor et al., 2018). Vulnerable groups often need more complex care, which is provided by multiple healthcare professionals such as nurses and physicians. At the same time, most Western countries are experiencing shortages of physicians (Araujo et al., 2016; Drennan & Ross, 2019; Liu et al., 2017; Michel & Ecartot, 2020; World Health Organization, 2016). As a result, some medical tasks are being transferred from physicians to nurses to improve access and efficiency of care, as nurses nonetheless visit patients (Korevaar & Donker, 2019; Michel & Ecartot, 2020). Task shifting—the redistribution of tasks, including responsibilities and competencies, between healthcare professionals (De Maeseneer et al., 2019; van Tuyl et al., 2021)—is increasing being implemented and can reduce costs (de Bont et al., 2016; Karimi-Shahanjarini et al., 2019; Laurant et al., 2018; Maier & Buchan, 2018; Orkin et al., 2021). Moreover, a Cochrane review showed that nurses in primary care achieve higher levels of patient satisfaction, and equal or even better quality of care and patient outcomes, than general practitioners (Laurant et al., 2018). In addition, shifting tasks to nurses might enhance nurses' autonomy, result in high levels of clinical decision-making and increase the attractiveness of nursing as a career (Auerbach et al., 2013; Maier & Aiken, 2016a). Typically, task shifting involves transferring specific, standardized tasks from specialized and trained professionals to professionals with lower levels of education, e.g. from physicians to nurses (van Tuyl et al., 2021). Task shifting may be a solution for the shortages of physicians. The World Health Organization (WHO) has recommended this strategy for countries to strengthen their health systems (World Health Organization, 2008, 2012) and the European Union is looking for ways to implement it (De Maeseneer et al., 2019; Sundling et al., 2021).

There are several ways in which tasks can be shifted from physicians to nurses. Task shifts can occur due to changes in the social, economic and technological context in which a profession operates (Abbott, 1988). One example of a task shifting from physicians to nurses is the enhanced role of nurses in primary care. In many countries, nurses are now playing a more significant role in medical tasks, such as conducting physical examinations, diagnosing and treating common illnesses, prescribing medication and managing chronic conditions (Groenewegen et al., 2022; Maier & Aiken, 2016b).

When tasks are shifted from one profession to another, it is not always clear which profession has jurisdiction (formal control) over those tasks. According to the sociology of professions, with protagonists such as Abbott (1988) and Freidson (1970), jurisdiction refers to a profession's legitimate control over a specific domain of work. To establish this control for the own profession, representatives of the profession, such as professional associations (Greenwood

et al., 2002) often engage with external actors, including policy makers and may form alliances with political actors (Abbott, 1988). Often, discussions, and sometimes even competition, between professions exist about who has jurisdictional control when certain tasks are substituted between professions. An example of task substitution and the related discussions about jurisdictional control and professional autonomy is the prescription of medicines. This task traditionally belonged exclusively to the medical profession (Maier & Aiken, 2016b). However, today in many Western countries, both medical professionals and some groups of (specialized) nurses can now prescribe medication (Kroezen et al., 2012; Maier, 2019). For instance, in The Netherlands, since about a decade specific groups of nursing professionals have legal authority to prescribe medicines (Kroezen, 2014; Maier, 2019). These groups have a Masters in Advance Nursing Practice or are RNs specialized in providing care for patients with diabetes, cancer or asthma/COPD. Prior to statutory prescribing authority, there have been many discussions within and between the relevant professions about whether nurses should also be given jurisdictional control over medical prescribing tasks and what this implicates for the autonomy of prescribing nursing professionals (Buijse, 2006). At an organizational level, these discussions no longer seem to take place now the law regulates that nursing professionals have jurisdictional control and may prescribe autonomously under certain conditions (e.g. in terms of education, type of medication and field of expertise). However, there have been signs that discussions about jurisdictional control and autonomous prescribing still sometimes occurs in the professional practice (de Haan, 2018).

Also Abbott (1988) and Kroezen (2014) describe how substitutions of tasks can have a significant impact on the relationship between professionals. Task substitution between medical to nursing professionals can have both positive and negative effects, e.g. on the perceived quality of care, attractiveness of the nursing profession and the nurse–physician relationship (Abbott, 1988). When nurses take on specific medical tasks, it can blur the lines between the professions, and will affect professional autonomy. As said, competition between professions can also exist, influenced by internal and external forces. Internal forces come from within the profession itself (e.g. a need among nurses for continuing professional and academic development), while external forces for instance are shaped by ageing populations and shortages on the health care labour market (Abbott, 1988). All these internal and external forces can result in rearrangement of tasks between nurses and physicians (Brown et al., 2015).

However, nursing roles vary across different settings, and therefore task shifting varies between settings (Maier et al., 2022). Registered nurses in hospitals and home care have different views on their nature of work, reporting structures and autonomy (Kroezen et al., 2014; Maier et al., 2022). In hospitals, nurses operate within a fast-paced, specialized environment, collaborating with and reporting to medical specialists. Conversely, home care nurses collaborate with general practitioners, fostering a holistic approach to patient care and often

work in self-directed teams in which they perceive more autonomy (Maurits et al., 2017). As the context for task shifting differs in various settings, equally does the extent to which countries have implemented task shifting (Groenewegen et al., 2022; Maier & Aiken, 2016b; Maier et al., 2018). Together with other countries, e.g. Australia, Finland and Ireland, the Netherlands is in general an early adopter of task shifts in nursing practice (Maier & Aiken, 2016b). This study focusses on the Dutch case that provides a relevant example of how in Western countries task shifting between the medical and nursing professions can take place and how nursing professionals perceive its impact on the quality of care and the relation with medical professionals.

As we expected that in the Netherlands in the last decade hospital and home care nurses have taken on more medical tasks, e.g. by the mentioned internal and external forces, we were interested in changes over time. By using survey data from two years (2012 and 2022), insights are provided into how the involved nursing professionals perceive changes in task shifting, also in relation to their collaboration with the medical profession. These insights may also offer implications for current and future task shifting between the medical and nursing professions.

In accordance with our expectations and reasoning, we formulated the following research questions:

1. What changes occurred in the execution of medical tasks according to registered nurses working in hospitals and home care in the Netherlands between 2012 and 2022?
2. What changes occurred in the perceptions of registered nurses working in hospitals and home care between 2012 and 2022 on task shifting in relation to
 - a. The quality of care?
 - b. The attractiveness of nursing practice?
 - c. The nurse-physician relationship?

Methods

Design

The study design involved two cross-sectional nationwide surveys in 2012 and 2022 among Dutch registered nurses (RNs). In 2012, the questionnaire was sent to nurses in collaboration with the national professional association of nurses who has a specific interest in task shifting and the consequences for the nursing profession. Since 2012, healthcare and nursing practice has changed, for instance, due to governmental reforms and an ageing patient population,

e.g. some groups of specialized nurses now have legal authority to prescribe medication in the Netherlands (since 2014) (Maier, 2019).

Participants and recruitment

The survey was conducted among nurses across the Netherlands who were members of the Nursing Staff Panel (<https://www.nivel.nl/en/panel-verpleging-verzorging/nursing-staff-panel>). After the data collection only panel members who worked in hospitals or home care (359 in 2012 and 362 in 2022) were included. We selected these RNs because they make up two large groups of nurses working in different settings with different expectations about task specifications and collaboration with physicians. The response rates among participants of the Nursing Staff Panel were 68% in 2012 and 30% in 2022.

Besides dissemination among members of the Nursing Staff Panel, in 2022 links to the online survey were also posted on relevant social media and through various channels of the Dutch Nurses Association (V&VN). This resulted in 198 additional responses, before inclusion of only those working in hospitals or home care. Participation was voluntary and anonymous. Only RNs were included in the study. RNs in the Netherlands may have a secondary vocational qualification (a nursing qualification obtained on completing secondary vocational education), or a bachelor's degree (a degree in nursing obtained at a university of applied sciences).

Data collection and survey questionnaire

In 2012, participants could choose between an online survey questionnaire and a survey questionnaire on paper. In 2022, the survey questionnaire was only available online. Non-respondents of the Nursing Staff Panel received up to two reminders, approximately 14 and 28 days after the initial sending.

The survey was originally designed by Scholten et al. (1999). and previously adapted and used by De Veer (2007). and Kroezen et al. (2014) to assess RNs' perceptions of task shifting from physicians to nurses. The survey included multiple choice questions. The first part of the survey included demographic characteristics of the respondents. The remaining questions focused on the execution of medical tasks by RNs working in teams, the perceptions of RNs on task shifting in general and the perceptions of the effect of task shifting on the relationship with physicians.

Seventeen dichotomous items were used to determine whether RNs in nursing teams performed certain tasks. Respondents answered these questions for nurses working in their team in general, although not all nurses may execute all tasks. The first eight (a–h) are tasks that should be performed by physicians according to Dutch law (Wet BIG) but where a legal amendment has allowed these tasks to be independently executed by RNs (in Dutch:

“functioneel zelfstandige bevoegdheid”). The next seven (i–o) are tasks related to restricted procedures and activities that may be performed by non-physicians provided they are competent and capable. The last two questions, about prescribing medication (p and q), are derived from a different questionnaire for the 2012 data and were added to the survey in 2022 as this is a new task (since 2014) specific groups of nurses are allowed to perform. Perceptions on task shifting were assessed using 11 items on a 5-point Likert scale, ranging from ‘completely disagree’ to ‘completely agree’. The survey was pretested for comprehensibility and completeness in 2007. In 2022, minor adjustments were made based on feedback from two RNs to enhance content validity.

Ethical considerations

Participation in the study was voluntary, and personal data were managed confidentially and anonymously in accordance with the Dutch Data Protection Act and relevant codes of conduct for scientific research. The survey did not raise any significant ethical concerns, and participant consent was obtained when the respondents became members of the Nursing Staff Panel or, for non-members, when they started the survey. Participants were informed of the anonymity and confidentiality of their responses in the cover letter that accompanied the survey.

Data analysis

First, the background characteristics of the 2012 and 2022 participants were compared using Chi-square tests and t-tests. This showed that there were differences between the two groups in the educational level and work setting of RNs. Since these variables are related to the tasks of RNs, the 2022 population was weighted to match the 2012 sample population. For the first research question, differences in proportions of nurses performing the task were tested for significance ($p < .05$) with logistic regression analyses; these logistic regressions were weighted for educational level and work setting to match the 2012 sample population. To answer the second research question, RN’s perceptions on task shifting were assessed using items on a 5-point Likert scales, ranging from 1 ‘completely disagree’ to 5 ‘completely agree’. Scores for perceptions on task shifting were calculated and differences between the 2012 and 2022 samples were tested for significance ($p < .05$) using linear regression analyses; these linear regressions were weighted as described. To account for the multiple testing problem we corrected all P-values using the Holm-Bonferroni method.

The analyses considered the fact that the Nursing Staff Panel is a dynamic group of professionals that includes some overlap between the 2012 and 2022 samples. A total of 39 nurses participated in the survey for both years. Within-group disparities in task execution between the years were assessed using either a Chi-square test or, if data assumptions were unmet, a Fisher’s exact test. To account for clustering at the respondent level, we corrected this using

the 'vce' command in Stata version 16.1; it calculates standard errors that are robust in the face of correlation between the groups.

Results

Demographics

After eliminating participants who started the survey but did not respond to any of the questions ($n=0$ in 2012, $n=33$ in 2022), 359 and 362 respondents were included in the analysis for 2012 and 2022, respectively. There was a 11% overlap between the two groups of respondents, meaning that 39 individuals took part in both surveys. Both surveys had predominantly female participants ($p=.794$ *t*-test), with 89.7% and 90.3% of respondents being female in 2012 and 2022, respectively (as presented in Table 1). The average age of the participants in the 2022 survey was higher than that of the 2012 survey, with mean ages of 48.8 in 2022 and 46.9 in 2012 ($p=.019$, *t*-test). The increasing average age might be related to the fact that the Dutch nursing workforce is ageing (Centraal Bureau voor de Statistiek, 2020). Additionally, a greater proportion of respondents in the 2022 survey were RNs with a bachelor's degree, while fewer had a vocational qualification ($p<.001$, Chi-square test). The distribution of respondents across the two work settings differed between the two years ($p<.001$, Chi-square test). In 2022, there was a higher proportion of individuals working in home care (57.5%) than in hospital care (42.5%), while the opposite was observed in the 2012 survey participants.

TABLE 1. Demographic characteristics of respondents in 2012 and 2022

	2012	2022	P-value
Total <i>n</i> for analysis	359	362	
Respondents in both 2012 and 2022 surveys (% of total per survey)	10.9.7%	10.7%	
Female	89.7%	90.3%	0.794
Mean age in years (range)	46.9 (22.7-65.1)	48.8 (22-70)	0.019
Educational level			0.000*
Secondary vocational qualification	64.9%	38.4%	
Bachelor's degree	35.1%	61.6%	
Respondents' work setting			0.000*
Hospitals	69.4%	42.5%	
Home care	30.6%	57.5%	

* $P < 0.001$.

Task execution

Table 2 presents the proportions of RNs in nursing teams performing medical tasks as indicated by respondents in the total response group, working in hospitals and working in home care, in 2012 and 2022. The task that was performed by a significantly higher percentage of RNs

in 2022 than in 2012 was “prescribe over-the-counter medication”. This percentage was significantly higher in 2022 (29.6%) than in 2012 (3.9%) ($p < .001$, logistic regression).

TABLE 2. Percentages of RNs in hospitals and home care reporting that RNs in their team perform medical tasks, in 2012 and 2022.

Nurses in my team do this sometimes	All nurses			Hospital		Home care	
	2012 (%)	2022 (%)	P-value ^a	2012 (%)	2022 (%)	2012 (%)	2022 (%)
a. administer medication through an epidural catheter	41.3	36.5	1.0	46.8	42.3	29.0	23.1
b. increase doses of epidural pain medication	42.9	34.5	1.0	45.6	40.5	36.8	21.4
c. insert a drip	63.4	70.4	1.0	81.1	85.6	23.6	37.8
d. replace gastric feeding tube/percutaneous endoscopic gastrostomy (PEG)	24.4	24.7	1.0	14.5	16.1	46.3	43.4
e. perform venepunctures	47.4	57.0	0.690	64.2	74.1	10.2	18.8
f. give injections	97.7	98.0	-	97.1	97.7	99.1	98.8
g. bladder catheterisation	87.9	88.1	1.0	83.8	83.7	97.1	97.7
h. replace suprapubic catheter	39.8	48.3	1.0	20.5	26.7	84.8	94.0
i. perform endoscopies	2.8	3.4	-	3.7	4.9	0.9	0.0
j. perform planned cardioversion	11.9	15.6	1.0	16.8	22.8	0.9	0.0
k. apply defibrillation	22.6	32.7	0.834	32.4	44.4	0.9	6.1
l. take a patient’s medical history, including physical examination	13.3	16.9	1.0	16.4	18.1	6.4	14.4
m. assess electrocardiogram (ECG) or cardiocography (CTG) and take appropriate action independently	17.6	27.2	0.150	24.7	37.4	1.8	4.7
n. assess laboratory results and take appropriate action independently	26.6	27.9	1.0	37.0	39.9	3.6	1.3
o. make a medical diagnosis	9.6	6.8	1.0	11.8	8.4	4.6	3.2
p. prescribe over-the-counter medication	3.9	29.6	0.000*	5.6	33.5	0.0	20.4
q. prescribe medication for which a prescription is required	13.7	12.0	1.0	18.5	16.1	2.7	2.5

Note: –, Not tested, since the data did not meet assumptions for statistical testing. Standard errors are corrected for clustering at the respondent level. (%) percentage of RNs who answered ‘yes’ to the question (weighted to match 2012 sample population). $N=621$ – 637 nurses in the total population, 351 – 364 nurses in the hospital setting and 268 – 273 nurses in home care. (%) percentage of RNs who answered ‘yes’ to the question (weighted to match 2012 sample population).

^a Significance levels are from logistic regression analyses corrected with the Holm-Bonferroni method. The data were controlled for differences between years in educational level and healthcare sector by weighting to match the 2012 sample population.

* $p < .05$.

The percentage of nurses performing a task for each work setting reveals that this increase was strong for both RNs working in hospitals and in home care, with the percentage rising from 3.9% in 2012 for RNs working in the hospital to 29.6% in 2011. In 2012, no RNs in home

care reported that they or their team members prescribed over-the-counter medication, whereas 20.4% did so in 2022.

Both nurses working in hospitals and home care performed some tasks more often in 2022 than in 2012 and other tasks less often. For example, a decline was reported in the proportion of home care RNs administering "increased doses of epidural pain medication" in 2022 (21.4%) compared to 2012 (36.8%). In contrast, a higher percentage of home care nurses indicated that RNs in their team sometimes "inserted a drip" in 2022 (37.8%) compared to 2012 (23.6%).

For the 39 individuals who took part in both surveys, we found a significant within-group change between 2012 and 2022 only for prescribing over-the-counter medication ($p < .001$, Fisher's exact).

Task shifting in relation to perceived quality of care

Table 3 displays the perceptions of responding RNs regarding the impact of task shifting on the quality of care, comparing the results for 2012 to those for 2022. There were no significant changes in RNs' overall perceptions of the impact of task shifting on quality of care. Slightly more respondents agreed that task shifting results in quality improvement (59.4%) in 2022 compared to (57.3% in) 2012. For the complexity of care (66.9%) and the endangerment of patient safety (6.7%), slightly less respondents believed this is a result of task shifting compared to 2012. In 2022, 43.6% agreed that task shifting creates more time and attention for the patient, but this question was not asked in 2012.

TABLE 3. Level of agreement on items regarding the consequences of task shifting on the quality of care in 2012 and 2022.

Task shifting...	Weighted mean score (% (totally) agree)		P-value
	2012	2022	
d. Makes care more complex	3.8 (69.3)	3.8 (66.9)	1.0
e. Results in quality improvement	3.6 (57.3)	3.7 (59.4)	0.721
j. Endangers patient safety	2.4 (9.9)	2.3 (6.7)	1.0
n. Creates more time and attention for the patient		3.2 (43.6)	

Note: (%) percentage of RNs who answered 'agree' or 'totally agree' to the question (weighted to match 2012 sample population).

+ Significance levels are from linear regression analyses corrected with the Holm-Bonferroni method. Data were controlled for educational level and healthcare sector by weighting to match the 2012 sample population. Mean scores and percentages are weighted the same way. Standard errors were corrected for clustering at the respondent level. Scores on the items ranged from 1 (totally disagree) to 5 (totally agree).

Task shifting in relation to the attractiveness of nursing practice

As shown in Table 4, no significant changes are found between 2012 and 2022 in respondents' experiences regarding the impact of task shifting on the attractiveness of the nursing practice. In general, respondents were fairly positive about task shifting and agreed in 2022 that task shifting increased their autonomy in (79.8%) and responsibilities (96.2%), made the profession more interesting (82.7%), made the work more diverse (89.5%) and increased the professional status of nurses (76.8%). Respondents also agreed task shifting increased their workload (72.7%). Except for the diversity of work, all items scored slightly higher in 2022 compared to 2012.

TABLE 4. Level of agreement on items regarding the consequences of task shifting for the attractiveness of nursing practice in 2012 and 2022.

Task shifting...	Weighted mean score (% (totally agree))		
	2012	2022	P-value
a. Increases nurses' autonomy	3.8 (76.6)	4.0 (79.8)	0.170
b. Increases nurses' workload	3.8 (70.5)	3.9 (72.7)	1.0
c. Increases nurses' responsibilities	4.3 (95.5)	4.4 (96.2)	0.520
i. Makes the profession more interesting for nurses	3.9 (79.9)	4.0 (82.7)	0.721
l. Increases the diversity within the work of nurses	4.0 (92.1)	4.0 (89.5)	1.0
o. Increases the professional status of nurses		3.9 (76.8)	

Note: (%) percentage of RNs who answered 'agree' or 'totally agree' to the question (weighted to match 2012 sample population).

+ Significance levels are from linear regression analyses corrected with the Holm-Bonferroni method. Data were controlled for educational level and healthcare sector by weighting to match the 2012 sample population. Mean scores and percentages are weighted the same way. Standard errors were corrected for clustering at the respondent level. Scores on the items ranged from 1 (totally disagree) to 5 (totally agree).

Task shifting in relation to the nurse-physician relationship

Respondents' perceptions of the impact of task shifting on the nurse-physician relationship did not change significantly between 2012 and 2022; see Table 5. In 2022, 85.7% agreed that task shifting increases the need for consultation between physicians and nurses, this is slightly lower compared to 2012 (87.9%). In contrast, a higher proportion of respondents believed that task shifting could lead to conflict in care teams, with 20.9% agreeing or totally agreeing in 2022 compared to 14.7% in 2012. Furthermore, a higher proportion believed that task shifting may cause physicians to feeling threatened, with 32.8% agreeing or totally agreeing in 2022 compared to 29.9% in 2012.

TABLE 5. Level of agreement on items regarding the consequences of task shifting on the relationship between nurses and physicians in 2012 and 2022.

Task shifting...	Weighted mean score (% (totally) agree)		P-value
	2012	2022	
f. Increases the need for consultation between physician and nurse	4.1 (87.9)	4.1 (85.7)	1.0
k. Will lead to conflicts within care teams	2.6 (14.7)	2.8 (20.9)	0.055
m. May cause physicians to feel threatened	2.9 (29.9)	3.1 (32.8)	0.243

Note: (%) percentage of RNs who answered 'agree' or 'totally agree' with the question (weighted to match 2012 sample population).

+ Significance levels are from linear regression analyses corrected with the Holm-Bonferroni method. Data were controlled for educational level and healthcare sector by weighting to match the 2012 sample population. Mean scores and percentages are weighted the same way. Standard errors were corrected for clustering at the respondent level. Scores on the items ranged from 1 (totally disagree) to 5 (totally agree).

Discussion

In this study, we compared the results of a survey held in 2012 and repeated in 2022 on the execution of medical tasks by registered nurses in Dutch hospital teams and home care teams. Few changes over time were found, although a statistically significant increase was found regarding one task: prescribing over-the-counter medication.

There were no statistically significant changes in RNs' overall perceptions of the effects of task shifting on the quality of care, the consequences of task shifting for the attractiveness of the nursing profession and the nurse–physician relationship.

Prescription of over-the-counter medication in the Netherlands increased between 2012 and 2022. This finding suggests that, in the last decade, RNs are being entrusted with greater autonomy in advising on over-the-counter medication. A review of nurse prescribing found that improving nurse prescribing in practice encompasses collaborative teamwork, supportive peers and physicians, and an accessible and encouraging environment for nurse prescribing (Creedon et al., 2015). Since 2014, there have been significant changes in the laws governing nurse prescribing, enabling certain specialized nurses to prescribe medications. Although we did not see an increase in prescribing medication for which a prescription is required, we believe this change in the legislation has resulted in a transformed environment for prescribing over-the-counter medication resulting in nurses gaining jurisdictional control and autonomy in this domain (Centraal Bureau voor de Statistiek, 2020; De Veer, 2007; Scholten et al., 1999).

From the percentages of hospital RNs and home care RNs performing a task, we observed hospital RNs are more involved in executing tasks related to monitoring vital signs compared to their counterparts in home care. The patient population and the types of care provided by hospital nurses might explain these differences in responsibilities compared to home care

nurses. Our findings align with previous research that has demonstrated significant variability in nursing roles and responsibilities across different healthcare sectors (Norful et al., 2017). This consistency with existing literature emphasizes the importance of recognizing the nuanced ways in which nursing responsibilities evolve within distinct healthcare environments.

Nurses' perceptions of the relationship between task shifting and the impact on the quality of patient care remained stable, as the study revealed no significant changes in their overall views. This suggests that despite changes in tasks or roles, nurses expressed confidence in their ability to adapt to evolving healthcare practices while maintaining a commitment to high-quality care. Similar results are found for the consequences of task shifting for the nursing profession. RNs agree in that task shifting increases their autonomy and responsibility, and makes their profession more interesting. This finding is consistent with previous research that has shown that task shifting can lead to increased autonomy and responsibility among RNs, which could have positive implications not only for patient care, but for nurses themselves as well (Armstrong et al., 2021; Auerbach et al., 2013; Freund et al., 2015; Lukewich et al., 2022; Maier et al., 2018; Rao et al., 2017). A study in primary care in the UK found that non-medical prescribing leads to an increase in perceived autonomy and higher job satisfaction among RNs (Armstrong et al., 2021). Also other research established that task shifting enhances nurses' professional autonomy and can make working as a nurse more attractive (Maier & Aiken, 2016a). Moreover, our findings related to nurses' perceived autonomy indicate that there are no severe discussions anymore in practice between medical and nursing professionals about jurisdictional control over shifted medical tasks.

However, not all findings point to a positive impact of task shifts. RNs in our study acknowledge in both 2012 and 2022 that task shifts increased their workload and could lead to conflicts in care teams. This finding is in line with studies highlighting the potential negative consequences of task shifting (Armstrong et al., 2021; Freund et al., 2015; Kieft et al., 2014). More than one-third of the RNs reported that task shifting increased their workload (79.8% in 2022 and 76.6% in 2012). This may have implications for the proportion of nurses leaving their profession, in a time with already increasing shortages of nursing personnel (Liu et al., 2017; World Health Organization, 2016). It is worrying that in 10 years, these perceived negative impact on workload did not change in a favourable direction. This indicates a persistent challenge to mitigate the adverse effects of task shifting on nursing professionals' perceived workload. This also emphasizes the need for a close examination of how task shifting practices affect the distribution of responsibilities among healthcare professions. The ongoing challenges also indicate the importance of a balanced task distribution between the medical and nursing professions and within nursing teams.

This research performed in the Netherlands is an addition to previous research on perceptions of RNs on task shifting: most studies have been performed on the perception of RNs on task shifting in African countries, little recent research can be found on the views of RNs in Western countries (Agyapong et al., 2015; Aifah et al., 2020; Spies et al., 2016). To further increase knowledge about perceptions of task shifting, future research could focus on including RNs working in different healthcare settings and the perception of physicians on this topic.

Strengths and limitations

A strength of this study was that it was conducted over two time periods, allowing a repeated cross-sectional analysis of the execution of medical tasks and the examination of changes in RNs' attitudes towards task shifting. Therefore, our results are more valid compared to retrospectively asking about task shifting (and perceptions of task shifting). Although the study examined changes over a 10-year period, a more comprehensive repeated cross-sectional analysis with multiple data points could provide a more accurate understanding of the execution of medical tasks and their impact on the quality of care, the attractiveness of the nursing practice and nurses' relationship with physicians. Another limitation of this study concerns the generalisability because this study focusses solely on Dutch hospital nurses and home care nurses. Although the study's focus on Dutch hospital and home care nurses limits generalizability, the findings will be relevant to European or other Western countries with similar healthcare structures. Variations in healthcare systems, nursing practices and regulatory frameworks among countries should be considered when extending the study's conclusions to broader contexts. However, an international comparison of professional competency frameworks for registered nurses showed nurses in these countries are generally required to have similar competencies (Wit et al., 2023). Considering this would propose the current study about task shifting to be generalisable to nurses working in other countries.

Conclusions

Overall, we found a significant increase in the execution of medical tasks by RNs, as indicated by the nurses who took part in our surveys in 2012 and 2022, for prescribing over-the-counter medicines. Nurses' overall perceptions of the consequences of task shifting for quality of care remained stable, as did their perceptions related to the attractiveness of nursing practice and the nurse–physician relationship. Although nurses are generally positive about the effects of task shifting, their perceptions on the negative aspects also did not change. Further research is needed to better understand the potential benefits and drawbacks of task shifting in healthcare and to identify strategies for minimizing the negative consequences of task shifting.

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Chapter 5

Ready for the future? A mixed method study of the views of primary care nurses on tasks that will become increasingly important in their work

Submitted as:

Ready for the future? A mixed method study of the views of primary care nurses on tasks that will become increasingly important in their work

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Abstract

Background: Nurses face challenges due to the increasing care demands of an ageing population and a growing number of people with multiple chronic conditions. To guarantee care efficiency and quality, now and in the future, nurses need skills to support patients and relatives in their self-management, for communication through electronic means, for preventive care, and to engage relatives in the care. This study addressed the views of Dutch primary care nurses on the time allocated to these tasks, whether these tasks form an increasing part of their work, whether they have the necessary skills, and the attractiveness of these tasks.

Methods: A mixed methods design was used, involving an online quantitative survey (n=302) followed by four online focus group discussions with registered nurses (RNs) working in primary care, specifically in community care organizations or general practitioners' (GPs) practices in the Netherlands. Survey data were analysed descriptively, while a qualitative thematic analysis was performed on the focus group transcripts.

Results: The majority of respondents in the survey stated that they spent a lot of time on supporting patients' and relatives' self-management (90%), care-related prevention (82%), and engaging relatives in care (74%). Both the survey and the focus group discussions showed that RNs working in primary care expect these tasks to become increasingly important in the future, in particular the task of supporting self-management. Furthermore, RNs also reported that digital communication skills will become increasingly important in the future. Yet only 37% of the respondents reported that they currently dedicate a great deal of time on communication through electronic means, e.g. by eHealth or online remote care. It also became clear from the focus group discussions that RNs need to improve their digital skills. Additionally, RNs desire enhanced collaboration with other professionals, such as GPs and medical specialists, which they also find important in ensuring future care is of a high quality.

Conclusions: These findings underscore the skill gap arising from the increasing care demands and a lack of training in digital communication and inter-professional collaboration, which are important for, for instance, effective care-related prevention. Targeted education in these areas is needed, with healthcare organizations and policymakers responsible for implementing these programmes.

Introduction

Nurses and the organizations they work in face escalating challenges due to increasingly large numbers of patients with chronic illnesses and an ageing population with often complex health needs.¹⁻⁵ These developments demand upscaling and re-evaluation of nursing tasks to cope with both increasing healthcare demand and new challenges. In particular, nurses need to improve skills with regard to wellbeing and prevention, patient- and relative-centred care, proficiencies in eHealth, and leadership.⁵⁻⁷ It is therefore important to include these required future skills in the education and practice of nurses, and define the ongoing skill improvements they need to meet the growing demands and ensure that nursing remains a strong profession in the future.^{8,9}

The skills and competencies that nurses will require in future have received international attention. Various Western countries have released new competency frameworks for (specialized) nurses in recent years.^{10,11} The new perspective that nurses should not focus solely on caring for patients with a disease, but also on supporting patients and their relatives in self-management, self-direction and prevention⁵, can be found in an international comparison of competency frameworks.¹² Accordingly, the tasks and corresponding competencies defined for the nursing practice are also changing. One skill that nurses must develop (or develop further) in the coming years is the ability to support self-management by patients and their relatives.¹³⁻¹⁵ This means assisting patients in setting realistic goals and activities, as well as coaching them to develop the skills necessary to incorporate their disease into their daily lives. Additionally, nurses must stay proficient in using digital communication to connect with patients, relatives and other healthcare professionals.¹⁶ Furthermore, providing preventive care will also become increasingly important, as nurses work to identify and address potential health risks before they become major issues. Another important task is to engage relatives in patient care: key aspects of this competency include fostering respectful communication with both patients and their relatives on an equal footing, and ensuring effective collaboration with them.¹⁷ In the Netherlands, these developments can be clearly seen in the shaping of the educational programme 'Bachelor of Nursing 2030'¹⁸, as well as in the national competency framework for nurses¹⁹ and policy documents.^{20,21} By mastering these tasks, nurses will be better equipped to deliver suitable support in today's rapidly changing healthcare landscape.

Nurses working in primary care, in particular in community care or in general practices, play a crucial role in addressing the abovementioned challenges and particularly need the key competencies mentioned.^{22,23} They often serve as linchpin figures within the healthcare system, providing support that encompasses prevention, treatment and health education.^{23,24} In the Netherlands, primary care has a strong tradition and primary care nurses play a key

role in the sustainability of the Dutch healthcare system.²⁵ This is further reinforced by the aim of the Dutch government to let older people and chronically ill patients live at home as long as possible.²⁶ Compared to other countries, the Netherlands has a high ratio of nurses per inhabitant, underscoring the crucial role they play in the Dutch healthcare system in general and in primary care specifically.²⁷

The nursing profession in the Netherlands is changing (as in other countries) and similar research on Dutch nurses has been previously documented.^{15,17,28} The present article builds upon previous studies and aims to further describe and understand the current involvement of Dutch primary care nurses regarding the four types of skills listed above: skills required to support self-management, for digital communication with patients and relatives, for preventive care, and for the engagement of relatives. Additionally, the study seeks to assess the perceptions of nurses working in primary care, i.e. their perceptions of the future demand for these tasks, the appeal of these tasks in daily practice, their self-assessed skills and competences in performing these tasks, and their views on the developments that are needed to enhance their skills and competencies. The research questions structuring this paper are:

1. To what extent do Dutch primary care nurses spend time on (1) self-management support, (2) communication through electronic means, (3) care-related prevention and (4) engaging relatives in the care for the patient?
2. Do Dutch primary care nurses anticipate that these four tasks will become increasingly important in their work?
3. How appealing do nurses consider these tasks in their daily practice?
4. Do nurses feel able to perform these tasks?
5. What do these nurses believe they need to further develop their competencies to execute these tasks?

Methods

Design

A mixed methods design was applied. First, an online quantitative survey was conducted among Dutch primary care nurses. Secondly, to develop in-depth insights into the themes addressed in the research questions, findings from the survey were enhanced by insights gathered from focus groups. The interview guide for these focus groups was based on the results of the survey.

Sample and recruitment

Survey participants were recruited in 2022 from a nationwide Nursing Staff Panel (<https://www.nivel.nl/en/panel-verpleging-verzorging/nursing-staff-panel>). In addition, participants were recruited using posts on relevant social media and through various media of the Dutch Nurses Association (V&VN). Participation was voluntary and anonymous. Only nurses who were involved in direct patient care and who were working in a general practice or community care organization were included in this study. Non-respondents in the Nursing Staff Panel received up to two reminders, approximately 14 and 28 days later.

Focus group participants were recruited in 2024 by convenience sampling. The professional networks of the authors and their colleagues were used for this, in addition to open calls on social media (LinkedIn and X), and through snowball sampling. A total of four qualitative focus groups were organized. Focus groups were chosen rather than individual interviews as they create more opportunity for discussion. Each focus group consisted of two to five nurses, with a total of twelve nurses. In two focus groups there were additional participants (nurses working in a hospital or revalidation centre), who were removed from the analysis. While the groups were small, primary care nurses with different backgrounds were included to ensure a safe environment for all opinions. None of the participants in the focus groups had previously participated in the survey.

Data collection

The items in the survey questionnaire were originally developed and used in a previous study.¹⁷ The original questionnaire had 35 (mostly multiple-choice) questions in total. For the analysis we selected 17 items, concerning background characteristics and the four tasks mentioned before, i.e. tasks that will become increasingly important to meet the evolving care demands of the growing groups of older people and persons with chronic conditions. To recall, these four tasks were:

1. Supporting self-management by patients and/or their relatives
2. Communication with patients and/or their relatives via electronic means (e.g. through eHealth, remote care or social media)
3. Care-related prevention (in the sense of prevention of deterioration, complications or limitations due to a disease)
4. Engaging relatives in the care of patients

The perceptions of nurses on the four tasks were assessed using statements that were answered using a three-point scale, (1) 'completely disagree' (2) 'neither agree or disagree' or (3) 'completely agree'.

Next, four focus group discussions were held to deepen, refine and extend the insights gained from the survey data. The focus group discussions were conducted online (via Microsoft Teams), to make participation accessible and not too time-consuming for participants (average time 76 minutes). The focus groups were led by three researchers (RW, EB and KG) and supported by an interview guide with open questions about the same topics that were addressed in the survey, and additional questions on what nurses need to perform the care tasks in the future.

Data analysis

The background characteristics of the survey participants were analysed using descriptive statistics. To address the first four research questions, descriptive statistics were used. As the nurses in this study could have either a secondary vocational qualification or a bachelor's degree, there could be differences between these two groups in the answers to these questions. To identify any significant differences between nurses with different educational levels, all items regarding the first four research questions were analysed with a Chi-square test. However, no significant differences were found. All quantitative analyses were carried out using STATA version 16.1.

The audio recordings of the focus groups were transcribed verbatim and summarized. Feedback from participants on the summary of the discussion in their focus group was requested by email and obtained; this was important to ensure credibility. Participants had little or nothing to add to the summaries.

The transcripts were analysed using an iterative process of data collection and inductive analysis. Data saturation was reached when the fourth focus group was analysed. In the analysis the six steps of thematic analysis²⁹ were followed; these steps cover becoming familiar with the data, creating initial codes, identifying recurring themes, reviewing these themes, establishing labels for the themes, and ultimately presenting the findings. The data analysis was independently performed by two authors (RW and EB), but other co-authors also read the summaries and were involved in the discussions about the analysis and results. The code tree can be found in Appendix 1.

Data integration

By integrating data from both the quantitative survey and qualitative focus groups, a comprehensive understanding of the research questions was achieved.³⁰ This integration was carried out through discussions among the authors, where outcomes from both data sources were reviewed.³⁰ This approach, referred to as 'merging', allowed us to compare and contrast the findings from the survey and focus groups, providing a more nuanced interpretation of the data.³⁰

Ethical considerations

Participation in the study was voluntary, and personal data were managed confidentially and anonymously in accordance with the Dutch Personal Data Protection Act and relevant codes of conduct for scientific research. Participation was voluntary, and participants were informed of the anonymity and confidentiality of their responses in the cover letter that accompanied the survey. The same principles applied to the discussions within the focus groups. Verbal informed consent was asked and received from all participants at the start of the focus groups. Participants are never obliged to answer all questions.

Results

Demographics

Data from 302 respondents were included in the quantitative analysis. A 30% response rate was achieved from recruitment among members of the Nursing Staff Panel. Open calls on social media and through recruitment via the Dutch Nursing Association added another 71 eligible respondents working in primary care. The survey respondents were predominantly female (92.7%) (Table 1). The average age was 50.4 years, reflecting the ageing Dutch nursing workforce.³¹ Most respondents were bachelor-educated registered nurses (RNs), with only a minority having vocational training.

The focus group participants (last column of Table 1) averaged 43.6 years old, and the vast majority were female. Most had a bachelor's degree in nursing. The work settings of the twelve focus group participants were similarly distributed to those of the survey participants.

Table 1. Survey and focus group participants' characteristics

Characteristics	Survey participants (n=302)	Focus group participants (n=12)
Age [mean (range)]	50.4 (22-70)	43.6 (26-60)
Gender [n (%)]		
Female	278 (92.7)	11 (91.7)
Male	21 (7.0)	1 (8.3)
Other	1 (0.3)	N/A
Level of education [n (%)]		
Registered nurse, secondary vocational qualification	95 (31.5)	1 (8.3)
Registered nurse, bachelor's degree or higher	207 (68.5)	11 (91.7)
Respondents' work setting [n (%)]		
Community care	186 (61.6)	8 (66.7)
General practitioners' practice	116 (38.4)	4 (33.3)

Time spent on care tasks now and in the future

Table 2 shows primary care nurses’ perspectives on the selected care tasks. A significant majority (90.1%) reported spending a lot of time on supporting the self-management of patients and relatives. Similarly, 93.5% reported that this task was becoming increasingly important in their work. Only 37% of nurses spent much time on communication with patients or relatives through electronic means (e.g. through eHealth, online remote care or social media). Looking ahead, 70.9% anticipated that the use of communication through electronic means would increasingly be required in their job.

In terms of care-related prevention, 81.8% of the respondents reported spending a great deal of time on this task. A similar percentage (83.3%) acknowledged that care-related prevention will increase in the future. Additionally, 73.7% spent a lot of time involving patients’ relatives in care. Looking to the future, 82% anticipated spending more time on this task. When comparing the time spent on tasks now, it is noticeable that nurses spend a lot less time on communication with patients and relatives through electronic means (37%) compared to the other tasks. Nevertheless, most nurses anticipated spending more time on this task in the future.

Table 2: Percentage of nurses agreeing with two statements about four care tasks now and in the future

Statement	Supporting the self-management of patients and relatives	Communication through electronic means with patients and relatives	Care-related prevention	Involving patients’ relatives in care
“I am spending a lot of time on this task now”	90.1	37.0	81.8	73.7
“This task will increasingly be called upon”	93.5	70.9	83.3	82.0

Like in the survey, the focus groups also indicated that primary care nurses expected that self-management support will increasingly be part of their job. The focus group participants mentioned a greater focus on self-management by patients compared with a few years ago. Where previously the focus was on caring for patients, now increasing attention is paid by healthcare professionals, including nurses, to encouraging patients’ self-management and self-reliance.

In addition, a few participants in the focus groups had experienced an increase in the use of communication with patients and relatives through electronic means, such as eHealth. They mentioned that technological insights and digital skills are required in this regard. Nurses need to understand and utilize technology and electronic means to meet patients’ needs and often need to support colleagues and patients in its use. Both community nurses and

those in GP practices see motivating and educating their teams about using technological innovations, including electronic communication, as part of their job.

The participating primary care nurses all mentioned spending a lot of time on care-related prevention, mostly on exploring possibilities for improving health with patients and relatives. This is illustrated by the following quote:

“But actually, I think 95% of our consultation hours consist of preventive actions. Just chatting, looking at where can you stop, do you want to stop, those kinds of questions. And how do you come off your pills Is that possible or not? And why does this bother you?”
– Nurse working at a GP practice

Lastly, like the participants in the survey, the focus group participants reported spending a lot of time on involving patients’ relatives in care. However, focus group participants also mentioned that relatives sometimes lack the motivation to be involved. Nurses said that it often requires considerable effort to motivate these relatives and ensure that everyone is aligned in the care process. The participants also mentioned that nurses need good conversation skills to establish a relationship and form a ‘team’ with relatives.

Nursing tasks as an appealing aspect in daily practice

Survey participants were also questioned about the appeal of the future required tasks in their daily practice. The majority (84.1%) found supporting self-management an appealing aspect of their job. However, fewer nurses (33.9%) felt the same about communication with patients or relatives through electronic means. Most nurses (79.7%) viewed care-related prevention as an appealing aspect of daily practice, and similarly, a majority (72.2%) found involving patients’ relatives in care to be appealing as well.

The focus groups provided more insight into the experiences of nurses. Participants from the focus groups said that when promoting self-management, they previously experienced resistance from patients and relatives, but now patients and relatives realize more and more that care is not as self-evident as it used to be. Thoughts on the attractiveness of communication through electronic means (e.g. eHealth or digital remote care) differed between participants due to differences in technological insight and knowledge. Although some emphasized the usefulness of communication through electronic means for practical questions, both community nurses and nurses working in GP practices also emphasized the importance of determining the underlying question, as non-verbal messages often get lost in communication through electronic means, as one primary care nurse explained:

“I think the hard part about it is that you can’t see behind the question. So it’s really what you read, but when I’m on the phone I can already hear from somebody how they are doing, what’s going on so to speak.” – Nurse working at a GP practice

When discussing preventive care, focus group participants emphasized the importance of motivating patients and collaboratively deciding on a prevention strategy with both the patients and their relatives. This required nurses to stand strong as they often had to show patients the importance of prevention. To do this they sometimes made use of motivational interviewing. Some mentioned that the involvement of relatives is crucial, e.g. to signal worsening or complications of the disease. Furthermore, participants mentioned that involving the GP or other professionals at the right time can be crucial for effective care-related prevention.

In addition, participants agreed that involving patient’s relatives is crucial not only for care-related prevention but also for effective self-management. Thereby, both community nurses and nurses working in GP practices explained that it is important to involve the relatives from the start of the care process and make clear agreements on the task division between relatives and the care team.

Perceived competency to perform the care tasks

Most nurses who participated in the survey felt competent to support the self-management of patients and relatives (86.2%), provide care-related prevention (79.7%) and involve patients’ relatives in care (80.4%). However, when asked about communication with patients or their relatives through electronic means, a lower percentage (46%) of primary care nurses felt competent to perform this task. This relatively low score compared to the scores for the other tasks is in line with the relatively small amount of time spent on this task and the finding that not a lot of nurses find this an appealing aspect of their practice.

Similar to the survey results, most focus group participants felt confident in their ability to perform the tasks discussed. They highlighted several crucial skills necessary for performing these tasks, with communication skills being the most important. Effective communication, such as motivational interviewing and a clear dialogue, facilitates empathetic interactions with patients and their relatives. These skills are essential for managing difficult conversations, aligning all parties involved in the care process, and delivering patient-centred care.

“I also think we need certain competencies to motivate, encourage and include your team. Because I also notice that the formal caregivers are really lagging behind in this field of expertise, because they don’t see the underlying question.” – Community care nurse

Like in the survey, not all focus group participants felt confident in using electronic communication. Participants described how limited digital skills among patients, their relatives, and even the nurses themselves make it difficult to implement online remote care and introduce it to their patients.

Although nurses in both the survey and focus groups felt competent to involve patients' relatives in care, focus group participants often experienced situations in which there were no close relatives or the relatives were living far away. A lack of support from relatives also makes it difficult to motivate patients to take preventive actions such as maintaining a healthy diet or following a medication regimen. Nurses explained that it requires clear communication and persuasiveness when patients and relatives are not motivated or do not have the right knowledge about their health.

“You have to be able to stand your ground in order to put forward what is important in prevention. It must look like it's their own choice after all, because only when people make their own choice can you make progress with prevention.” – Community care nurse

Requirements for the further development of care tasks that are important for the future

The last research question; “What do these nurses believe they need to further develop their competencies to execute these tasks?” is solely based on the focus group discussions. We found that participants experienced several challenges in performing the tasks. First, participants mentioned a lack of collaboration with other disciplines and organizations, which led to a lack of knowledge about each other's work fields, and patients and relatives having the wrong expectations. Additionally, primary care nurses often struggled with a perceived passive attitude among patients and relatives. These two challenges make bigger demands on nurses' competencies to manage expectations and motivate patients and relatives. On top of that, participants perceived a lack of time to perform these required future tasks, due to a large administrative burden and staff shortages. Some participants mentioned digital illiteracy as a challenge to effectively use digital communication with patients and relatives. Some said they did not feel competent in the skills and knowledge needed to use digital communication themselves, while others struggled to adapt the use of digital communication to the personal situation of the patient. Additionally, they discussed the issue that when using digital communication, it is more difficult to explore a patient's underlying question, as described in the following quote:

“I prefer human contact myself, because by seeing or speaking to people themselves you pick up so many more signals and you also catch a lot of things. But yes, from a practical point of view it [digital communication] is more convenient” – Nurse working at a GP practice.

Continuous training and education are vital for keeping up with the evolving nursing profession. Firstly, nurses said they feel a need for more training in motivational interviewing and advanced communication techniques to effectively encourage patient self-management and care-related prevention and involve relatives in the care process. Secondly, nurses said they required ongoing support and training to help them become proficient in using digital communication tools, addressing digital literacy gaps among both patients and healthcare providers to ensure seamless technological integration. Lastly, improving collaboration between healthcare professionals and organizations is crucial. This includes establishing clear guidelines for care coordination and task division, which will help manage patients' and relatives' expectations and reduce administrative burdens, thereby allowing nurses to focus more on direct patient care. By addressing these areas, primary care nurses can enhance their competencies to meet current and future healthcare demands.

“I personally really benefited from the training in nursing leadership. I notice a lot of difference in the how we communicate with each other. I think that is very important.”

– Community care nurse

Discussion

Primary care nurses in both the survey and focus groups indicated that they spend considerable time on three tasks that we identified as important to address the care needs of growing numbers of older adults and people with chronic illnesses, namely: (1) self-management support, (2) care-related prevention and (3) involving relatives in care. They said that these tasks are increasingly being called upon, and they perceived these tasks as appealing aspects of their work. The majority also felt competent to perform these tasks.

In contrast, fewer survey participants stated that they spend much time on a fourth important task, namely (4) communication using electronic means. Although many foresaw an increasing use in the future, a rather small proportion of nurses in the survey felt competent in communication through electronic means, and many found it less appealing in their daily practice compared to the other tasks mentioned. Focus group participants reported similar experiences. To improve their skills in electronic communication, nurses expressed a need for additional training in digital skills.

These findings are in line with earlier survey research in the Netherlands. In 2015, a study showed that only 61% of nurses working in GP practices and approximately 60% of nurses in community care felt competent using electronic means to communicate with clients.²⁸ Although previous research showed that the COVID-19 pandemic led to an increased use of video consultations in general practices, it has not resulted in a sustained rise in the use of

online or remote care communication by nurses.^{32,33} This may be partially explained by limited digital skills of some nurses and patients. But privacy concerns from healthcare providers can also play a role in this; in the Netherlands healthcare organisations often do not allow the use video communication through well-known applications such as WhatsApp, Facetime or Zoom, because there would be too much risk of data breaches and violation of privacy. In addition, a study among Swedish primary care nurses revealed mixed feelings towards digitalization and concerns about maintaining control in daily work³⁵. These studies, as well as our study, underscore the need for targeted training to enhance digital skills and make digital communication more appealing and effective in nursing practice. To further develop digital communication skills, nurses in our study also identified the need for enhanced training in motivational interviewing, digital literacy, and inter-professional collaboration (as multiple healthcare professionals report information in patients' electronic health records). Furthermore, a cross-sectional study in Spain (2016), which collected data from 242 nurses through self-administered questionnaires, found that strong communication skills were significantly associated with higher perceived self-efficacy, confidence, and ability to manage daily stressors.³⁶ When combining these results with the digital aspect of communication, it suggests that improving digital communication could similarly enhance nurses' overall job performance and satisfaction.³⁶ Improving nurses' competence and confidence in communication through electronic means may not only be an efficient way to improve communication; it can also boost their job performance and satisfaction.

The finding that primary care nurses spend a lot of time on supporting self-management, care-related prevention and the involvement of relatives in care aligns with the principles of what is termed 'appropriate care' in the Netherlands.³⁷ These principles emphasize, amongst other things, the importance of collaboration with patients and relatives, arranging care close to the patient's home, and focusing on patients' health – rather than illness.³⁷ This is also in line with the objectives of the Dutch Integral Care Agreement (IZA), which advocates shifting healthcare delivery from hospitals to community-based settings and encourages integrated care approaches that prioritize patient independence and self-management.²⁰ Specifically, supporting patients' self-management allows nurses to empower patients to take an active role in their health and care³⁸, which can potentially reduce a need for intensive and lengthy nursing care.

Regarding the involvement of relatives in patients' care, we found that most Dutch primary care nurses find this an appealing task that is also important for prevention. However, in the focus groups nurses mentioned that they sometimes find it a challenge to motivate relatives to actively participate in the care process. This is in line with a study in the US on involving relatives who are caregivers of older adults in primary care. The main challenges identified in the study were disagreements between patients and relatives, patient autonomy and

relatives' motivation and obtrusive behaviour by family caregivers.³⁹ The latter two problems were also mentioned during our focus group discussions. The review of systematic reviews by Park et al.⁴⁰ also supports our finding that there are many patient- and relative-centred interventions available which can improve the quality of healthcare when having difficulties with engaging relatives in the delivery of care.

Limitations and strengths

A limitation of the focus groups specifically is that only one nurse with a vocational training participated; all other participants had a bachelor degree in nursing. This sample is therefore not representative for the primary care nursing population in the Netherlands, in which approximately one third of nurses have a bachelor's degree and two thirds a secondary vocational qualification.⁴¹ Nevertheless, our survey results showed no significant differences between nurses with a secondary vocational education and those with a bachelor's degree. Likewise, in the focus groups, we did not observe any notable differences in the opinions and experiences of the participant with a secondary vocational qualification.

A second limitation is that the survey and focus groups may not have addressed all relevant tasks that will be increasingly used by nurses in the future. However, we chose to focus on self-management support, communication using electronic means, care-related prevention and the involvement of relatives because current professional competency frameworks for nurses address these tasks¹² and also because these tasks may provide strategies for coping with growing care demands on the one hand and increasing shortages of nursing staff on the other hand. However, since participants in the focus groups could raise additional issues, we believe it is unlikely we would have missed other important tasks.

The mixed methods design is a key strength of the study as it combines quantitative and qualitative approaches to provide a more comprehensive understanding of the research questions. The survey identifies patterns and trends, while the focus groups offer deeper insights into the reasons behind these patterns. This combination allows for a more nuanced interpretation of the data, enhancing the overall validity and depth of the findings.

Conclusion

Dutch primary care nurses spend a great deal of time on supporting patients' and relatives' self-management, on care-related prevention and on involving relatives in care. However, communication using electronic means is a skill that they do not utilize as much and consider less appealing. To be able to perform the four tasks, nurses report a need for training in motivational interviewing, which is important for instance for care-related prevention and the involvement of relatives in care. The Dutch primary care nurses also recommend training in the use of electronic resources to improve their digital literacy. In addition, training in

inter-professional collaboration with e.g. general practitioners and medical specialists was brought forward in this study as a future skill. This all underscores the need to improve the skills and competencies to make nurses better prepared for a future with increasing care demands from older adults and chronically ill people.

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Chapter 6

Identifying strategies to reduce the shortage of Dutch registered nurses; Analysis of prognostic data from a national database

Submitted as:

Identifying strategies to reduce the shortage of Dutch registered nurses; Analysis of prognostic data from a national database

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Abstract

Background: Rising healthcare demand is putting significant strain on the nursing workforce, leading to increased stress, absenteeism, and exits from the profession among registered nurses (RNs). In response, various initiatives are being implemented to ensure sustainable healthcare provision amid this growing demand. The aim of this study is to project future supply and demand for registered nurses in the Netherlands. Additionally, the study seeks to identify the key factors contributing to the nursing shortage and explore potential strategies to mitigate this problem.

Methods: This study used data from the Dutch Continuous Monitor of the Healthcare and Welfare Labour Market (AZW), which is based on a combination of surveys and administrative sources. The AZW forecasting model was used to perform what-if analyses, analysing the gap between the supply and demand of registered nurses after changing the values of various factors. The analysis involved adjusting factors such as average weekly working hours, the absenteeism rate, and nurse entry and exit rates to generate projections for the future nursing workforce.

Results: Projections indicate that the nursing shortage in the Netherlands will grow from a relative shortage of registered nurses of 5.7% of the nurse workforce demand in 2023 to 14.6% by 2033. The what-if analyses show that no single strategy will completely eliminate this shortage. The most effective approach of the scenarios we assessed is reducing nurse exit rates by 20% combined with increasing working hours by 1.5 hours per week, which potentially reduces the projected shortage to 1.4% by 2033. Retaining the nursing workforce is identified as the most impactful strategy for addressing the supply-demand gap.

Conclusion: Tackling nursing shortages in the Netherlands will require prioritizing nurse retention and encouraging increases in working hours in addition to recruitment efforts. Furthermore, reducing the demand for healthcare services will be important in achieving a balance between the supply of and demand for nurses, but is also a more complex challenge.

Introduction

The healthcare landscape is evolving rapidly, driven by factors like an ageing population, technological advancements, and the shifting healthcare roles of nurses.¹⁻⁴ This transformation places the nursing profession at the forefront of these changes.⁵ Globally and in the Netherlands, this requires nurses to meet the increasing demands of delivering high-quality patient care.^{6,7} Similarly, nursing schools and professional organizations are anticipating and preparing for changes in policies and practices to adapt effectively and ensure a robust nursing workforce prepared for future challenges.⁸ This means equipping the nursing workforce with the essential competencies for the future, such as skills in prevention and self-management promotion, interprofessional collaboration, e-health, and leadership.^{5,8,9} Professional competency frameworks for nurses currently emphasize aspects such as health promotion, technology, e-health, and support for self-management.⁹ However, as patient preferences and healthcare accessibility become more crucial, nurses need to consistently improve their competencies to adapt to the changing healthcare environment.^{10,11}

Besides competencies for the future, another crucial consideration concerns task shifting, in the sense of redistributing certain tasks and responsibilities from e.g. physicians to other healthcare team members, such as nurses.^{12,13} Research in primary care showed that nurses can achieve patient satisfaction levels equal to or better than general practitioners while maintaining high-quality care.¹⁴ Delegating tasks to nurses can also enhance their autonomy, clinical decision-making, and the attractiveness of nursing as a career.¹⁵⁻¹⁷ Task shifting and task delegation are not only expanding to address physician shortages,^{14,18-21} since nurses see and visit patients more frequently,^{22,23} but are also encouraged by recommendations from the WHO^{24,25} and initiatives from the European Union.^{26,27} An unintended consequence of the developments sketched above is that the nursing workforce is confronted with an increasing workload and experiencing increased sickness absence.^{28,29} In particular, nurses working more night shifts have an increased risk of both short-term and long-term sickness absence.^{30,31}

Due to the rising demand for healthcare and increasing complexity of care, associated with e.g. the rise of people with multimorbidity, many countries have experienced an increasing disparity between the demand and supply of nurses.^{6,32} The overall required nursing workforce can be determined using predictions of demographic changes in combination with a prognosis of expected care needs in the population and the desired level of care. To anticipate this disparity, it is becoming more and more important to have information and a good understanding of nursing workforce projections. Here, projections refer to the anticipated supply of nurses available to work, as well as the forecast demand for nursing professionals. The projection of demand for nursing personnel is closely tied to governmental decisions

regarding healthcare policy and funding allocations and is therefore vulnerable to changes. In contrast, the supply side can be estimated more accurately and is less dependent on government policies.

This study focuses on the Netherlands, which can be seen as an example of a country initiating specific healthcare reforms by promoting and supporting the delivery of nursing care as much as possible in home and community settings. In addition, healthcare policy in this country aims to strengthen nurses' roles and tasks that are part of the medical domain (e.g. regarding nurse prescribing of medicines).^{33,34} The Dutch healthcare system faces growing workforce challenges, with forecasts showing that the demand for healthcare professionals will rise from one in six at present to one in four citizens working in healthcare by 2040, unless strategic reforms are implemented.³⁵ However, to keep healthcare affordable for the government and citizens, this increase may be undesirable due to its significant impact on healthcare costs.³⁵ To address this, the Ministry of Health and other national healthcare stakeholders have outlined a strategic plan — the Dutch Integral Care Agreement (IZA) — to tackle the challenges of increasing care demand and a shortage of professionals.³⁵ The plan includes a work agenda for the coming years to transition to appropriate care, maintaining a one in six worker ratio by 2040.³⁵ As part of this strategy, the IZA aims to increase the nursing workforce, allowing nurses to grow in both numbers and influence within the healthcare system. The IZA emphasizes the importance of attracting and retaining healthcare personnel, aiming to make the healthcare sector an appealing field to work in and remain within for the long term.³⁵

To prevent healthcare from becoming unaffordable in the future, it is also important to focus on change and efficient healthcare provision, such as by optimizing task distribution whereby nurses take on more responsibilities in care coordination, providing complex care, and engaging patients and family carers in preventive care initiatives.³⁶ Similarly, nursing roles will continue to evolve, with nurses obtaining higher educational qualifications and becoming more specialized.⁵ A significant trend in the Netherlands is that the share of bachelor-educated nurses (compared to vocationally-educated nurses) is increasing.³⁷ This shift towards a higher level of education among nurses reflects two developments. First, nurses' employers see a growing need for advanced skills and knowledge among nurses, necessary to meet the evolving complexities within the healthcare landscape. Second, new generations of nurses are also prioritizing higher education, continuous training, and career development.³⁸

The combination of the above-mentioned issues highlights the need to examine factors that determine labour market shortages. This study does this by providing different projections of the future supply and demand of registered nurses in the Netherlands, obtained by adjusting relevant factors. It recognizes the complex interplay of factors shaping the nursing landscape, including continuing education, and a shift from a focus on somatic care to a focus on

prevention, maintaining health, and promoting self-management, which will likely require new competencies in nursing staff. The aim is that the results of this research will both inform and encourage stakeholders — such as nursing schools, care and employer organizations, and relevant policymakers — to actively align education and labour policies with the projected changes in the demand and supply of nurses. The study seeks to drive strategic actions that address labour market shortages and contribute to a sustainable nursing workforce by engaging these stakeholders.

The four factors addressed in this study that influence labour market shortages are: (1) the average working hours per week, (2) their absence from work (as a percentage), (3) the number of graduate nurses entering or re-entering the profession, and (4) the exit rates from the nursing profession. These four factors are expected to significantly affect the shortages in the coming years. In the Netherlands, a considerable proportion of people work part-time, especially women.³⁹ Most nurses are women working part-time but many would like to increase their hours if a good work-life balance can be maintained.⁴⁰ The average working shift is nearly 7 hours instead of the 8 hours that is usual in the Netherlands.⁴⁰ Studies show that improved scheduling and changes in healthcare policies could allow an increase in working hours.⁴⁰

Sickness absence rates are notably high in the healthcare sector compared to other sectors in the Netherlands.⁴¹ To reduce sickness absence rates, it is crucial to address exhaustion and high job demands, as both are linked to sickness absenteeism (SA) and sickness presenteeism (SP).⁴² Furthermore, registered nurses (RNs) with positive workplace perceptions had significantly lower absenteeism rates, which suggests more attention should be paid to fostering a positive work environment⁴³

In addition to influencing the average weekly working hours and sickness absence rates, organizations might also be able to influence the number of nurses entering or leaving the nursing profession. Nurse entry typically includes new graduates as well as those re-entering the workforce. A recent study shows that there is room for improvement in increasing the entry of professionals in the health and welfare sector in the Netherlands.⁴⁴ The current turnover rate in healthcare in the Netherlands is 8% per year, while every year 20% of employees leave their current employer.⁴⁵ The cost for an organization to replace a single staff member in nursing in the Netherlands can reach up to €30,000.⁴⁶ Another study found that employers usually pay approximately 20% of an employee's yearly salary to replace them.⁴⁷ Since new personnel are also hard to find, retention of experienced nurses is therefore crucial for maintaining a stable and skilled workforce. Hence the last of our parameters is the number of nurses leaving the profession. One way to reduce the number of exits is by improving the onboarding of new nurses, for example by providing appropriate resources

like a supportive work environment, head nurse leadership, and productivity tools.⁴⁸ Additionally, strategic personnel management can aid in nurse retention, as there are strong links between nursing staff's workplace perceptions, absenteeism rates, and their intention to leave the organization.⁴³

In light of these developments and the urgent need for effective strategies, this study aims to find strategic scenarios that address labour market shortages and contribute to a sustainable nursing workforce. We will answer to the aim by addressing two research steps based on existing labour market data about registered nurses in the Netherlands, who can be bachelor-educated nurses or vocationally educated. First, we describe projections of the supply and demand of registered nurses in the Netherlands in the coming 10 years. Second, we perform what-if analyses, simulating the effect of the four above-mentioned factors that potentially determine nursing shortages, i.e. the average weekly working hours, their absence rate, entry volumes, and exit rates from the nursing professions.

Methods

Data source

This paper is based on analysis of existing data taken from the Dutch continuous monitor of the Healthcare and Welfare Labour Market (in Dutch: Arbeidsmarkt Zorg en Welzijn (AZW)) which is financed by the Ministry of Health. This monitor provides data and information about different sectors, occupations, and regions in the Dutch healthcare labour market. Data is collected from administrative data systems and surveys of care organizations.

For analysing the data, and to answer the research questions, we used a forecasting model that is available within the AZW monitor and portal.³⁵ For further information on the data, readers are encouraged to visit the official website (<https://www.prognosemodelzw.nl/> (in Dutch)). The forecasting model allows the user to modify the four factors (i.e. average weekly working hours, absence rate, entry volumes in the nursing profession, and exit rates from the nursing workforce) to analyse the effects on nursing shortages for different sectors and occupations. The AZW forecasts are based on a stock and flow model. The number of nurses working in, entering, and leaving the profession is calculated for one-year periods, based on the change between two specific dates: the last Friday before Christmas in the current year and the same date in the previous year. To project the basic capacity of nurses needed, the baseline scenario programmed by AZW was used, which also includes recent policy changes from 2023.

Inclusion and selection process

In the projections, two groups of nurses are distinguished: vocationally-trained nurses (European Qualifications Framework (EQF) level 4) and nurses with a bachelor's degree (EQF level 6).⁴⁹ These two groups of nurses practise at different levels with specific roles/tasks, but are both categorized as registered nurses (RNs). Within the AZW monitor and database, midwives are included with registered nurses possessing a bachelor's degree because they have a qualification equivalent to bachelor educational level 6 in the European health personnel education indicator. Since this study focuses on nurses, the available data and the projections have been adjusted to account for the presence of midwives by subtracting the number of actively practising midwives based on a recent study conducted by Flinterman et al.⁵⁰ They studied the expected developments for midwives in the Netherlands. In 2022, approximately 3,940 midwives were actively practising in the country, while 4,940 were registered (including those not currently practising as midwives).^{50,51} For our calculations, we subtracted the 3,940 actively practising midwives identified by Flinterman et al.⁵⁰ from the total EQF of the bachelor-educated (level 6) nurses in 2022 registered in the AZW data. This resulted in a remaining percentage of 93.71% of the bachelor-educated nurses (n=54,660) and this percentage was then tracked for the following years. For vocationally educated registered nurses, the number included in the analyses was 97,200 in 2022.

Factors in the model

The calculated what-if prognoses are based on adjustments to four factors that influence the balance between supply and demand, i.e. the expected shortages of nursing staff in the Netherlands. The simulated changes in these four key factors are explained below. As the factors may have different effects on the two groups of nurses, we projected the scenarios for each group separately.

1. The average weekly working hours represents the average hours worked by nursing staff per week, whereby a fulltime working week equals 36 hours according to most of the sector labour agreements for nurses. For the what-if analysis, we adjusted the mean working hours by increasing them by 1.5 hours over four years. Research indicates 23% of healthcare personnel would like to work an additional 6 hours per week; spreading this over the population, the increase would be approximately +1.5 hours.⁵² This equates to an annual increase of 0.375 hours for the first four years, leading to a more substantial and sustainable workforce presence. Additionally, we project a variation to this scenario by applying a smaller modification of the average weekly working hours with +1 hour, as this might be more realistic or feasible.

2. Absence from work occurs (for instance) when nurses are not present during scheduled hours, due to personal illness, family emergencies, or other reasons (excluding holidays). High absence rates can disrupt productivity and place additional burdens on the remaining staff.⁵³ To simulate the impact of this factor, we performed a what-if analysis for a 10% reduction in current absence rates over the next six years. A minimum absence percentage is set at 4% across all scenarios to avoid extremely low percentages as these might be unrealistic. Still, a 10% reduction would be feasible when compared to absence rates for other healthcare professionals.⁴¹ A lower range is included in this scenario with a 5% reduction.
3. Entry into the nursing profession captures the inflow of new nurses into the workforce, both recent graduates and those re-entering the field. Recent research indicates that among individuals potentially interested in healthcare roles, approximately 18% are currently exploring options to re-enter the nursing workforce.⁴⁴ This interest primarily reflects mid-career transitions (in Dutch: *zij-instroom*) rather than direct entry into nursing education from secondary schools. If we hypothesize, based on the percentage of healthcare personnel that choose to work as a nurse, that 12% of those interested in healthcare roles may also choose nursing, it could lead to an additional 19,780 individuals joining the nursing workforce. We performed a what-if projection assuming a potential growth in the nursing population of 8.3% over five to eight years, taking into account that new entrants need to have proper training. The lower range for this scenario was set at 6%.
4. Exit from the nursing workforce concerns nurses leaving the profession, which can occur for various reasons, including retirement and career changes. We performed a what-if analysis assuming a potential 20% reduction in current exit rates, to be achieved within three years. Research on reasons for leaving an employer in the healthcare sector found that 8.4% of respondents stated that nothing could prevent their departure, suggesting that measures are possible in most cases.⁵⁴ Other research indicates that an intervention utilizing the concept of 'energy balance' can reduce turnover by 89%; however, it is not clear if similar results can be achieved in the healthcare sector.⁵⁵ A study of 511 nurses in Saudi Arabia showed that a combination of interventions decreased turnover from 19.7% in 2019 to 8.9% in 2020.⁵⁶ Consequently, our study sets a conservative goal of achieving a 20% reduction in nurse turnover. The lower range for this scenario was set at a 10% reduction.

Additionally, three scenarios were developed based on the factors mentioned above, strategically combining the most effective projections.

Data analysis

The factors were adjusted to represent the different scenarios and applied in the AZW model to generate projections using the prognosis tool. The resulting output, showing nursing staff supply and demand, was analysed to determine shortage percentages, which were then displayed in a graph. All results are shown as projected shortage percentages.

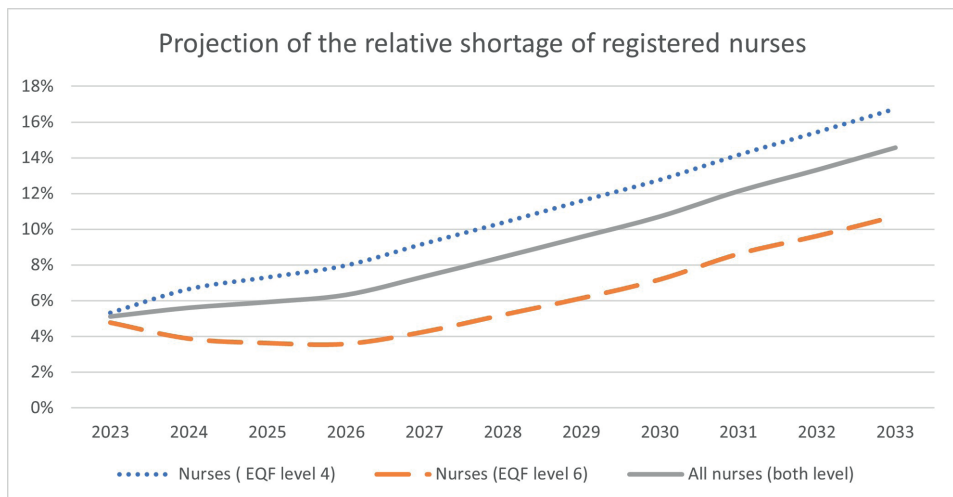
Results

Baseline projections for expected shortages of registered nurses

The AZW prognosis tool using the baseline data and scenario clearly shows the projected gap between the supply and demand of registered nurses in the Netherlands. The average shortage of nurses in the Netherlands is projected to increase from 8,311 (5.1%) in 2023 to 29,103 (14.6%) in 2033.

Figure 1 illustrates the projected shortage of registered nurses from 2023 to 2033, expressed as a percentage of total demand. The projections are broken down by qualification level. The most significant shortage is expected to be in vocationally trained registered nurses (level 4 qualification), from 5.3% in 2023 to 16.7% in 2033. The shortage in nurses with a bachelor's degree (level 6) is expected to be smaller, increasing from 4.8% in 2023 to 10.7% in 2033.

Figure 1. Projection of the relative shortages of registered nurses in the Netherlands over 10 years as a percentage of the total demand, based on a scenario in which recent policy changes are taken into account.



What-if analyses: effects of changes to four factors that reduce nurse shortages***Results for the group of vocationally trained nurses (EQF level 4)***

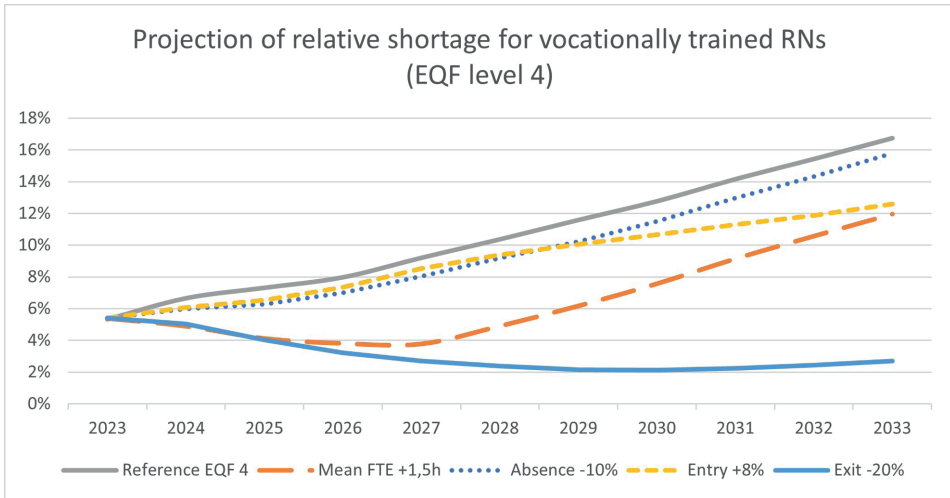
In a what-if scenario in which the average number of working hours increase by 1.5 hours per week over the first four years, the shortage of vocationally trained registered nurses would initially decrease, reaching its lowest point at 3.8% in 2026 and 2027 (see Figure 2, orange line). However, by 2033, the shortage would rise significantly to 12.0%, compared to 5.4% in 2023. In contrast, if the increase is only 1 hour per week, the relative shortage would grow to 13.4% by 2033.

In the scenario where work absences are gradually reduced by 10% over six years, the shortage of vocationally trained nurses shows minimal deviation from the baseline scenario, with only a 1% reduction (Figure 2, blue dotted line). By 2033, the shortage would reach 15.8%, compared to 5.4% in 2023. Equally, if the reduction is only 5%, the shortage would increase to 16.1%.

In the scenario where we reduce nurse exits by 20% in three years, the shortage of vocationally trained nurses would experience a significant reduction, falling from 5.4% in 2023 to 2.7% in 2033 (Figure 2, solid blue line). Without that change, the shortage would have increased to 14.6% by 2033. If a reduction of 10% in exits is achieved, the overall nurse shortage would rise to 5.5% by 2033.

In the fourth what-if scenario, where the number of nurses entering employment increases by 8% starting after four years, the shortage of vocationally trained registered nurses would increase to 12.6% by 2033 (Figure 2, yellow line). This is a significant rise from 5.4% in 2023, reflecting the ongoing challenges in meeting demand despite increased entries into the profession. Projecting the lower range of a 6% increase in entries, the shortage would rise to 13.5% in 2033.

Figure 2. Projection of the relative shortages of vocationally trained RNs (EQF level 4) in the Netherlands over 10 years as a percentage of the total demand, based on different scenarios.



Results for the group of nurses with a bachelor's degree (EQF level 6)

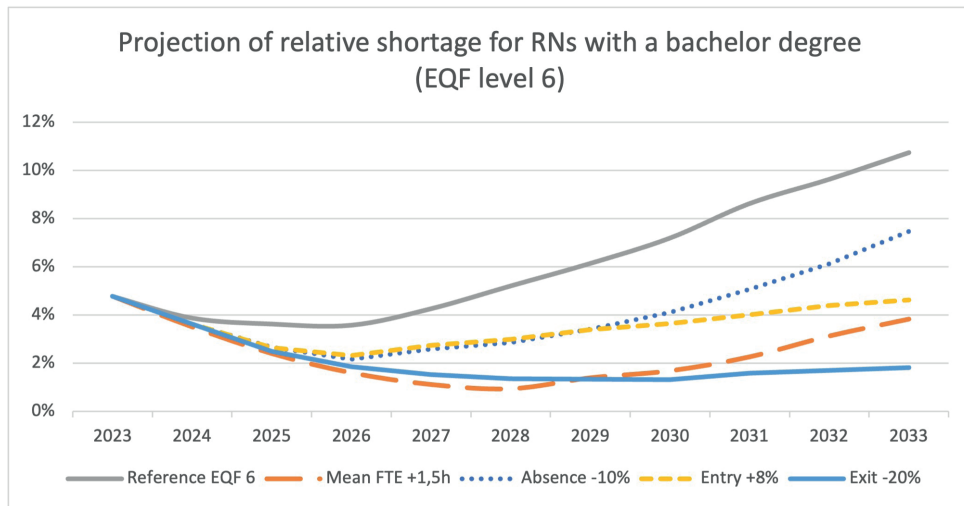
For the nurses with a bachelor's degree, the impact of a 1.5-hour increase in weekly working hours over four years is a notable reduction in shortages. The shortage would decrease from 4.8% in 2023 to 3.8% in 2033 (Figure 3, orange line) This suggests that the supply of bachelor-educated nurses would benefit more from this change compared to that of vocationally-educated (level 4) nurses, who face an overall increase in shortages. A lower increase of 1 hour per week would lead to a shortage of 10.4% in 2033.

In a scenario where work absences are reduced by 10% over six years, the shortage of nurses with a bachelor's degree would improve significantly compared to the baseline. While the baseline predicts a shortage of 10.7% by 2033, under this reduced absence scenario the shortage would only rise to 7.5%, showing a notable improvement for nurses with a bachelor's degree (Figure 3, blue dotted line). In the scenario where absences are reduced by 5%, the shortage across bachelor-educated nurses would decrease to 7.7%.

For the bachelor-educated nurses, the what-if scenario where the exit rate from nursing employment decreases by 20% over three years shows a significant reduction in the shortage. The shortage would drop from 4.8% in 2023 to 1.8% in 2033 (Figure 3, solid blue line). Without this reduction in exits, the projected shortage would have reached 14.6% by 2033 (Figure 3, grey line). A smaller reduction of 10% would result in a shortage of 5.5% by 2033.

In a scenario where the number of nurses with a bachelor's degree entering employment increases by 8% starting after four years, the shortage would decrease slightly, reaching 4.6% by 2033, down from 4.8% in 2023 (Figure 3, yellow line). This contrasts with level 4 nurses, who would see their shortages rise despite increased labour market entries. Projecting the lower range of 6%, the shortage would be 5.3% in 2033.

Figure 3. Projection of the relative shortages of RNs with a bachelor degree (EQF level 6) in the Netherlands over 10 years as a percentage of the total demand, based on different scenarios.



The potential effect of the four factors combined in what-if scenarios

To extend and deepen the what-if analyses presented above, we also explored the potential of *combining* the factors that determine nursing shortages. We selected three types of combinations that were deemed to be potentially relevant and feasible. In Figure 4, the first scenario (A) combined the lower ranges of all four factors presented above (blue dotted line). In scenario B (red line) we combined the increased average weekly working hours with a decrease in the exit rate from the nursing profession, as these two factors have the biggest beneficial effects on the relative shortage of nurses. Scenario C (green line) is a variant on scenario B, taking the lower ranges of the two adjustments and combining them.

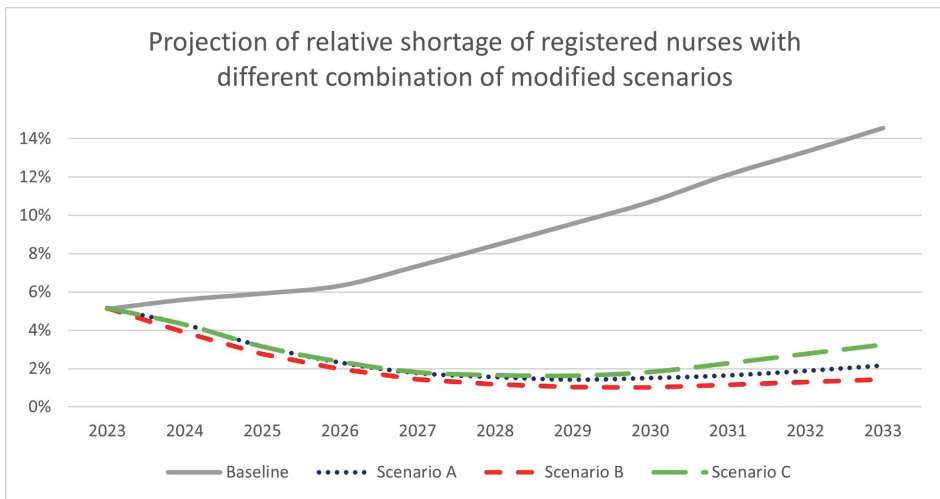
In scenario A we assumed that average weekly working hours increase with +1 hour and the absence rate decreases by 5% over a period of 6 years. We decreased exits from the nursing profession by 10% over 3 years. The entry into nursing employment was increased by 6%, starting after 4 years and achieved after 8 years. The result for this scenario A is that the total shortage would decrease from 5.2% in 2023 to 2.2% in 2033 (Figure 4, blue dotted line).

In scenario B (Fig. 4) we combined the increase in average working hours per week of 1.5 hours over the first 4 years with a decrease of 20% in the nurses leaving the workforce, to be achieved after 3 years.

This scenario has the biggest beneficial impact on the relative shortages of nurses. The total shortage would decrease from 5.2% in 2023 to 1.4% in 2033 (Figure 4, red line).

Finally, in scenario C we combined the increase in the average weekly working hours of 1 hour over the first four years with a decrease of 10% in the nurses leaving the profession, to be achieved after 3 years. In this scenario the total shortage decreases from 5.2% in 2023 to 3.2% in 2033 (Figure 4, green line).

Figure 4. Projection of the relative shortages of registered nurses in the Netherlands over 10 years as a percentage of the total demand, based on different combinations of scenarios.



* Scenario A is a combination of average weekly working hours +1h, absence -5%, entry +6% and exit -10%. Scenario B is a combination of average weekly working hours +1.5h and exit -20%. Scenario C is a combination average weekly working hours +1h and exit -10%.

Discussion

The baseline future projections for the demand and supply of registered nurses in the Netherlands show an increase in the shortage of nurses from 5.7% of the demand in 2023 to 14.6% in 2033. To address the projected shortage of nurses in the Netherlands, we examined various potential measures in what-if scenarios. The most effective what-if scenario in our study is the one in which nurse exits from the workforce are reduced by 20%, which could

reduce the shortage to as little as 2.4% by 2033. Increasing weekly working hours by 1.5 hours also helps reduce nursing shortages, but has a limited effect on its own, especially on the shortage of vocationally trained (level 4) nurses. A combined approach of increasing working hours by 1.5 hours per week and reducing nurse exits by 20% yielded the largest effect and can reduce the shortage to 1.4% in 2033. Increasing (re-)entry volumes in the nursing profession and reducing absence rates have smaller impacts. However, a combination of all four scenarios (with their lower values) also had a large effect, decreasing the relative shortage to 2.2% in 2033. None of our projected scenarios would completely eliminate the shortage of nurses in the Netherlands in the next ten years. Nonetheless, like in other projections, the shortages would decrease significantly in several scenarios.⁵⁷

Combining scenarios to address the shortage of nurses requires a balanced approach. Our study shows the best approach is focussed on retention and a moderate increase in working hours. Reducing nurse exits by 20% is a practical and impactful strategy, as improving work conditions, offering career development, and addressing burnout are feasible interventions with proven success in retaining nurses.⁵⁸ However, achieving a 20% reduction in exits might need a lot of effort as the nursing workforce is ageing.⁵⁹ Moreover, the reduction in shortages will only be possible if an average 20% decrease is achieved across organizations, meaning that many organizations will need to make significant efforts to attain this goal. Similarly, a modest increase in average working hours, such as 1.5 hours per week, is achievable without placing excessive strain on the workforce and could help ease the shortages, especially for higher-qualified nurses. Nurses in the Netherlands have indicated they would be willing to work more hours if that happens in a schedule with a good work-life balance, for example by working more hours in a shift.⁴⁰ While boosting nurse recruitment and reducing absences can help ease the shortages too, these measures are harder to implement quickly. Prioritizing retention and moderate increase in average weekly working hours offers the most effective and realistic way to close the gap alongside a continuous focus on attracting more nurses. However, as our study and other research shows, with the growing demand for healthcare it is not possible to reach a balance in the supply and demand of nurses only through actions taken by the care organizations.⁵⁷

Recruiting nurses as a measure has van be very difficult as shortages in all healthcare sectors are high and training takes time. Another strategy is to encourage nurses who have left the profession to return to practise, for example as was done during the COVID-19 pandemic.⁶⁰ A study by Noorland et al. found that a clear job description, individualized training, and mentorship are crucial for a safe and effective return of nurses to practise, especially during crises like the COVID-19 pandemic.⁶¹ Moreover, balancing personal and professional life is increasingly challenging, technological advances, and demanding labour conditions, particularly in nursing. A European survey with nurses using the Job Demand–Control–Support model

highlights that physical demands significantly impact the work-life balance, while job control and supervisor support can moderate these effects, emphasizing the importance of managing the work context to improve this balance.⁶² Studies indicating strategies for recruiting or retaining nurses are in line with a systematic review of factors affecting nursing staff shortages in hospitals, which identified four main themes influencing this: policy and planning barriers, barriers to training and enrolment, factors boosting nursing staff turnover, and nurses' stress and burnout.⁶³ The results of these studies suggest that modifications in the values of the factors in our study are feasible and realistic.

Other possible strategies for reaching a balance in the supply and demand of nurses could be to reduce the demand for care by deploying preventive healthcare, promoting self-management and the use of digital means of care, and by involving relatives more in the care of patients. A greater focus on preventive healthcare measures can reduce the incidence of illnesses and chronic conditions, thereby decreasing the need for medical intervention and nursing care. Another type of strategy to reduce the care demand could be to prioritize high-value care; healthcare providers can prioritize high-value care interventions that offer the greatest benefit to patients in terms of health outcomes and cost-effectiveness while minimizing low-value or unnecessary services that may not provide significant clinical benefit.

Strengths and Limitations

A strength of this study is the use of existing data from a comprehensive and reputable source (AZW monitor), which enhances the study's reliability and validity and makes it easily reproducible in the future. Additionally, the incorporation of a forecasting model provides robust projections of the future nursing workforce, offering valuable insights for healthcare planning and policy-making. However, forecasting models inherently involve assumptions and uncertainties, which may affect the accuracy of the projections.

Furthermore, it should be noted that this study only focuses on factors that can be influenced by healthcare organizations. Healthcare demand is mainly dependent on governmental decision-making. Nonetheless, the calculated effects in this study can provide guidance, highlighting which potential changes might most effectively reduce nursing shortages in the Netherlands.

Future implications

The study's findings are crucial for strategic healthcare planning, offering projections of future needs for nursing personnel. Policymakers and care organizations can use these projections to make informed decisions, ensuring an adequate supply of nurses to meet the increasing demands of healthcare. Additionally, the study's insights can guide policy development, focusing on the urgent issue of nursing shortages. By leveraging these insights, all stakeholders

can implement specific strategies to strengthen the nursing workforce, improve nurse retention, and enhance working conditions. Ultimately, this collaborative approach will ensure the sustainability and effectiveness of healthcare delivery in the future.

Conclusion

In conclusion, addressing nursing shortages requires a comprehensive strategy that combines multiple approaches, such as improving retention and modestly increasing working hours, rather than relying solely on recruitment. However, possibilities should also be investigated to reduce the demand for nurses, like integrating preventive healthcare measures and prioritizing high-value care, as this can help to create a more sustainable balance between supply and demand. As the demand for healthcare continues to rise, a proactive and multifaceted approach is crucial to ensure a stable and effective nursing workforce.

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Appendices

Appendix 1. Code tree Chapter 5

Category	Code	Subcode	Sub-subcode	
Requirements to develop competencies to perform tasks	Measures that address the general problems	Education	Motivation of nurses to follow training Clinical lessons Training in nursing leadership Training in conversation techniques Training in community care	
		Problems: engaging relatives in care	Relatives' lack of engagement	
Ability to perform tasks	Problems: digital communication	Wrong expectations among relatives	Absence of direct point of contact for patients Increases workload Lack of human contact Digital illiteracy of end users	
			Problems: preventative care	Patients' financial and social problems Patients' lack of knowledge and motivation Lack of investment by government Lack of time Lack of guidelines for less concrete preventative actions Lack of collaboration between care professionals Late involvement of healthcare providers Waiting lists for community care
	Problems: patient self-management support	Lack of clarity about responsibilities of patients and healthcare professionals Lack of motivation among patients Human contact can encourage self-management Driven by lack of resources instead of patient-centred		

Category	Code	Subcode	Sub-subcode
Relevant tasks for primary care nurses	Client self-management support	Shift of focus to self-management by patients	
		Motivational interviewing	
	Appeal of the work	Deciding together with patient and relatives	
		Concrete types of prevention are easy to use	
		Discussing options together with patient and relatives	
		Conveying benefits of prevention	
	Digital communication	Timely assistance by care professionals	
		Usability	
		Useful for simple and practical questions	
		Increasing digitalization	
	Engaging relatives in care	Technological skills	
		Knowledge about technology	
		Task shifts in patient care to relatives	
		Forming a team with relatives	
	General relevant competencies	Management of relatives' expectations	
		Motivation of relatives	
		Feeling of mastery in competencies	
		Being curious	
		Working efficiently	
		Being open to new things	
		Cultural sensitivity	
Nursing skills			
Conversation techniques		Communicating clearly and making appointments	
		Be empathetic with patients and relatives	
		Coaching of colleagues	
		Motivational interviewing with patients	
		Having difficult conversations	
	Uncovering the underlying question		
	Helicopter view		
Nursing leadership	Providing patient-centred care		
	Role model for society		
	Encouraging and enthusing team		
	Taking the lead within a care team		
	Providing patient-centred care		
	Knowledge of laws and regulations		
	Human knowledge		
	Professional knowledge		



Verklaring datamanagement

Verklaring datamanagement

Verklaring datamanagement PhD Thesis

Radboud Social Cultural Research, Radboud Universiteit

Sectie A. Primaire data/gegevens

Voor mijn thesis heb ik zelf **primaire** data/gegevens verzameld?

Ja

Ik verklaar dat		
A1.	De data / gegevens zijn verkregen met toestemming van informanten.	Ja
A2.	Privacy gevoelige data / gegevens zijn versleuteld en opgeslagen op een beveiligde computer of server.	Ja
A3.	De data / gegevens tot minimaal tien jaar na afloop van het onderzoek worden bewaard in het kader van wetenschappelijke integriteit.	Ja
A4.	Geanonimiseerde data / gegevens zijn gedeponereerd in een dataregistratiesysteem (Research Data Repository, DANS-KNAW).	Nee*
A5.	Toegang tot geanonimiseerde data / gegevens is geregeld in het kader van datamanagement (FAIR-principes).	Nee*

*zie toelichting in Bijlage bij Verklaring Datamanagement

Sectie B. Secundaire data/gegevens

Voor mijn thesis heb ik door andere onderzoekers verzamelde informatiebronnen gebruikt?

Ja

Ik verklaar dat		
B1.	De data / gegevens op legitieme wijze zijn verkregen.	Ja
B2.	Niet publiek toegankelijke data / gegevens gedurende het onderzoek zijn opgeslagen op een beveiligde computer of server.	Ja
B3.	De data / gegevens niet zijn gedeeld met derden en is gehandeld in overeenstemming met de afspraken gemaakt met de informatieverstrekker.	Ja

Sectie C. Algemeen

Ik verklaar dat		
C1.	Een korte methodologische verantwoording, en/of de syntax en methode van databewerking is gedeponereerd in een zogenaamd 'publication package'.	Nee*
C2.	Gegevens in publicaties niet zijn te herleiden tot een individueel persoon (m.u.v. expliciete toestemming).	Ja
C3.	De data op integere wijze zijn geanalyseerd en niet doelbewust zijn gemanipuleerd richting bepaalde uitkomsten.	Ja

*zie toelichting in Bijlage bij Verklaring Datamanagement

Bijlage bij Verklaring datamanagement

Voor dit proefschrift zijn verschillende databronnen gebruikt die hieronder worden beschreven.

Professional competency frameworks RNs en APNs (hoofdstuk 2 en 3)

Voor hoofdstuk 2 en 3 is gebruik gemaakt van beroepsprofielen (professional competency frameworks). Deze gegevens zijn openbaar toegankelijk.

Nivel Panel Verpleging & Verzorging (hoofdstuk 4 en 5)

Voor het gebruik van deze gegevens moet een aanvraag gedaan worden bij de programmacommissies van deze panels. Afgesproken is, dat als het nodig is, de data opvraagbaar is bij het Nivel of de auteurs van de betreffende hoofdstukken.

Focusgroepen met verpleegkundigen (hoofdstuk 5)

Voor dit hoofdstuk zijn focusgroepen gehouden met verpleegkundigen. Van de respondenten is geen toestemming verkregen om de onderzoeksdata voor andere onderzoeken beschikbaar te stellen. Waar nodig (bijvoorbeeld voor het repliceren van de resultaten) is de data opvraagbaar tot 10 jaar na het onderzoek.

Arbeidsmarkt Zorg en Welzijn (AZW) (hoofdstuk 6)

Voor hoofdstuk 6 is gebruik gemaakt van openbare data uit het Prognosemodel Zorg en Welzijn van AZW. Deze data en het prognosemodel zijn openbaar toegankelijk.

Voor alle hoofdstukken is een publication package beschikbaar. Deze zijn niet gedeponeerd, maar opgeslagen op een beveiligde server en kunnen worden opgevraagd als dit gewenst is.

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About the author

Renate Fleur Wit was born in Loosdrecht, the Netherlands, on 19 June 1997. She obtained her Bachelor's degree in Nutrition and Dietetics in 2018 at The Hague University of Applied Sciences in The Hague. After obtaining her Bachelor's degree she continued her studies in Wageningen and Amsterdam, obtaining a Master's degree in Nutrition and Health in 2021 at Wageningen University and a second Master's degree in Health Sciences in 2021 at the Vrije Universiteit Amsterdam. After her studies, she worked briefly as an education and research assistant at Wageningen University and Research, where she was involved in multiple studies resulting in scientific publications. In November 2021 she started her PhD at Nivel (Netherlands Institute for Health Services Research) under the supervision of Prof. Ronald Batenburg and Prof. Anneke Francke, and enrolled as a PhD candidate at the Department of Sociology at Radboud University.

List of publications

Scientific publications

Wit, R. F., de Veer, A. J., de Groot, K., Batenburg, R. S., & Francke, A. L. (2024). Task shifting in Dutch nursing practice: A repeated cross-sectional analysis of nurses' experiences. *Journal of Advanced Nursing*, *80*(11), 4593-4602. <https://doi.org/10.1111/jan.16173>

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