World Health Organization

European Region

Technical brief on strengthening the nursing and midwifery workforce to improve health outcomes

What is known about advancing roles for nurses: evidence and lessons for implementation

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ABSTRACT

During the COVID-19 pandemic, policy-makers and the wider public recognized the important contribution nurses made to the fight against the pandemic and the challenging conditions under which they operated. As a result, the nursing workforce is receiving increased policy attention in Europe and globally. Higher nursing education contributes to patient safety and improved outcomes for individuals, patients, population groups and health systems. Advancing the roles of nurses has been identified as one of the health workforce solutions that would increase access to health for underserved and remote populations and address understaffing in primary health-care settings, thereby contributing to achieving universal health coverage. This technical brief focuses on the ways in which Member States in the European Region are advancing the roles of nurses and highlights what can be done to facilitate implementation.

KEWYORDS

NURSING

HEALTH WORKFORCE

DELIVERY OF HEALTH CARE

HEALTHCARE FINANCING

HEALTH CARE REFORM

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World Health Organization
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Corrigendum

Technical brief on strengthening the nursing and midwifery workforce to improve health outcomes: what is known about advancing roles for nurses: evidence and lessons for implementation

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Type of advanced role[a]	Scope of practice	Education	Regulation
Advanced practice nurse (APN)[b]	An APN has complex clinical competencies and decision-making skills for expanded scope of practice[c] that is recognized at a national or regional level.	Master's Degree or PhD/ Doctor of Nursing Practice. Distinct pre-service requirements and practical training.	Professional nursing qualifications are registered and a license to practice the advanced role issued by the relevant regulating agency is required.
Specialist nurse[d]	A specialist nurse has a wide range of responsibilities, accountability and autonomy in an expanded scope of practicec that are recognized at a national or regional level. What is expanded, why, and by whom is highly context specific.	Postgraduate Diploma or Master's Degree in the area of specialization. This role has some advanced didactic coursework to base advanced practice on.	Professional nursing specialization is recognized through registration with the relevant authority.
General nurse with special training[e]	A general nurse who is authorized to perfom a defined set of competencies in an area that may or may not be developed at the national or regional level and is highly facility specific.	Competency-based training in the advanced role is provided by post Diploma or Bachelor of Science in Nursing. This is mostly in the form of practical training but there may be some short theoretical courses.	Authorization to perform a set of defined tasks may be conferred by the agency responsible for regulating health professionals, or, in its absence the ministry of health.

was replaced with

Table 1. Typology of advanced nursing roles in the WHO European Region

Type of advanced role[a]	Scope of practice	Education	Regulation
Advanced practice nurse (APN)[b]	An APN (e.g. Nurse Practitioner, Clinical Nurse Specialist) has the expert knowledge, advanced clinical competencies and complex decision-making skills for advanced clinical practice, recognized by expanded scope of practice[c] at national or regional level.	Minimum Master's Degree. Distinct pre-service requirements and practical training.	Professional nursing qualifications are registered and a license to practice the advanced role issued by the relevant regulating agency is required.
Specialist nurse[d]	A specialist nurse has a wide range of skills and competencies for a specific specialization, scope of practice[c] is often expanded and recognized at a national or regional level. What is expanded, why, and by whom is highly context specific.	Postgraduate Diploma or Master's Degree in the area of specialization.	Professional nursing specialization is recognized through registration with the relevant authority.
General nurse with additional training[e]	A general nurse with additional training is authorized to perform a defined set of competencies in an area that may or may not be developed at the national or regional level and is highly context and facility specific.	Training in this role is provided by post Diploma or Bachelor of Science in Nursing.	Registration as professional nurse, sometimes additional authorization to perform a set of defined tasks by relevant authority.

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Contents

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Acronyms

APN	advanced practice nurse
BMI	body mass index
CNS	clinical nurse specialist
COPD	chronic obstructive pulmonary disease
EU	European Union
GCNMO	government chief nursing and midwifery officer
NP	nurse practitioner
RCT	randomized controlled trial

World Health Assembly resolution WHA 74.15 calls on Member States:

- to maximize the contributions of nurses and midwives in service delivery environments by seeking to ensure that practice regulations are up to date in order that nurses and midwives may practice at the pinnacle of their capability and that workplaces provide decent work, fair remuneration and working conditions, including appropriate leave entitlements, gender equity and balance, labour protection and rights, mental health and the prevention of violence and harassment, including sexual harassment and abuse;

- to ensure that nurses and midwives are supported, protected, motivated, sufficiently aided, trained and equipped to safely and effectively contribute in their practice settings and remove barriers to their practice, including impediments to gender equality, and mitigate their exposure to violence and harassment; and

- to equip nurses and midwives with the requisite competencies, and professionalism, aiming to fully meet health system needs, through a scale-up of education tailored to current and future population health needs.

Background

The nursing workforce is receiving increased policy attention in Europe and globally (WHO, 2020), as demonstrated in the recent consensus reached at the High-level Regional Meeting on Health and Care Workforce in Europe and the Bucharest Declaration (WHO Regional Office for Europe, 2023) following the publication of the landmark report health and care workforce in Europe: time to act (WHO Regional Office for Europe, 2022). Policy-makers and the wider public recognized the important contribution nurses made to the fight against the COVID-19 pandemic and the challenging conditions under which they operated (Rosa et al., 2020; Buchan et al., 2022). As a result, global interest in advancing nursing roles is increasing, and many countries have advanced the roles of nurses, often in response to workforce shortages and gaps in service delivery, to step-up prevention or respond to more complex and diversifying patient needs, or to ensure more patient-centred holistic care, which in addition to clinical career opportunities may have an impact on the retention and attractiveness of the nursing profession (WHO, 2020).

Research shows that, higher nursing education improves patient safety and improved outcomes for patients and health systems (Aiken et al., 2014; Aiken et al., 2017; WHO, 2016). Advancing the roles of nurses has been identified as one of the health workforce solutions that would increase access to health for underserved and remote populations and address understaffing in primary health-care settings, thereby contributing to achieving universal health coverage (WHO, 2020). There is robust evidence that when adequately trained, advancing roles of nurses is effective in providing quality care and improving patient satisfaction (Laurant et al. 2018; Maier et al., 2017).

Purpose of this technical brief

This technical brief focuses on advancing nursing roles. It is based on a desk review of the literature (Box 1). The brief defines what is meant by advancing roles and sets out various definitions and related concepts. It provides evidence for policy-makers and other decision-makers and defines what is known about outcomes in three key areas relevant to the European Programme of Work 2020–2025: United Action for Better Health (WHO Regional Office for Europe, 2021) – health promotion, primary health care and hospital care. The brief highlights what can be done to advance nurses' roles and presents developments from selected countries of the WHO European Region.

Recognizing the critical contribution of the nursing and midwifery professions to health systems, population health and efforts to achieve the Sustainable Development Goals and universal health coverage, and in response to World Health Assembly resolution WHA 74.15, this technical brief aims to:

- support governments to make progress towards strengthening the nursing profession in their countries in line with the resolution;
- provide a description of three types of advancing nursing roles;
- present the evidence on positive health outcomes for patients, communities, nurses and health systems;
- review the evidence on implementation to advance nurses' roles; and
- provide inspiration and examples from the WHO European Region on how to develop, plan and implement policy actions to advance nurses' roles.

After reading this technical brief, policy-makers, including government chief nursing and midwifery officers (GCNMOs) and/or senior nursing and midwifery leaders, will be able to:

- identify patient outcomes that can be improved by moving towards advancing nursing roles;

- identify reasons why advancing nursing roles serve as an opportunity to improve nursing and workforce motivation and attractiveness; and
- identify several levers for implementation of policy actions to advance nurses' roles.

Box 1. Development and focus of the technical brief

The technical brief is based on a comprehensive literature search on the effects and outcomes of nurses in advanced roles and country work across the WHO European Region, as well as consultation with the members of the WHO European Government Chief Nursing Officer Hub. It includes key systematic reviews and research studies in the field of health or disease-related outcomes or access to services. Key reviews or studies on implementation are also included. The focus is on policy-relevant implementation regulation and policy-making, education and financing/ payment models.

Situation in the WHO European Region

Advancing the roles of nurses have been identified as one of the health workforce solutions that would increase access for underserved and remote populations and address understaffing in primary health-care settings. In the WHO European Region, variability exist between the countries in the availability of medical doctors and nurses. A closer look to the data shows four different groups of countries when comparing the national density of medical doctors and nurses (Fig. 1). For example, compared with the WHO European average, countries in Central Asia and South-East Europe are clustered in a low density of medical doctors and nurses, whereas countries in the South-West part of the region are clustered in a low density of nurses and high density of medical doctors. These differences may exist within the country where shortages can be more acute in rural and underserved areas or between the different levels of care, including primary health care and long-term care, where medical doctors are concentrated in the specialized care. In a context characterized by shortages of health workers, nurses have the potential to advance equitable access to care.

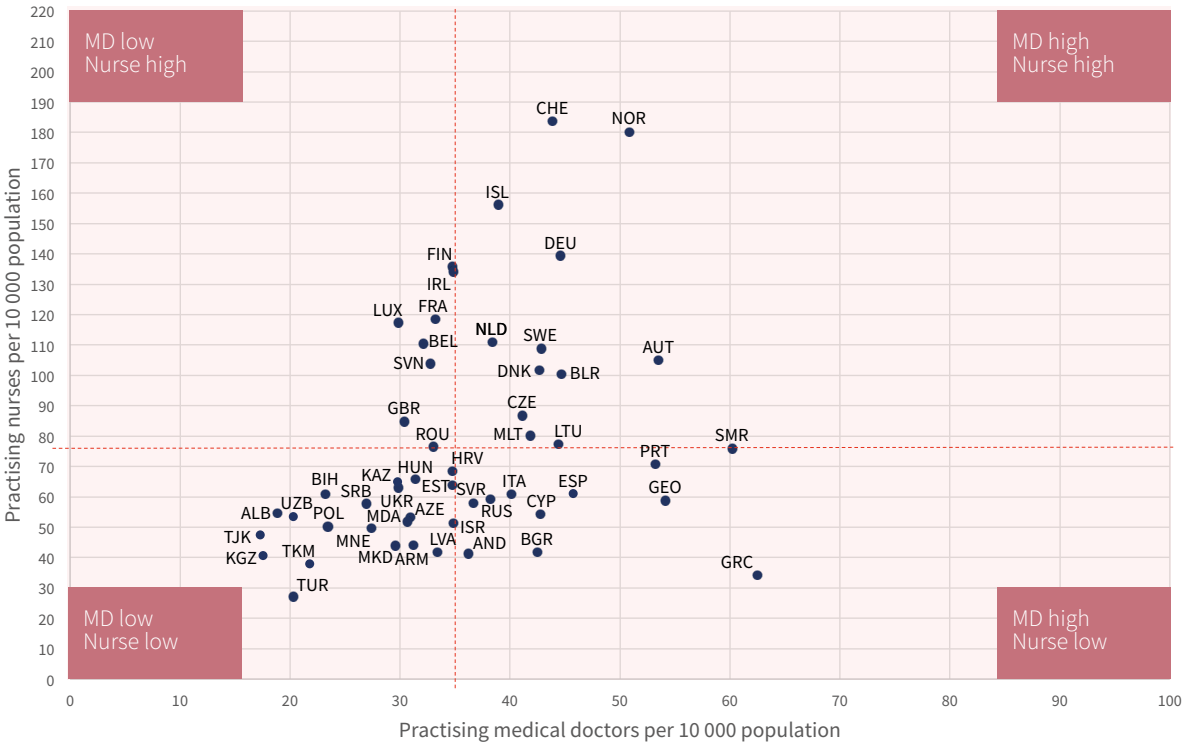
The strategies adopted by countries during COVID-19 to protect, retain and reskill health and care workers required rapid changes to policy, regulation, financing and ways of working to create an enabling environment for implementation (Ziemann et al., 2023). Countries that reported advanced nursing roles[1] in the WHO European Region also changed (Fig. 2), before the pandemic 34% of the countries in the region reported advanced nursing roles, a low percentage compared with the global average of 53%. This has changed positively, in 2021. Almost 40% of countries report advanced nursing roles.

Skill–mix and ratio of medical doctor to nurse are shown in Fig. 3. The wide variability of the ratios in the WHO European Region, for example, from one medical doctor per 0.6 nurses in Greece to one medical doctor per 4.3 nurses in Switzerland, will result in different skill-mix configuration and models of care. Principles underpinning the move towards more diverse skill–mix are:

- no single health or care professional can meet all the needs of a given patient or population and a more diverse group of professionals allows for more responsive services; and
- multidisciplinary teams involve the careful attention to shared decision making, resolving overlapping roles, clear and proactive communication and managing the processes by which a team works.

1 This indicator is measured (or supported) by the following (capability) questions: (1) Is there a commonly accepted definition of 'nurse practitioner'?; (2) Is there another commonly accepted definition of other types of nurses working in advanced roles?; (3) Are there formal requirements to become a nurse practitioner or other type of advanced practice nurse in terms of specified training, qualifications, experience, certification/registration, etc.?; and, (4) Are there ad-hoc/local methods for nurses being trained "on the job" to acquire specific skills that could lead to their employment in advanced roles? (WHO, 2017)

Fig. 1. Practising medical doctors and nurses per 10 000 population in the WHO European Region, latest year available

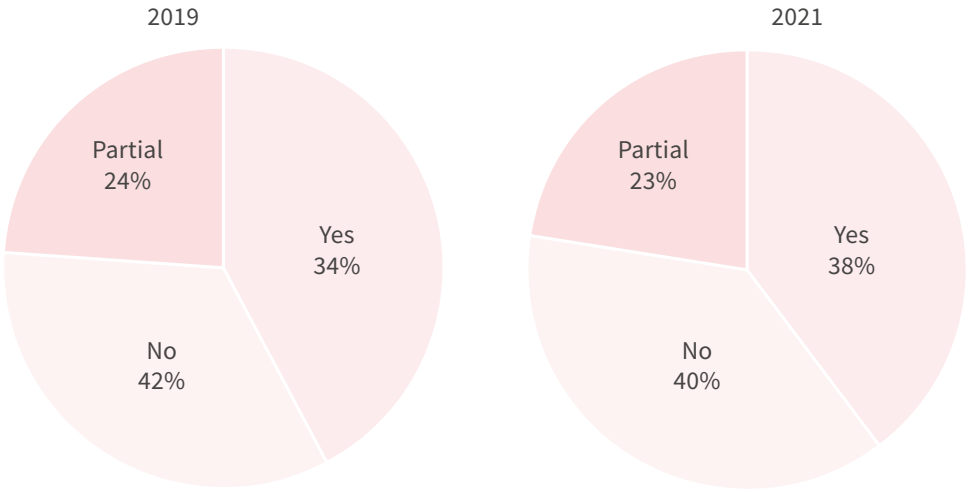


ALB: Albania; AND: Andorra; ARM: Armenia ; AUT: Austria; AZE: Azerbaijan; BLR: Belarus; BEL: Belgium; BIH: Bosnia and Herzegovina; BGR: Bulgaria; HRV: Croatia; CYP: Cyprus; CZE: Czechia; DNK: Denmark; EST: Estonia; FIN: Finland; FRA: France; GEO: Georgia; DEU: Germany; GRC: Greece; HUN: Hungary; ISL: Iceland; IRL: Ireland; ISR: Israel; ITA: Italy; KAZ: Kazakhstan; KGZ: Kyrgyzstan; LVA: Latvia; LTU: Lithuania; LUX: Luxembourg; MLT: Malta; MCO: Monaco; MNE: Montenegro; NLD: Netherlands (Kingdom of the); MKD: North Macedonia; NOR: Norway; POL: Poland; PRT: Portugal; MDA: Republic of Moldova; ROU: Romania; RUS: Russian Federation; SMR: San Marino; SRB: Serbia; SVK: Slovakia; SVN: Slovenia; ESP: Spain; SWE: Sweden; CHE: Switzerland; TJK: Tajikistan; TUR: Türkiye; TKM: Turkmenistan; UKR: Ukraine; GBR: United Kingdom; UZB: Uzbekistan.

MD: medical doctor

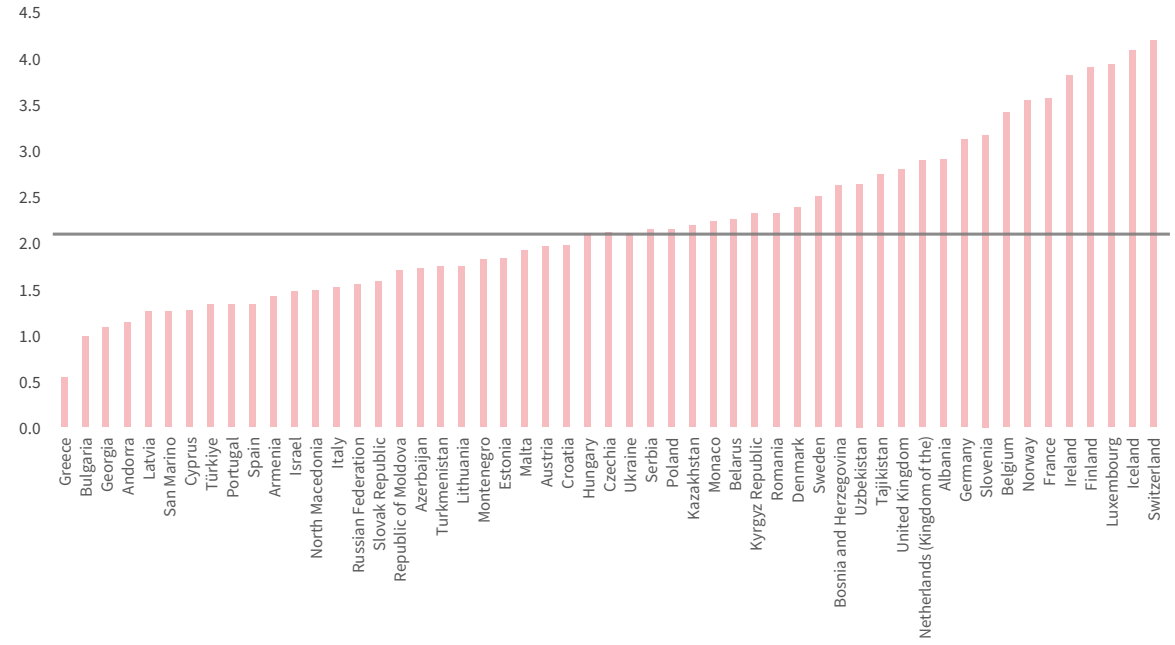
Source: *WHO National Health Workforce Accounts Data Portal supplemented with recent country submissions to the Eurostat, OECD and WHO joint data collection on non-monetary healthcare statistics. For a small number of countries where the number of practising health and care workers is not available, the number professionally active or the number licenced to practise is used. For most countries, the data are for 2019 to 2020 (WHO Regional Office for Europe, 2021).*

Fig. 2. Presence of advanced nursing roles in the WHO European Region (2019 and 2021)



Source: *WHO National Health Workforce Accounts Data Portal, state of the world's nursing specific indicator. Latest data available reported in 2019 and 2021 (WHO, 2020).*

Fig. 3. Medical doctor to nurse ratio in the WHO European Region, latest year available



Source: WHO National Health Workforce Accounts Data Portal supplemented with recent country submissions to the Eurostat, OECD and WHO joint data collection on non-monetary healthcare statistics. For a small number of countries where the number of practising health and care workers is not available, the number professionally active or the number licenced to practise is used. For most countries, the data are for 2019 to 2020 (WHO Regional Office for Europe, 2021). The black line represents the average ratio of one medical doctor per nurses.

Terms and definitions

In the European Region, the roles of nurses vary considerably by educational qualification, competencies and roles. Yet, there are definitions available internationally. Globally, the ILO 2008 International Standard Classification of Occupations (ISCO-08) defines professional nurses and associate professional nurses (ILO, 2008). These include general nurses with diploma or baccalaureate training, nurses with post baccalaureate specialisms, master's degree level for specialty or advanced practice, and doctoral degrees in nursing with either the practice-oriented Doctor of Nursing Practice, or the research-oriented Doctor of Philosophy (WHO, 2020).

Advancing nurses' roles varies considerably globally and across the WHO European Region (Maier & Aiken, 2016; International Council of Nurses, 2020; Wheeler et al., 2022). Generally advancement of nursing roles in the WHO European region can be clustered in three typologies outlined in Table 1.

Common characteristics of increasing the scope of nurses by advancing their roles include granting them the official right to being first point of contact for patients, performing (certain) tests/procedures/evaluations, referring patients and having responsibility for a caseload of patients. Less common are the permissions to diagnose, prescribe (certain) medications, and order treatment and tests (Maier, 2019; Maier & Aiken, 2016).

The combination of competencies (ie. scopes of practice), however, remain highly country- and context-specific, which is exacerbated by cross-country variations in the protection of the nursing title. The scope assigned to these roles also changes over time as countries' health systems and population needs change over time. While the education or scope of practice may not yet be at the level of advanced practice nurse (APN), in comparison to other countries, they are already more advanced.

A specialist nurse holds a current license as a generalist nurse and has successfully completed an education programme that meets the prescribed standard for specialist nursing practice. The specialist nurse is authorized to function within a defined scope of practice in a specified field of nursing (WHO Regional Office for the Eastern Mediterranean, 2020).

Some countries have a longer tradition of advancing nurses' roles significantly, resulting in high levels of advanced clinical practice. Country examples in the European Region include Finland, Kingdom of the Netherlands, Ireland and the United Kingdom (Maier & Aiken, 2016; Wheeler et al., 2022). In these countries, Nurse Practitioners (NPs), Clinical Nurse Specialists (CNS) or those in similar APN roles have the skills and competencies and the official authorization (legal and regulatory) to provide a considerably expanded scope of practice (Maier & Aiken, 2016; Maier et al., 2017) (Table 2). Other relevant skills and competencies for APN roles (beyond those of clinical care and practice) are leadership skills, advanced education skills, and advanced assessment, research or clinical scholarship and competencies (International Council of Nurses, 2020). A master's and doctoral degree confers a higher level or education, and knowledge (ie. in advanced physiology, anatomy, pharmacology, family care, etc), which is more advanced and well-rounded than knowledge obtained from working in a certain clinical practice, or a training in a specialty area. The graduate of the master's degree or higher (which includes the advanced clinical learning and hours as well) prepares nurses to practice autonomously.

Table 1. Typology of advanced nursing roles in the WHO European Region

Type of advanced role[a]	Scope of practice	Education	Regulation
Advanced practice nurse (APN)[b]	An APN (e.g. Nurse Practitioner, Clinical Nurse Specialist) has the expert knowledge, advanced clinical competencies and complex decision-making skills for advanced clinical practice, recognized by expanded scope of practice[c] at national or regional level.	Minimum Master's Degree. Distinct pre-service requirements and practical training.	Professional nursing qualifications are registered and a license to practice the advanced role issued by the relevant regulating agency is required.
Specialist nurse[d]	A specialist nurse has a wide range of skills and competencies for a specific specialization, scope of practice[c] is often expanded and recognized at a national or regional level. What is expanded, why, and by whom is highly context specific.	Postgraduate Diploma or Master's Degree in the area of specialization.	Professional nursing specialization is recognized through registration with the relevant authority.
General nurse with additional training[e]	A general nurse with additional training is authorized to perform a defined set of competencies in an area that may or may not be developed at the national or regional level and is highly context and facility specific.	Training in this role is provided by post Diploma or Bachelor of Science in Nursing.	Registration as professional nurse, sometimes additional authorization to perform a set of defined tasks by relevant authority.

[a] Incorporating research in advancing nursing roles may include: nurses participating in and applying evidence-based practice; supporting development; and/or initiating new research. In order to fulfill these competencies nurses may pursue doctoral degree in nursing, either the practice-oriented Doctor of Nursing Practice, or the research-oriented Doctor of Philosophy.

[b] Other titles include: Nurse practitioner (NP), advanced NP (United Kingdom), nurse consultant (United Kingdom), verpleegkundig [nursing] specialist (Kingdom of the Netherlands), Clinical nurse specialist (CNS).

[c] Authority to autonomously prescribe (certain) medications, authority to diagnose/perform advanced health assessments, authority to order medical tests and examinations and decide on treatments, responsibility for a caseload of patients, first point of contact, authorized to refer patients to other providers/settings.

[d] Other titles include: advanced nurse midwife, advanced nurse anaesthetist.

[e] Other titles include: family nurses, reference nurse.

Source: adapted from Adams et al. (2017), Maier et al. (2017), International Council of Nurses (2020) and WHO Regional Office for the Eastern Mediterranean (2020).

Table 2. Common characteristics in advancing roles for nursing

Education and training programmes	Scope of practice	Research	Leadership	Regulation
Access to nursing education and training programmes that equip nurses with competencies to deliver high-quality, integrated, people-centred services include: • Diploma or bachelor in nursing with competency-based training in the area of specialization • Postgraduate education: master's degree level for specialty or advanced practice • Doctor of Nursing Practice, or the research-oriented Doctor of Philosophy In some countries bridging education programmes can represent an important career development mechanism.	Functions may include: • illness prevention • health promotion • curative • rehabilitation and palliative care • management, entails • a designated role with sufficient authority in a specified field of nursing. Authority may include: • diagnosis; • prescription authority; • authority to order diagnostic testing and/or therapeutic treatments; • patient referrals to other services and/or professionals; • authority to admit and/or discharge patients to hospital and other service.	The capacity to manage or initiate research (master's or doctor of philosophy, respectively) required to develop evidence-informed actions in assuming leadership roles in academia and health care.	Leadership characteristics include: • a degree of autonomy to make discretionary decisions in accordance to the scope of practice and to act on those decisions – this is inherently linked to the authority to practice and may entail (planning, coordination, implementation and evaluation of actions) • The ability of providing professional advice and support in a context of multidisciplinary team • The contribution to knowledge transfer in the field of practice, i.e. CPD and academic courses	Regulatory mechanism that might be required are: • Official recognition of the title(s) • Legislation to confer and protect the title(s) • Certification, and re-certification • Credentialing system • Mentorship/ preceptorship Advancing the roles for nursing requires particular attention to the regulation on working hours, conditions and wages.

Source: adapted from Adams et al. (2017), Maier et al. (2017), International Council of Nurses (2020).

How have nurses roles evolved and been implemented across Europe and globally?

There are significant differences across the Region in the level and extent of implementation of advanced nursing roles, ranging from planning to introduce specialist nurses or certificates and piloting to full nationwide implementation of APN (International Council of Nurses, 2020). Most European Union (EU) countries are at an early stage in introducing APN education and some elements of expanded clinical practice, but scopes of practice vary significantly. Because most non EU countries in the WHO European Region do not yet have Bachelor education, they are usually only characterized at most by specialist nurses. Countries in which APN is evolving but are at an early stage of implementation include Austria, Belgium, Croatia, Cyprus, Czechia, Denmark, Estonia, France, Germany, Hungary, Iceland, Italy, Lithuania, Malta, Norway, Poland, Portugal, Slovenia, Spain, Sweden and Switzerland (Maier & Aiken, 2016; Maier et al., 2017; International Council of Nurses, 2020).

Advancing nurses roles involves adjustments to education, scope of practice, research, leadership, and regulation.

In all cases, advancing roles for nurses involves concentrated efforts and adjustments to educational preparation, scope of practice, research, leadership, and regulation mechanism (Table 2). The degree of autonomy and independence in working in an expanded scope of practice also varies across countries, ranging from full autonomy with no legally required oversight requirements, to expanded practice with close oversight requirements by, for example, medical doctors (Maier & Aiken, 2016; Maier et al., 2017). Some countries have notably been able to accelerate advances in the degree of autonomy by measuring outcomes (see Box 12), while, a strong tradition of nursing science and a solid foundation of professional or academic programmes that prioritize nursing assessments, line of inquiry and development of competencies have taken prominence in other countries in the evolution of nurses' roles (see Box 9).

What is known about advancing nurses roles and health outcomes?

While countries are at different stages of advancing nurses roles, the volume of research and evidence has increased considerably over the past three decades. Policy-makers and other decision-makers want to know if introducing new nursing roles is associated with better population or health outcomes and, if yes, how to implement new roles effectively in health systems and clinical practice.

Can advancing roles of nurses alleviate provider shortages and improve access for patients and communities?

Research shows that advancing nurses roles play an important role in improving access to services, particularly in rural or other underserved areas.

APNs are more likely to work in rural areas and fill service or provider gaps for disadvantaged populations.

Globally, APN nurses in several high-income countries, including Australia, Canada, New Zealand and the United States, have often been found working in rural areas or focusing on ethnic minorities or other disadvantaged population groups. They are therefore critical to improving access in

underserved regions and to underserved population groups (Maier et al., 2017). In the United States, the first country globally to introduce the APN role in the mid-1960s, APNs are more likely to work in rural than urban areas and have been shown to fill service or provider gaps for disadvantaged population groups (Maier et al., 2017; Xue et al., 2019). A study showed that between 2010 and 2016, growth rates of NPs working in rural or low-income areas were higher than among physicians (Xue et al., 2019).

APN roles are more frequently found in countries with low density of physicians or in those with a physician shortage in, for example, rural and underserved areas (WHO, 2020). This highlights the flexibility and responsiveness of the nursing workforce in relation to mitigating shortages or filling provider gaps in various country contexts. Expanding the roles and professional autonomy of nurses has been suggested as a policy response to addressing shortages of physicians (WHO, 2020).

In the European Region, examples of countries where advanced roles for nurses have been shown to improve access and be more common in rural and other disadvantaged areas or in areas with provider shortages include Finland, the Kingdom of the Netherlands and the United Kingdom (England) (Maier et al., 2017; Hooks & Walker, 2020) . In the Kingdom of the Netherlands, NPs have been working in out-of-hours care or other settings that are not very attractive to physicians and other providers (van der Biezen et al., 2016). In several other countries APNs have been first introduced in rural or disadvantaged areas with a high share of socioeconomically disadvantaged or ethnically diverse population groups (Maier et al., 2017).

How can advancing nurses roles benefit primary care?

In primary care, advanced nursing roles can benefit a wide range of health services in primary care. They often act as primary point of contact in primary care practices or other community settings (Maier et al., 2016; Maier et al., 2017).

A large number of systematic reviews of APNs show they provide effective and high-quality care with at least equal outcomes compared to physicians or teams without APNs (Newhouse et al., 2011; Kilpatrick et al., 2014; Martin-Misener et al., 2015; Swan et al., 2015; Tsiachristas et al., 2015; Maier et al., 2017). Most reviews compared disease-specific outcomes (such as diabetes-related outcome parameters, blood pressure outcomes, lipids or body mass index (BMI) status) for patients seen by specialist nurses or APNs with those seen by physicians in primary care settings (Newhouse et al., 2011; Kilpatrick et al., 2014; Swan et al., 2015) (Box 2). Patient satisfaction was improved when care was provided by nurses with advanced roles compared to physicians (Swan et al., 2015; Tsiachristas et al., 2015).

Robust research shows APNs provide effective and high-quality care with at least equal outcomes compared to physicians or teams without APNs.

An increasing number of reviews show similar results on most clinical outcomes and improved patient satisfaction (Maier et al., 2017; Martinez-Gonzalez et al., 2014; Martinez-Gonzalez et al., 2015a; Laurant et al., 2018). A Cochrane review of nurses substituting for doctors in primary care found that blood pressure outcomes were improved in patients in the nurse-led primary care group compared to those treated by physicians. The review suggested patient satisfaction and quality of life improved when care was led by nurses, but evidence on costs and resource use was insufficient (Laurant et al., 2018). An overview of reviews on skill-mix innovations for patients with chronic conditions and multimorbidity found improved clinical outcomes for patients when treated by nurses working in advanced roles (Winkelmann et al., 2022).

Several systematic reviews suggest that nurses working in advanced roles, provide effective and high-quality services in primary care generally and for patients with chronic conditions, such as diabetes, hypertension, cardiovascular diseases, asthma and chronic obstructive pulmonary disease (COPD) specifically and are comparable to physicians if adequately educated. APNs have also been shown to contribute to improved patient satisfaction, although the literature on costs and resource use is insufficient to draw conclusions.

Nurses working in advanced roles, provide high-quality services in primary care generally and for patients with chronic conditions specifically comparable to physicians if adequately educated.

How can advancing nurses roles improve outcomes for health promotion and disease prevention?

Advancing nurses' roles to include prevention and health promotion can considerably step-up preventative services for individuals and population groups (WHO, 2020). Many countries across the Region have included advanced prevention interventions as an important area of work not only for general nurses, specialist nurses and APNs. Several countries have also advanced nurses roles in scaling-up health promotion. Examples include public health nurse specialists in Ireland and the United Kingdom. In the Kingdom of the Netherlands, APNs (verpleegkundig [nursing] specialists) can focus their specialization on preventive care, whereas in Finland, nurse prescribers can take care of patients with major chronic conditions, prescribe a limited set of medications and provide a focus on secondary and tertiary prevention (Maier et al., 2017). Several countries, including Belgium, Germany, Hungary, Italy, Kazakhstan, Lithuania, Poland and Slovenia, have expanded the roles of nurses through additional training to provide lifestylecounselling, health promotion advice, screening programmes, adherence support and education to individual patients or groups (Maier et al., 2017).

Integrating prevention and health promotion within advanced nursing roles is increasing, but less evidence is available on outcomes in this area compared to evidence on acute conditions or chronic care (Laurant et al., 2018). Evidence of nurses in advanced roles performing screening provided in Box 3.

Box 2. Overview of systematic reviews of advanced roles in primary care and clinical outcomes

A review of nurses with advanced roles in primary care settings was based on seven randomized controlled trials (RCTs) and three other studies conducted in the Netherlands (Kingdom of the), United Kingdom and the United States, comprising 10 911 patients. It showed advanced nurse-provided care resulted in equal or better clinical outcomes (including for patients with diabetes, hypertension/cardiovascular disease and asthma) and improved patient satisfaction compared to physician-provided care (Swan et al., 2015).

A review of APNs based on 11 RCTs in ambulatory care found that APNs in substitution roles for physicians (the so-called alternative model) resulted in improved quality of care for most outcome measures and lower mean costs per consultation compared to physician-provided care, but evidence on costs was limited (based on only two studies). APNs in complementary roles showed improved outcomes compared to physicians, with limited evidence on costs (Martin-Misener et al., 2015).

One review of APNs based on 11 RCTs and 2147 patients in outpatient care settings differentiated between two models of care: APNs in substitution roles for physicians (the alternative model); and APNs in complementary roles to physicians (the so-called complementary model). It found that the alternative model was as good, as the complementary model in terms of the patient outcomes and some, albeit limited, evidence of reduced costs in the alternative model and similar or improved outcomes in the complementary model (Kilpatrick et al., 2014).

A review of APN roles found that patient outcomes improved when care was provided by NPs or certified nurse midwives (alone or in teams with physicians) compared to physicians alone (Newhouse et al., 2011).

Evidence shows that school nurses working on obesity prevention for children in schools resulted in significant decreases in children's body mass index.

A systematic review of (school) nurses working on healthy weight and obesity prevention for children in schools showed significant decreases in children's BMI (Schroeder et al., 2016). Interventions covered nurse-led physical activity programmes, student, staff and parent education, motivational interviewing and education on healthy diets. Lifestyle advice and counselling performed by nurses for individual patients (with risk factors or pre-existing diseases) were shown to be effective. Nurses who initiated interventions as part of their advanced roles and which targeted individual lifestyle change for weight reduction or obesity prevention were associated with improved outcomes, e.g. weight reduction in the majority of studies if nurses provided individual counselling sessions (Petit Francis et al., 2017; Sargent et al., 2012; van Dillen and Hiddink, 2014). Nurses were shown to discuss physical activity and diet more often with patients than GPs, patient satisfaction tended to be higher (van Dillen and Hiddink, 2014).

A review on assigning physician tasks to nurses on secondary prevention found that nurse-led care for patients with undifferentiated illnesses or specific chronic conditions showed no differences for 84% of the outcomes studied, however, for the remainder, nurse-led care was associated with improved prevention of the onset of further diseases for patients with diabetes, because it lowered heart diseases and cardiovascular risk factors, among others (Martinez-Gonzalez, Tandjung et al., 2015). The review covered all nurses irrespective of levels of education, yet, in most of the studies included, services were provided by APNs. Box 4 provides an example of implementation of an APN-led Community Virtual Ward for people living with COPD in Ireland.

Box 3. Nurses working in advanced roles and screening for diseases

Evidence on the outcomes of nurses working in advanced roles in the field of screening for diseases remains limited. One review analysed their effectiveness performing endoscopy to detect colorectal cancer (Joseph et al., 2015) and one focused on screening for skin cancer (Loescher et al., 2011).

Overall, nurse-led endoscopy performed by nurses was comparable with physicians in terms of quality and safety. The nurses detected polyps at similar rates to endoscopists, yet nurses detected significantly higher adenomas than physicians. There were no complications in both provider groups, and patient satisfaction was higher in the nurse-led group (Joseph et al., 2015).

In relation to performing skin cancer screening, advanced nurses showed high sensitivity for identifying malignant lesions. While advanced nurses' confidence in performing skin assessments varied and barriers were reported, improved training was associated with improvements in skills. This suggests that the level and length of training play a critical role in supporting nurses to perform advanced roles (Loescher et al., 2011).

How can advancing nurses roles improve care in hospital settings?

Many countries across the European Region have introduced advanced roles in hospital settings, often into roles that require highly specialized expertise. In some countries, including Austria, Germany and Switzerland, these roles were first introduced in highly specialized hospitals rather than in primary care (Maier & Aiken, 2016; Maier et al., 2017). Box 5 provides an example of APN development at the hospital level in Switzerland.

Box 4. Implementation of APN-led community virtual ward for people living with COPD in Ireland

By Antoinette Dohert, Kelly Mofflin, Karen Greene, and Rachel Kenna

The development of APNs in Ireland has been supported by the Department of Health (DoH) Ireland 2019 A Policy on the Development of Graduate to Advanced Nurse and Midwife Practitioners to provide full episodes of care, i.e. from an initial advanced assessment of the individuals health status and needs, through to discharging the individual or referring on to the most appropriate follow up service. Equally, nurse prescribing, is one key element of the APN role that facilitates the delivery of a full episode of care.

The Department of Health in 'The testing and results of an integrated nurse-led community virtual ward proof-of-concept' (Office of the Chief Nurse, 2021) demonstrated that delivering care in a Community Virtual Ward (CVW) benefits patients in areas such as chronic disease management and older persons care and supports a shift in care from the acute hospital to the community. CVWs are a nurse-led approach that supports integration of care facilitating a seamless transition across acute and community enabled by a clear governance structure to ensure patient safety is central.

The use of a CVW for chronic conditions such as COPD have been shown in this case to have had benefits for the health system - Hospital avoidance was reported as achieved in 100% of the eighteen (18) identified exacerbations in patients admitted to the CVW. The average cost per patient was reported to have reduced from average €19,384.00 to €3,376.44. Additionally, patients benefited from remaining at home while receiving quality care, delivered by the same clinician who was able to support the individual to understand and manage their own condition are also important.

From a policy perspective, critical supports for the development of APNs have been: governance; clinical supervision; knowledge of other healthcare professionals on the role of an APP; supports for the APN to develop the role; the benefit of developing more than one APN role in areas so that APNs can support each other (peer support).

Box 5. Development of APNs at the hospital level in Switzerland

By Sabine Valenta, Franziska Zúñiga, Manuela Eicher and Sabina De Geest

In Switzerland, APNs have become an established part of health care delivery in a variety of Swiss settings over the past two decades. The main driver for APN development has been educational/ curricular development, combined with innovations in clinical practice (e.g., innovative integrated care models, nurse-led clinics), APN research, workforce challenges (e.g., lack of primary care physicians) and APN-related legal and policy regulations (De Geest S et al. 2008). In 2000, through the Institute of Nursing Science's (INS) Master of Science in Nursing program, the University of Basel became the first Swiss university to offer APN education. The INS curriculum became a pacemaker for further APN programs (e.g., at the University of Lausanne 2006, and at the Bern, St. Gallen, Zurich and Lugano Universities of Applied Sciences). APN programs focused initially on educating CNSs, but curricula on NP education has also gained traction, for instance at the University of Lausanne, which became the trailblazer, of developing the NP curriculum that reflects the highest international standards (Schwendimann R et al., 2019; Schober M, 2016).

Clinical career paths for APN roles have traditionally been established primarily in hospital settings. While a 2022 survey of Swiss Master of Science in Nursing graduates indicated that more than 60% of Swiss APNs work as CNSs in inpatient hospital settings (e.g., general medical-surgical units, critical care units, and specialty units such as pediatrics, oncology, etc.), it also indicated that 8% are practicing in long-term care facilities and 6% in home health care (Schweizer et al., 2022). Driven by shortages of primary care physicians and the development of innovative care models for primary care, NPs have also successfully entered general practice settings. To summarize, APN development resulted from an interplay of diverse forces, of which the educational driver was the most prominent. Although most APNs work as CNSs in hospital settings, about 14% work in long-term care and home care settings (Schweizer et al., 2022). And while NPs' roles are gaining traction, their development is limited by legislative gaps, particularly regarding reimbursement and permissible activities.

More nurses in advanced roles in hospital wards have shown to lower burnout among nursing staff and improved job satisfaction and retention.

Advancing roles of nurses in hospitals and other acute care settings have been shown to be associated with reduced length of stay and costs of care for hospitalized patients (Newhouse et al., 2011). A study by Aiken et al. (2021) found that havingmore advanced roles in hospitals (measured per 100 bed ratio, three and more APNs versus fewer than one) reduced hospital readmissions and average length of stay and improved mortality. Patients and nurses perceived improvements in the quality of care and patient safety. Adding advanced nursing roles to hospital wards also lowered burnout among other nursing staff and improved job satisfaction and retention (Aiken et al., 2021). Some examples include burn specialists, advanced nurse midwife, advanced nurse anaesthetist, critical care nurse specialist, or mental health nurse specialist.

What are the necessary levers for advancing nurses roles?

Advancing nurses roles has been identified as a workforce innovation (Maier et al., 2017; Christensen et al., 2000; Maier et al., 2022). Implementation is highly complex with no single lever being more important than the other (see Box 6). The process has been lengthy and controversial in virtually all countries. Nevertheless, several factors are critical to effective policy processes and reforms. They include a clear vision for role developments, educational reforms, regulation and policy, and financing reforms to support implementation of new roles in routine care (Box 7). Evaluation of implementation of the role is also essential to sustaining the intervention.

Clear vision and direction based on patient needs

Advancing nursing roles initially tended to evolve in regions and settings that had physician or other provider shortages or in settings with high unmet patient or population needs. This pattern is found in many countries and regions (de Geest et al., 2008; Maier et al., 2017). Identifying how nursing roles should be equipped to best meet patient needs, fill unmet needs and alleviate provider shortages is therefore one of the first steps to advancing roles and their scopes of practice are truly needs-based.

Nursing roles are evolving ad hoc in some regions, with limited formalization or regulation. Many barriers to nurses working in advanced roles were reported in the early stages (de Geest et al., 2008; Maier et al., 2017). While the initial phases of implementation are often ad hoc, there comes a point when policy-makers, GCNMOs, nurse leaders, practitioners and key decision-makers need to decide if roles should remain confined to certain regions and remain ad hoc or if advanced nursing roles should (further) develop to become more formalized and implemented across the country.

Several principles are taken into account in this process. They include having a vision and mandate on role development embedded in the larger health workforce policy, with ministers of health and GCNMOs (or other key nursing leaders in a country's context) taking the leadership role and steering the policy process, in close cooperation with nurse stakeholders, researchers, health workforce planners, professional associations, relevant ministries (such as education and finance) and other stakeholders.

Ensuring new nursing roles are equipped with the skills and competencies to meet the specific needs of patients and population groups is an important element of the role-development process. Education provision is highly diverse across communities, settings and regions. In addition, the

Box 6. Improving access to care for population living in rural and underserved areas in Finland

By Johanna Heikkila

Finland has introduced three kinds of APNs: nurse prescribers, CNS and NPs. Nurse prescribers manage and refer acute infection patients and initiate antibiotics, as needed. These nurse prescribers can also renew physicians' prescriptions and counsel patients on a healthy lifestyle. In addition, they can initiate contraceptives. NPs work in both PHC and specialized care hospitals and provide and manage their own patients. CNS positions are created mainly in specialized care hospitals.

Since 2002, the Ministry of Social Affairs and Health of Finland has recognized these APN roles in its national strategies, state grants, and legislation. This configuration started in 2002 with the 'National Project for Securing the Future of Health Care' that aimed to secure access to care and the supply of staff, as well as to reform certain operational models.

In the implementation of APN roles, strengthening skills has been a high priority for the Finnish Parliament. In 2010, the Parliament adopted an amendment allowing nurses to prescribe (Act 433/2010), and the Government stipulated the details of the postgraduate education (Decree 1089/2010). A national list of medicines (Decree 1088/2010) regulated by the Ministry of Social Affairs and Health and the National Supervisory Authority for Welfare and Health grants nurses, public health nurses, and midwives the limited right to prescribe after completing a master's degree on the condition of securing approval by the physician-in-charge of the organization. Since 2019, the list of conditions and medications has increased, and the costs of education are covered by the state.

Master's level education for these roles was introduced as a enabler of these APN roles. First there was the nurse prescribing program, consisting of 45 ECTS credits and by 2006, the first NP education program was launched in the Universities of Applied Sciences (UAS), for a total of 90 ECTS. In 2020, the core competencies for the UAS NP degree programs were deemed effective. Today several universities also offer a CNS master's programme (120 ECTS credits).

Currently, there are 684 nurse prescribers, approximately 100 CNS and possibly 300-400 NP out of 72 000 registered nurses in Finland.

In 2016, the Finnish Nurses Association published a report describing the status of Advanced Practice Nursing (APN) in Finland with a vision for future and covering separately the roles of NP and CNS. In 2021, a APN expert group was established to monitor and evaluate available APN roles as well as to clarify how to regulate ad protect NP and CNS roles and the titles. (APN expert working group of the Finnish Nurses Association, 2020).

Finland has benefited from (1) a shared understanding by the Ministry of Health, health services, educational institutions, and nurses' association on the different APN roles; (2) clearly differentiated competency profiles of each APN role to support the quality and focus of education; and (3) consensus in regards to professional titles and/or licensing that also facilitates workforce planning and analysis.

Box 7. Vision of, and mandate for, advancing nursing roles

APN role development requires:

1. a clear vision of, and mandate for, APN role development and (possibly) reforms, with leadership from chief nursing officers (or other nurse leaders) working with ministries of health, national nursing associations, stakeholders and APN champions;
2. APN roles to develop in response to population needs, allowing for regional and local flexibility if needed;
3. APN developments to be part of integrated skill-mix and health workforce strategies;
4. availability of evidence to support the policy-making process; and
5. early involvement of, and communi-cation with, all relevant stakeholders, with flexibility and readiness to address stakeholder concerns but also preparedness to adopt a mediating role to overcome stakeholder blockages.

needs of rural and underserved regions and (vulnerable) patient and population groups who tend to underuse services or require complex care need to be taken into account in any discussions on role developments and consequent integration in practice. Policies should take a proactive role in supporting role development while allowing for regional and local flexibility.

Fit for purpose education

One of the important initial drivers for new nursing role development has been nursing education reforms, be it improving diploma, bachelor or master's-level programmes (de Geest et al., 2008; Maier et al., 2017; Maier et al., 2022). Several countries have started the process of introducing a range of education strategies to equip nurses with additional skills, expertise and knowledge but also preceptorship to secure improved competencies. Professional organizations or academic institutions generally specify mentorshipas required for qualifying to take the certification exam, or obtain a license (Maier et al., 2017; Maier et al., 2022). In all cases, introducing new nursing roles based on education and training and thenintegrating them in practice is also influenced by, for example, health-care policies and financing, the nature of specific organizations and the composition of teams (Maier et al., 2017; Maier et al., 2022). If regulation and focus on the clinical benefits of the new level of education are not considered, barriers inevitably emerge including title protection and credentialing to implement the role (Wheeler et al., 2022).

While master's level is the minimum education standard for APN practice in most countries worldwide (see Table 1) and is internationally recognized for advanced practice (International Council of Nurses, 2020), a few countries also accept bachelor's-level education, either singly or co-existing with master's-level APN programmes (Maier & Aiken, 2016; Maier et al., 2017). While this may offer an interim solution as part of a transitioning process, establishing APN programmes at master's level can benefit countries looking to promote full autonomy and independence (International Council of Nurses, 2020).

Most countries with established NP or similar APN roles (such as Australia, Canada, Finland, Ireland, Netherlands (Kingdom of the), New Zealand, the United States and the United Kingdom) have established minimum regulation or some form of harmonization of APN master's programmes in relation to, for example, minimum European Credit Transfer and Accumulation System credits, lengths of programmes and/or clinical hours (Maier & Aiken, 2016; Maier et al., 2017).

Countries that have implemented prescribing of medicines for APNs or other groups of nurses usually regulate the role and set minimum education standards (Box 8), although these vary considerably across countries (Maier, 2019). Curricula also include a wide range of additional elements, such as collaborative skills, leadership, management and nursing research (International Council of Nurses, 2020).

Other advanced roles, while not qualified by master's education, have been pursued with additional facility based or institution-based learning that has a clear focus of what it would like to achieve.

Understanding of how education and practice impact on each other and how they are linked to quality of care and access to services is still needed. More evidence on linking education and other policies is also required to ensure a sufficient number of advanced nursing roles are introduced, trained and introduced to practice.

Multidisciplinary team-based work environments

Advanced nursing roles have been shown to play an important role in the coordination and integration of care, often for patients with chronic conditions (Maier et al., 2017; Winkelmann et al., 2022). Most advanced nursing roles, including APNs in many countries work as part of multidisciplinary teams; their roles, skills, responsibilities and scopes of practice therefore should be considered as part of integrated skill-mix and workforce developments (Maier et al., 2022).

Box 8. Improving access to medicines via nurse prescribing in Poland

By Dorota Kilanska, Anna Kliś and Aneta Trzcińska

In 2011, the department of Nursing and Midwifery of the Ministry of Health of Poland under the request of the Polish government put a proposal for consideration with the aim of increasing availability to medical prescribing for patients.

In 2016, Article 15a of Act on the Professions of Nurse and Midwife enabled the Minister of Health to exercise new powers to the professions. One such measure taken in 2016 was to grant nurses the ability to prescribe. The Act allows specialist nurses, who have completed a 2 year specialized post graduate diploma training course to prescribe 274 medications without the supervision of a physician. under a list of conditions (Kilańska, 2022). Nurses can prescribe if they have completed a specialized course in prescribing medicines and writing prescriptions in addition to having: a diploma certifying graduation from master-level studies in nursing or midwifery (for prescribing medicines independently); and a diploma certifying graduation from first-cycle studies in nursing or midwifery (for prescribing as a follow-up on the physician's instructions);

The range of drugs which nurses can issue or renew excludes contraceptives, food products for nutritional purposes, and all psychotropic substances as defined by in the Ministry of Health. Medical devices can only be renewed and not initiated.

Linking programmes with interprofessional education and training is an important element of supporting cooperation with other health professionals. Interprofessional skills and competencies are critical for the competent functioning of multiprofessional teams that focus on meeting the needs of the increasing number of patients with chronic conditions, highly complex care needs and multiple needs.

Evidence base evaluation and monitoring

Policy-makers and key decision-makers need data and sufficient evidence on advanced nursing roles to steer discussions and the policy process. Finland and the Kingdom of the Netherlands provide country examples in which evidence generated on APNs was used in discussions and informed policy decisions (Maier et al., 2017).

Involving relevant stakeholders early in the process is critical, but many countries have found that discussions and processes sometimes stall due to the self-interests of specific stakeholder groups (often professional associations). Finding a way to steer the process in an effective way is an important strategy for moving forward. It involves a strong leadership role that includes sufficient flexibility and readiness to address relevant stakeholder concerns, but also preparedness to adopt a mediating role to overcome stakeholder blockages when needed. The use of evidence and research has proven helpful in this process, underlying the need to have good-quality evidence on the effectiveness of APN roles and lessons learnt from implementation (Maier et al., 2017).

Building career progression opportunities

Many countries that are in the early phase of advancing nursing roles have started to focus on establishing the education system and developing education programmes. Streamlining education from professional to academic bachelor's to master's and potentially to doctorate level based on skills and competencies that respond to population needs, and then integrating these with clinical roles and practice, in a way that links with labour-market needs and analysis are increasingly in place to ensure that nursing can become a more attractive profession and nursing career developments in clinical care are supported (Box 9).

Box 9. Improving career progression frameworks for Nurses in Scotland, United Kingdom

By Gordon Hill and Tomas Maclear

In Scotland, a career framework for nursing was developed in which the core knowledge, skills and behaviours were developed in an integrated, strategic way. Nursing practice in Scotland has advanced organically over time with nurses working at many different levels of practice, including at the APN level. APN roles in Scotland include one of either two categories: Advanced NP or CNS. Some APNs work at a higher 'Consultant Practitioner'.

A career framework was developed to recognize and differentiate the different levels of practice in nursing. The framework covers four pillars: clinical practice, facilitating learning, leadership and evidence, and research and development (NES 2021). A "Transforming Roles" programme for APN was introduced by the Scottish Government, driven by its Chief Nursing Officer (CNO), committing to ensuring the nursing workforce pushes the boundaries of traditional professional roles (Scottish Government 2017, 2021a, 2021b), in line with international developments. The core stakeholders included Government representation, NHS management and clinicians, academics and clinicians from various healthcare areas. The programme provided strategic oversight, direction and governance and set out the required education and practice for post-registration nurses (Scottish Government, 2017), and the phase two paper (Scottish Government 2021a) included five types of APNs: neonatal, paediatric and adult acute care, community & primary care, and mental health. The implementation of the programme is ongoing: Three regional Advanced Practice Academies have been established to operationalise the TR policies across Scotland to further regulate the educational preparation of these practitioners. This includes a national portfolio approach to "evidence of competence" in addition to standardized educational programmes, job descriptions, employer clinical governance, clinical and professional supervision, Continued Professional Development (CPD), and national (NHS) workforce reporting of APN and level of practice (Scottish Government 2017, 2021a, 2021b). Overall, the programme has been positively received across stakeholders, as it has set out a strategic, coherent framework for advanced practitioners to grow and develop in their roles.

Regulation and legislation: enabling role development and implementation

A survey covering all EU countries plus Australia, Canada, New Zealand and the United States found multiple barriers to the policy process and implementation of advanced roles, most of which related to the role of regulation and financing (Maier & Aiken, 2016; Maier et al., 2017). A global survey of 26 countries reported policy barriers in areas such as scope of practice, title protection and regulation (Wheeler et al., 2022).

Many countries with established advanced nursing roles have them regulated with legislation, which means that titles are protected, some form of credentialing is in place and scopes of practice are regulated by law.

A key policy question is whether advanced roles should be regulated by law and, if yes, how and to what level of detail (see Box 10)?

Many countries with established and advanced nursing roles (such as Australia, Canada, Netherlands (Kingdom of the), New Zealand and the United States) have regulated nurses and advanced nursing roles – specifically APNs and specialist nurses - with legislation, which means that titles are protected,some form of credentialing is in place and scopes of practice are regulated by law (Maier et al., 2017).

Regulating advanced nursing roles through law has several implications. Changing laws can be a lengthy and controversial process, but once implemented, laws offer improved role clarity and common understanding about scopes of practice. Restrictive scope-of-practice laws have been reported as significant barriers to nurse role expansions, sometimes resulting in unsanctioned practices (on, for instance, nurse prescribing) (Maier et al., 2017). In countries where scopes of practice traditionally

Box 10. What is regulation?

Regulation refers to laws or bylaws defining and thereby restricting access to a specific professional role (such as the titles of NP, APN and nurse) and specific clinical roles and tasks these groups officially are allowed to perform (scopes of practice), among other elements (Maier, 2015; Maier et al., 2017). Regulation is required due to the highly specialized nature of the work of certain health professions (such as nurses and physicians), and to ensure patient safety and protect the public.

Regulatory systems differ across Europe, with some being independent of government (self-regulatory bodies, for example) and others being a key function of ministries of health. Elements of regulation with relevance to APN roles include not only the regulation of titles or scopes of practice, but also licencing or credentialing procedures (to ensure minimum training, skills and competencies levels), mandatory registration/annotation (in a registry, for instance) and handling of malpractice.

The level of detail of scopes of practice defined in legislation is critical. Some countries provide great detail for each individual task in legislation, others define larger sets of tasks or clinical roles via laws, and a third group defines in law that a regulator (regulatory body) or self-governing body (such as a nurse association) has a certain degree of freedom to define the scope of practice of APNs. These regulatory policy options have different advantages and disadvantages: while the first and second groups of countries have the advantage of having (very detailed) definitions of tasks in law, these have been shown to be very slow to change and often present a major barrier to nurse role development, particularly in the first group of countries. The third group of countries has transferred the authority to arms-length bodies or other parties to identify scopes of practice.

Countries with devolved governance mechanisms usually have subnational regulation in place for APNs' scopes of practice, with efforts often focusing on minimum-level regulation across regions or states to ensure minimum consistency in roles and clinical practice (Maier et al., 2017).

Alternatives to legislated regulation also exist. Some countries have used nonregulatory (legally non-binding) governance tools, often transferring responsibility to employers or individuals. Examples include employer-based protocols, collaborative arrangements (between APNs and employers), collaborative agreements between providers (such as APNs and physicians), and clinical guidelines (Maier, 2015).

Box 11. The role of regulation

Regulation aims to:

- identify policies and regulations impacting on APN practices and review if and how they pose barriers to APN practice;
- remove regulatory barriers by initiating legal changes and other policy instruments to laws or other policies identified as posing barriers to the advancement of nursing roles to ensure scopes of practice are up to date with actual APN competencies and skills; and
- ensure collaboration with practitioners, policy-makers, lawyers and stakeholders to ensure policy and regulatory barriers and policy options are identified and policies to ensure APNs can practise to their full potential are implemented.

are set in laws, legislation change is required to expand the roles of nurses, particularly in relation to clinical competencies and establishing clarity between nurses and the medical profession (Maier et al., 2017). While the decision not to regulate APN roles may offer greater flexibility in role developments, evidence suggests it can often result in lack of clarity on roles, titles (with multiple titles co-existing) and scopes of practice, which can lead to confusion over what APNs are officially allowed to do in practice (Maier, 2015; Maier et al., 2017). Regulation also aims to protect the public and patients, ensure minimum standards and quality of care, and minimize potential harm (Box 11).

Regulating titles and scopes of practice through legislation or self-regulatory mechanisms has several potential benefits over non-regulation. For countries in the process of advancing nursing roles, however, restrictive legislation has often posed the main barrier to role implementation. Such legislation needs to be changed to allow nurses to advance their practice. Addressing and updating laws is therefore critical to ensuring advanced nursing roles can be fully implemented and APNs can work to the full extent of their skills and competencies.

Minimum harmonization of titles and scopes of practice is important in countries with devolved governance structures in which regulation is often set at subnational level, particularly if there is a high level of intraregional mobility among APNs or advance nursing roles. Official scopes of practice at subnational levels should therefore be aligned with the skills and competencies of these nurses at national level in decentralized contexts.

Updating scope-of-practice laws so they are in line with APNs' level of practice can bring benefits over nonregulation, as it helps to protect and define roles and practice levels and ensures a minimum level of harmonization of titles and advanced practice.

Research on the importance of scopes of practice for implementation of APN roles and access to services is limited. Changes to scope-of-practice laws for APNs in the Kingdom of the Netherlands (Box 12) resulted in increased uptake of advanced roles and tasks, but it took some time for health-care

Box 12. The case of using time-limited legislation to leverage the introduction of APNs in the Kingdom of the Netherlands

By Inge Rinzema and Lisette Regelink

While the first NP programme only began with the introduction of Master's level of nursing education in 1997, the role was only officially introduced in 2009 in the Kingdom of the Netherlands.

In order to authorize an expanded scope-of-practice for this profession (as well as for Physician Assistants), the Kingdom of the Netherlands introduced a time-limited law in 2011, which granted NPs the official right to work in expanded roles for an initially defined time period of 5 years. In turn this was linked to a nationwide evaluation. This time-limited law with a so-called experimental clause officially authorized to work in expanded practice in routine care.

NPs were granted the right to officially work in advanced roles and perform 12 advanced procedures (e.g. prescribing medications, some surgical operations, endoscopies, catheterization, punctions, defibrillation), which were previously restricted to the medical profession. After five years and a nationwide evaluation, conducted in 2013 and 2014 (De Bruijn et al., 2015), it was concluded that NPs were effectively working in these advanced roles and the law was changed into an indefinite law with only minor modifications. On 1 September 2018, the statutory independent practice authority of the NP became definitive by law; a milestone for the professional group.

The nationwide evaluation revealed that by mid 2013 the independent authority of the NP had not yet been implemented anywhere in the Kingdom of the Netherlands. The most frequently cited reason for this was reluctance of physicians or medical boards (De Bruijn et al., 2015). However, by 2015, 83% of the NPs indicated that the independent authority had been recognized, and only 7% of the NPs indicated that this was not necessary (De Bruijn et al., 2015).

Financing

In the Kingdom of the Netherlands, the only way to pursue NP training, is often being employed in the area of expertise they will be working in. This means they already have to have an employer. The MANP program is subsidized for in total 30 000 euros per year from the Ministry of Education, Culture and Science; 22 000 euros are intended for compensation of the wage costs of the nurse specialist in training, the remaining 8 000 euros as compensation for the invested hours of the supervisor. On average, for employers the wage costs of a NP in training in The Kingdom of the Netherlands are about 60 000 euro gross.

Coverage annual fees

The total costs of a NP in training in the Kingdom of the Netherlands cover all of the fees of the program (tuition fees, books etc.), but not all living costs. Nevertheless, employers are very willing to educate NPs, as they provide both additional staff and improve the quality of care.

Accessibility Master's program

There are nine universities of Applied Sciences in the Kingdom of the Netherlands who provide the MANP course, together they offer 510 positions on a yearly basis. However, each course has a waiting list of about 25 students each year. These 510 positions are determined by the ministry of OCW and are related to the total amount of subsidy available.

Box 13. Enabling financing and payment policies to advance nursing roles

Steps to help determine the role of financing and payment policies in different country contexts are to:

- review whether payment policies and financing mechanisms pose potential barriers to advancing nursing practice;
- identify the right level of payment and reimbursement for advanced nursing roles to ensure they can practise to their full potential, offer services for all patients in need and receive adequate payment that matches their skills and competencies to ensure nursing remains an attractive career option; and
- ensure sufficient funding to kick-start new role implementation for countries early in the process, including financial incentives to implement new roles and strategies for sustainable implementation in routine care.

organizations to adapt to the change (Kroezen et al., 2013; Kroezen et al., 2014).

In the United States, where scope of practice is regulated at state level, research found that states granting NPs the ability to practise at more advanced levels were associated with increases in the number of NPs, increased service provision by NPs and expanded use of services, primarily among rural and vulnerable populations (Xue et al., 2019). Identifying and removing regulatory barriers to scopes of practice may therefore contribute to the uptake of APN roles and improve provision of, and access to, services.

Payment and financing mechanisms for implementation

Payment mechanisms can play an important role in the implementation of advanced roles. While regulation and other related policies determine the level of advanced practice of nurses, payment and financing mechanisms largely determine if nurses can get paid or reimbursed for their advanced roles, their relative payment levels and in which settings or areas nurses will work with these advanced roles.

Research from the United States has shown that nurses with advanced roles were more likely to work with low-income patients or in rural areas when reimbursement was high (at the same level as physicians) and higher than for other patient groups or geographic areas (Barnes et al., 2017; Xue et al., 2019). Despite this, the impact of payment policies,salaries and reimbursement levels on services (in countries with social health insurance) has received limited attention in research and policy. More research is required to identify the extent to which payment and reimbursement schemes influence the implementation of advanced nursing roles and service provision among nurses, particularly for vulnerable patient groups and in rural and underserved geographic regions.

Several steps that can help to determine the role of financing and payment policies in different country contexts can be identified (Box 13). Reviewing whether payment and financing policies pose barriers to role uptake in practice is the first step, followed by an assessment of the right level of payment (in countries with tax-based payment and/or where advanced roles are employed by practices) and/or reimbursement levels for advanced nursing roles per individual service/patient/individual (in fee-for-service/capitated models) vis-à-vis population groups and patients, individual services and payment levels comparedwith general nurses and physicians. Payment levels, alongside other factors such as work environment, career opportunities and work–life balance, also determine whether nursing is regarded as an attractive profession (WHO, 2020).

Identifying funding sources to initiate the process has proven important for countries in the early stages of implementing advanced roles in Estonia, Latvia and Lithuania. For instance, governments have supported new roles for nurses working in primary care with financial incentives, which has accelerated the enrolment of nurses into master's programmes (Box 14). Financial incentives and disincentives were used to accelerate the uptake of family nurses who work in advanced roles (but not at APN level, as defined internationally), resulting in over 99% of practices employing family nurses (Box 14).

Box 14. Financial incentives and uptake of expanded nursing roles in the Baltics

By Aurelija Blaževičienė, Gerli Liivet, Kersti Viitkar and Jūratė Macijauskienė

Introducing new roles for nurses is at an early stage in the Baltic countries. In Estonia, Master's education for nurses has been in place since 2018, similar developments exist in Latvia and Lithuania. The countries have advanced nursing roles in different ways (see Table 1), including community / primary healthcare nurses (e.g. 6-month postgraduate education in Lithuania or specialty training at healthcare colleges for primary healthcare nurses in Estonia). In Estonia, a specialty training existed between 2006 and 2018; however, it has not been mandatory to work as a family nurse in practice. Discussions are ongoing if all family nurses should possess additional competencies (e.g. specialty) or a master's degree (APN).

There are interesting lessons to be shared from the introduction of financial instruments in Estonia and the integration of family nurses in primary care. In Estonia, both financial incentives and disincentives were introduced from the government to stimulate the employment of family nurses in primary care practices.Introduced first in 2009 in form of a financial disincentive, it required family physicians to employ at least one family nurse in their practice, if not, the capitation-based payment for the practice was cut by 20%. As a result, the employment of family nurses in general practices increased considerably, reaching over 99%. In 2013, an additional financial incentive was introduced in form of a bonus for family doctors employing a second family nurse. Over the last 5 years, there has been an increasing trend in the uptake of family nurses. One example is the growing number of health centres that have evolved in Estonia in which multiprofessional teams work. Early evidence suggests that an increasing number of Health Centres want to hire a third family nurse. In addition, for some time now, health centers have had the opportunity to hire a mental health specialist nurse for their team. Employing more family nurses in primary care practices and centres has contributed to expanding independent practice hours and access to primary care, as well as improving collaboration within practices.

Ensuring sufficient funding to kick-start advanced nursing role implementation for countries early in the process can support the uptake of these new roles in routine care. Examples have shown that including financial incentives to implement new nursing roles can help in the process, but there is limited research to date in this area. Countries need to consider payment and financing strategies for sustainable implementation in routine care that go beyond short-term investments and financing arrangements.

Payment or salary levels are also critical for the nursing profession. Many countries are facing a nursing workforce shortage, driven by low payment levels, limited career options, unfavourable work environments and low nurse staffing levels. Improving payment levels (in countries with low payment for nurses, including APNs) and expanding career opportunities by offering payment and reimbursement for advanced roles commensurate with job positions can improve the image of nursing as an attractive profession to potential recruits and help alleviate the nursing shortage.

Way forward

Nurses represent the largest part of the health workforce. Nursing has a long and documented history of working in managing scarce resources, managing population health campaigns, securing community health and introducing changes in service delivery design to ensure timely, safe, and effective care for patients. In the WHO European Region, the last thirty years have witnessed particular growth in nurses practising in advanced roles. In several countries, implementation of APN roles with Master's level education was facilitated by legal changes expanding nurses' scopes of practice to include diagnosis, treatment and prescribing medicines, e.g. for long-term conditions and in acute illness. In some countries these roles have developed into APN roles with practitioners undertaking master's programmes, while in others advances have involved introducing specializations and specialist training at the bachelor or post diploma level.

All efforts to advance nurses' roles whether to the level of an APN or specialist nurse level have aimed to improve patient outcomes through the development of nurses' competencies in patient care, clinical leadership, research, and education.

All represent important innovations for the health system and represent effective responses to service pressures and workforce shortages, benefit patients and communities while also supporting career growth. This ultimately serves to motivate existing nurses to remain in the profession, and attract others to join.

This technical brief provides a picture of what is happening in the WHO European Region and can inspire countries to adapt and tailor their models of service delivery in ways that promote improved patient centred care.

As Member States embark on this form of innovation to further improve their health system response to population health needs, several key strategic steps are necessary. These include:

- maintaining focus of workforce role developments on patient and community wellbeing;
- prioritize quality improvement mechanisms and accreditation of education in a way that embraces the need to continuously adjust nursing education in line with evolving patient and community health needs;
- prioritize competency based curricula and strengthen the availability of nursing science;
- recruit and maintain nurses as faculty and researchers;
- establish and develop clear career structures, pathways and mentorship opportunities for nurses, with a focus on ensuring equal access and opportunities for women and men;
- engage a range of patients, civil society representatives and health stakeholders, including nurses, from the moment new nursing roles are planned through to implementation;
- monitor the implementation of roles over time vis a vis structural, process and outcome indicators; and
- identify factors that facilitate or hinder the ability for nurses to work effectively in advanced roles – these may include dynamics that perpetuate hierarchy among the workforce, lack of quality education and continuing professional development, lack of clear role definition, unequal access to information and planning activities, or limited access to financial and human resources.

As documented in the first ever State of the World's Nursing Report, it is beneficial to establish and strengthen a government chief nurse with the clear mandate to support the shaping of health policy priorities and oversee the capacity of nurses and midwives to support their achievement with the ultimate aim to improve population health, quality of care and access to health services.

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