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Nurses in Advanced Roles: A Description and Evaluation of Experiences in 12 Developed Countries

Marie-Laure Delamaire,

Gaétan Lafortune

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NURSES IN ADVANCED ROLES: A DESCRIPTION AND EVALUATION OF EXPERIENCES IN 12 DEVELOPED COUNTRIES

Marie-Laure Delamaire and Gaetan Lafortune

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ABSTRACT

Many countries are seeking to improve health care delivery by reviewing the roles of health professionals, including nurses. Developing new and more advanced roles for nurses could improve access to care in the face of a limited or diminishing supply of doctors. It might also contain costs by delegating tasks away from more expensive doctors. This paper reviews the development of advanced practice nurses in 12 countries (Australia, Belgium, Canada, Cyprus, Czech Republic, Finland, France, Ireland, Japan, Poland, United Kingdom and United States), with a particular focus on their roles in primary care. It also reviews the evaluations of impacts on patient care and cost.

The development of new nursing roles varies greatly. The United States and Canada established "nurse practitioners" in the mid-1960s. The United Kingdom and Finland also have a long experience in using different forms of collaboration between doctors and nurses. Although development in Australia and Ireland is more recent, these two countries have been very active in establishing higher education programmes and posts for advanced practice nurses in recent years. In other countries, the formal recognition of advanced practice nurses is still in its infancy, although unofficial advanced practices may already exist in reality.

Evaluations show that using advanced practice nurses can improve access to services and reduce waiting times. Advanced practice nurses are able to deliver the same quality of care as doctors for a range of patients, including those with minor illnesses and those requiring routine follow-up. Most evaluations find a high patient satisfaction rate, mainly because nurses tend to spend more time with patients, and provide information and counselling. Some evaluations have tried to estimate the impact of advanced practice nursing on cost. When new roles involve substitution of tasks, the impact is either cost reducing or cost neutral. The savings on nurses' salaries – as opposed to doctors – can be offset by longer consultation times, higher patient referrals, and sometimes the ordering of more tests. When new roles involve supplementary tasks, some studies report that the impact is cost increasing.

Keywords: nurses, advanced roles, skills, nurse practitioners, clinical nurse specialists, primary care, OECD countries.

RESUME

Beaucoup de pays cherchent à améliorer la prestation des soins de santé en examinant les rôles des différents corps professionnels, y compris les infirmières. Le développement de nouveaux rôles infirmiers plus avancés peut contribuer à améliorer l'accès aux soins dans un contexte d'offre de médecins limitée voire en diminution. Cela pourrait aussi permettre de contenir les coûts en délégants certaines tâches d'une main-d'œuvre médicale onéreuse aux infirmières. Cette étude analyse le développement des pratiques infirmières avancées dans 12 pays (Australie, Belgique, Canada, Chypre, États-Unis, Finlande, France, Irlande, Japon, Pologne, République Tchèque, Royaume-Uni), en se concentrant notamment sur leurs rôles dans les soins primaires. Elle analyse aussi les évaluations des impacts sur les soins des patients et les coûts.

Le développement des rôles avancés infirmiers varie grandement. Les États-Unis et le Canada avaient déjà établi la catégorie des « infirmières praticiennes » au milieu de la décennie 1960. Le Royaume-Uni et la Finlande ont aussi une longue expérience de différentes formes de collaboration entre les médecins et les infirmières. Bien que le développement de la pratique infirmière avancée en Australie et en Irlande soit plus récent, ces deux pays mènent depuis quelques années une politique très active de mise en place de nouveaux programmes d'enseignement et de création de postes. Dans les autres pays de l'étude, la reconnaissance officielle de la pratique infirmière avancée n'en est qu'à ses débuts, bien que certaines pratiques avancées non officielles puissent déjà exister de fait.

Les évaluations montrent que le recours aux infirmières en rôles avancés peut effectivement améliorer l'accès aux services et réduire les temps d'attente. Les infirmières en rôles avancés sont capables d'assurer la même qualité de soins que les médecins dans une gamme de services, comme le premier contact pour les personnes atteintes d'une affection mineure et le suivi de routine des patients souffrant de maladies chroniques, dès lors qu'elles ont reçu une formation appropriée. La plupart des évaluations constatent un haut taux de satisfaction des patients, principalement parce que les infirmières tendent à passer plus de temps avec les patients, et fournissent des informations et des conseils. Certaines évaluations ont tenté d'estimer l'impact des pratiques infirmières avancées sur les coûts. Lorsque les nouveaux rôles impliquent une substitution des tâches, la plupart des évaluations concluent à un impact réducteur ou neutre à l'égard des coûts. Les économies réalisées sur les salaires des infirmières par rapport aux médecins peuvent être compensées par de plus longue durée de consultation, un plus grand nombre d'adressages de patients à d'autres médecins ou une augmentation du taux de réitération des consultations et, parfois, la prescription d'un plus grand nombre d'examens. Lorsque les nouveaux rôles consistent en des tâches supplémentaires, certaines études indiquent que l'impact est une augmentation des coûts.

Mots-clefs : infirmières, rôles avancés, infirmières praticiennes, infirmières cliniciennes, soins primaires, pays de l'OCDE.

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EXECUTIVE SUMMARY

1. Many countries are looking at ways to improve efficiency in health care delivery by reviewing the roles and responsibilities of different health professionals, including nurses. Discussions on the scope of practice of nurses often take place in the context of broader efforts to re-organise different parts of health care systems, particularly the re-organisation of primary care.

2. It is difficult to define precisely what is meant by the term "advanced practice nursing", as this term encompasses a large and growing variety of practices. The International Council of Nurses (ICN) has proposed the following definition:

> *"A Nurse Practitioner/Advanced Practice Nurse is a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A Master's degree is recommended for entry level" (ICN, 2008).*

3. Current national definitions of advanced practice nurses are generally consistent with this broad ICN definition, although they are adapted to each national context.

4. OECD countries are at different stages in implementing more advanced roles for nurses. Some countries (e.g., the United States, Canada and the United Kingdom) have been using advanced practice nurses for a long time, initially in the primary care sector, but more recently also in hospitals. In other countries, the development of advanced practice nursing (APN) roles is still in its infancy. This latter group of countries may be able to learn useful lessons from countries that have greater experience concerning the potential benefits and costs related to the development of new advanced practice nursing roles, as well as some of the barriers that might need to be overcome for successful implementation.

5. The aims of this project were to:

1) Review the main factors motivating the development of APN roles in the group of countries participating in this study;

2) Describe the state of development of APN roles in these countries, with a particular focus on the roles of nurses in primary care;

3) Review the results from evaluations on the impact of advanced practice nursing in terms of access, quality of care and costs; and

4) Examine the main factors that have hindered or facilitated the development of APN roles in different countries, and identify how barriers have been overcome.

6. This study looks at the experience with APN roles in 12 countries: Australia, Belgium, Canada, Cyprus[1], Czech Republic, Finland, France, Ireland, Japan, Poland, United Kingdom and United States.

1. Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognizes the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of United Nations, Turkey shall preserve its position concerning the "Cyprus" issue.

Note by all the European Union Member States of the OECD and the European Commission: The Republic of Cyprus is recognized by all members of the United Nations with the exception of Turkey. The

These countries were selected on the basis of their willingness to provide the necessary information to carry out this study. They represent a good mix of countries that are at different stages in implementing advanced practice nursing.

7. The re-organisation of health service delivery in many countries has not been limited to developing new roles for nurses. New categories of health personnel, such as "physician assistants" or "medical assistants", have also emerged in countries such as the United States and the United Kingdom. These assistants to doctors are carrying out a number of clinical and administrative tasks, and some of these tasks may overlap with those of advanced practice nurses. However, it was beyond the scope of this study to look at how the roles of these new physician or medical assistants relate to those of advanced practice nurses.

8. The information contained in this study comes largely from a policy and data questionnaire which was sent to designated national experts in all participating countries in the autumn of 2009. Additional information was also gathered through a review of the literature.

Reasons motivating the development of new roles for nurses

9. In most countries, one of the main reasons for developing more advanced roles for nurses is to improve access to care in a context of a limited supply of doctors. Another reason for the development of APN roles is to promote higher quality of care, for instance by creating new posts to provide more intensive follow-up and counselling for patients with chronic illness in primary care or the creation of advanced nursing posts in hospitals to oversee quality improvement initiatives. In some countries, the development of APN is also seen as a way to contain cost. By delegating certain tasks from more expensive doctors to less expensive "intermediate level" advanced nurses, it may be possible to deliver the same (or more) services at a lower cost. Also, by improving quality of care, it may be possible to reduce health spending in the longer term by avoiding complications and unnecessary hospitalisations.

10. In addition, the development of more advanced roles for nurses is often seen as a way to increase the attractiveness of the nursing profession and retention rates by enhancing career prospects.

State of development of advanced practice nursing across countries

11. The development of APN roles varies greatly across countries. The United States and Canada established the role of "nurse practitioners" back in the mid-1960s, initially to provide primary care to populations in rural and remote areas under-served by doctors, although their roles and practice locations have evolved a lot since then. The United Kingdom's experience in using advanced practice nurses dates back to the 1970s, when nurse practitioners were initially introduced to increase access to primary care. Finland also has a long experience in using different forms of collaboration between doctors and nurses in primary care health centres. While the development of advanced practice nursing in Australia and Ireland is more recent, they have been very active in developing new APN education programmes and posts in recent years. In Belgium, the Czech Republic, France, Japan and Poland, the formal recognition of APN is still in its infancy, although pilot studies to test new APN roles may have already been carried out and some unofficial advanced practices may already exist in reality.

12. Advanced practice nurses include various titles in different countries, reflecting the different roles they may be playing and the degree of specialisation or focus on certain patient groups. This OECD

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information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

study has focussed on two main categories of advanced practice nurses that exist in several countries: nurse practitioners and clinical nurse specialists.

13. Nurse practitioners (NPs) tend to practice in primary care and provide a set of services that might otherwise be performed by doctors (e.g., being the first contact for people with minor illness, providing routine follow-up of patients with chronic conditions, prescribing drugs or ordering tests). To a large extent, this involves a *substitution* of tasks from doctors to nurses, with the main aim being to reduce demands on doctors' time, improve access to care and possibly also reduce costs. On the other hand, clinical nurse specialists (CNSs) tend to work in hospitals, where their responsibilities include providing leadership and education for staff nurses to promote high standards of quality of care and patient safety. Their main aim is *quality improvement*.

14. The number of nurses in advanced practice roles still represents a small proportion of all nurses even in those countries that have the longest experience in using them. In the United States, NPs and CNSs represented respectively 6.5% and 2.5% of the total number of registered nurses in 2008. In Canada, they accounted for a much smaller share, NPs only representing 0.6% and CNSs 0.9% of all registered nurses in 2008, although their numbers have increased in recent years.

15. The educational requirement to become an NP or a CNS varies to some extent across countries. In most countries, a graduate degree in nursing (e.g., a Master's degree) is now recommended or required. This is the educational requirement that has been established in Australia, as new education programmes for advanced practice nurses are being set up. In the United States and Canada, there has been a gradual increase in educational requirements, with a Master's degree now becoming the norm to become an advanced practice nurse, although in some Canadian provinces, a post-baccalaureate certificate is still sufficient. In the United Kingdom, a first-level university degree (e.g., a Bachelor's degree) is sufficient to become an NP or a CNS, with relevant work experience playing an important role in determining qualifications for more advanced posts. The United Kingdom also offers specific training programmes to all registered nurses wishing to extend their scope of practice in certain areas, such as drug prescribing.

16. Different approaches to defining the education requirement and skill set required for advanced practice nursing will have an impact on cost, both in terms of the direct cost related to the education and training programmes and the opportunity cost related to the time spent on education and training.

Impact of advanced practice nursing on patient care and costs

17. This study has reviewed a fairly large number of evaluations on the impact of advanced practice nurses on patient care and costs, with a particular focus on their roles in primary care. Not surprisingly, most evaluations have been carried out in countries that have a long experience in experimenting and using advanced practice nurses (United States, Canada, United Kingdom and Finland).

18. In general, the available evaluations show that the use of advanced practice nurses can improve access to services and reduce waiting times for the set of services they provide. There is also a large body of evidence showing that advanced practice nurses are able to deliver the same quality of care as doctors for a range of services transferred to them (e.g., routine follow-up of patients with chronic conditions, first contact for people with minor illness), provided they have received proper education and training. Most evaluations find a high patient satisfaction rate with services provided by advanced practice nurses, and in many cases a higher satisfaction rate than for similar services provided by doctors. This seems to be due mainly to the fact that advanced practice nurses tend to spend more time with each patient, providing them with more education and counselling. Fewer studies have tried to measure the impact of APN activities on health outcomes, but those that have tried to do so have not found any negative impact on patient outcomes following the transfer of certain tasks from doctors to nurses.

19. A limited number of evaluations have tried to estimate the impact of advanced practice nursing on cost. Among those that have attempted to do so, most evaluations have not included certain items which might be expected to have an impact on cost, such as: education and training cost for advanced practice nurses (compared with the cost of training a "regular" nurse and the cost of training a doctor); the "productivity" differential between advanced practice nurses and doctors (measured, for instance, by the number of consultations/services provided per hour or day); and any longer-term cost impact related to avoiding complications of conditions and hospitalisations (possibly resulting from activities such as more intensive patient counselling and higher quality of care).

20. The results from existing evaluations indicate that one of the main factors that will affect the impact on cost is whether the APN roles are mainly designed to *substitute* for activities that were previously done by doctors, or whether they are *supplementary* activities (service/quality enhancements). When the APN role involves mainly a *substitution* of tasks, most evaluations have found that the impact is either *cost reducing or cost neutral*. Many evaluations have found that the savings on nurses' salaries (compared with doctors' salaries) are offset partly or entirely by other factors, such as longer consultation times, higher patient referrals to other doctors or recall rates, and in some cases the ordering of more tests. When the APN role involves *supplementary* tasks, some studies have reported that the impact is *cost increasing*. However, as already noted, a frequent limitation of these evaluations is that they do not take into account possible longer-term saving that might result from higher quality of care and avoiding complications.

21. Some evaluations have also pointed out that there may be some unintended effects related to the use of advanced practice nurses in primary care, related in particular to care coordination. As primary care becomes increasingly shared among multiple health care providers, the *personal* continuity of care (between *individual* patients and *individual* GPs or NPs) may be reduced, and it may become more time-consuming and costly to achieve proper care coordination. Some evaluations have suggested that medium-sized group practices may be better able to achieve the required continuity and coordination of care than larger groups.

Barriers or facilitators to the development of advanced roles of nurses

22. A number of factors may either act as a barrier or facilitator to the development of advanced roles for nurses. This study has focussed on four factors: 1) the professional interests of doctors and nurses (and their influence on reform processes); 2) the organisation of care and funding mechanisms; 3) the impact of legislation and regulation of health professional activities on the development of new roles; and 4) the capacity of the education and training system to provide nurses with higher skills.

23. In most countries covered under this study, the opposition of the medical profession has been identified as one of the main barriers to the development of more advanced nursing roles. The main reasons for physician resistance may include: a potential overlap in the scope of practice and loss of activities, the degree of autonomy and independence of advanced practice nurses, concerns about legal liability in cases of malpractice under teamwork arrangements, and concerns about the skills and expertise of advanced practice nurses. To reduce the opposition from the medical profession, nurse associations and other stakeholders supporting the development of APN roles have tried in certain countries to work with medical associations to address their concerns and emphasised the benefits for all professional groups of teamwork and closer collaboration. For instance, in Canada, the Canadian Nurse Protective Society has worked with the Canadian Medical Protective Association to set out some principles and criteria for defining the scope of practices and clarifying liability issues, in response to doctors' concerns about financial responsibility for lawsuit claims involving joint care with NPs.

24. The organisation of health services and the funding mechanisms can either facilitate or hamper the development of APN roles. The organisation of primary care varies widely across the group of countries studied. In some countries (Belgium, Czech Republic, France), the predominant mode of provision of primary care continues to be based mainly on physician solo practice, whereas in other countries (Australia, Canada, Finland, United Kingdom and United States), group practice is the dominant mode. As might be expected, advanced roles of nurses are more developed in those countries where primary care is mainly delivered in group practices, providing more opportunities for task sharing.

25. The methods of paying health care providers for their services also involve different incentives for the employment of advanced practice nurses. In general, *individual-based* fee-for-service payments for doctors is found to be a barrier to a greater use of NPs in primary care, as any transfer of tasks to NPs results in a potential loss of income for doctors (unless doctors can offset the reduction in some areas of their activities by an increase in others). By contrast, *group-based* payment methods, including payments based on capitation or pay-for-performance schemes, can be expected to provide greater incentives for the employment of advanced practice nurses, as long as the supplementary revenues derived from their services exceed their cost. Fixed salary payments also provide a greater incentive to employ advanced practice nurses, unless tight budget constraints in hospitals or primary care facilities result in any cutback in posts.

26. In all countries where they have been introduced, the implementation of advanced roles for nurses has required some changes to legislation and regulation related to their scope of practice. However, there are important differences across countries in the extent to which such legislation and regulation are centralised at the national level or decentralised, and also the extent to which legislation defines in a very precise manner or only in general terms the scope of practice of advanced practice nurses. In the United Kingdom, the scope of practice of advanced practice nurses is *not* defined in a specific legislation, thereby reducing the barriers to modify their scope of practice. Some health care activities, however, *are* covered under legislation, with one of them - the right to prescribe drugs - being related to more advanced roles for nurses. In order to allow nurses to prescribe drugs, a series of legislative and regulatory amendments have been prepared in the United Kingdom over the past fifteen years. Once adopted, these national legislative and regulatory changes applied to all nurses concerned. By contrast, in countries where responsibilities for regulating health professional activities are more decentralised, the adoption of new legislation and regulation regarding the scope of practice of nurses has often occurred at different speeds across states or provinces/territories, resulting in a certain degree of variations within the country. For instance, in Canada, while legislative changes across all provinces have enabled a significant growth in NP roles, their roles have been more narrowly defined in some provinces. In Australia, current efforts are underway to harmonise the different legislation defining the scope of practice of different health professions, including that of advanced practice nurses, with a new national law expected to come into effect on 1 July 2010.

27. France faces a different challenge, in that the responsibility for defining the scope of practice of health professions is very much centralised, but one of the barriers to the expansion of the role of nurses is that current national legislation defines in specific terms what each health profession can (or cannot) do. This means that any change to the scope of practice of nurses requires legislative changes, often raising sensitive issues. A more general definition of the scope of practice of different professions, for instance in terms of general "missions" rather than specific tasks/acts, may provide greater flexibility to adapt the roles of nurses to local needs.

28. A majority of countries covered in this study also mentioned the importance of ensuring that the education and training system provides sufficient opportunities to train nurses with more advanced skills as a key success factor. A lack of skilled nursing staff may make it difficult to fill new APN posts. In the United States, governments at the federal and state levels have recently increased funding to support new education and training programmes for all nurses including advanced practice nurses, in response to

concerns that the education system was not producing enough nurses at the level required to perform advanced practice. In Canada and Ireland, the funding of new Master's level programmes and the growing ability of universities to enrol more students in these programmes have contributed greatly to the growing number of advanced practice nurses in recent years. In the United Kingdom, a greater emphasis has been put on designing specific training programmes for nurses wishing to expand their practice in certain areas, and relying more on relevant work experience to promote nurses to more advanced positions. In general, the content and duration of new education and training programmes for advanced practice nurses should be based on a careful assessment of the generic and specific skills that they require. There may also be a need to strengthen interprofessional education modules as part of the curriculum for both doctors and nurses, to prepare them better for close collaboration and teamwork.

29. In all countries where nurses now assume more advanced roles, governments have had to facilitate and support the process to overcome all of these barriers: by providing the necessary leadership to get the process started and to involve all relevant parties and mobilise their support (or at least minimise their opposition); by adapting the legislative and regulatory framework to allow nurses to perform new roles; by providing proper financial incentives for primary care groups and hospitals to create APN posts; and by helping to finance new education and training programmes to prepare nurses to fill these more advanced positions.

30. The development and implementation of advanced practice nursing roles should be evaluated in terms of their impact on patient care and costs. Many countries have tested new "models" of health service delivery involving new roles for nurses through local pilot projects. However, in many cases, pilot projects that have demonstrated positive results in terms of patient care and costs have not been pursued and extended more broadly, because of lack of sustainable funding. These represent missed opportunities to achieve efficiency gains in health service delivery.

31. More generally, there will be a need to take a broader approach to evaluating new models of health service delivery. The movement towards greater teamwork and group practices increases the importance of looking beyond the impact of only one specific team member. Evaluation studies need to expand their scope from "simply" comparing how advanced practice nurses do certain tasks compared with doctors, to looking more broadly at the overall organisation of services. Identifying those factors or characteristics linked to better results in terms of patient care at the least possible cost requires sophisticated statistical methods to control for different factors. Some evaluations in certain countries have already moved in this direction.

INTRODUCTION

32. The delivery of modern health services is a complex activity which increasingly relies on multi-professional and multi-service teamwork. The roles of different professional members of these teams can depend as much on traditional job demarcations, dating from an earlier era, as on a division of labour which maximises efficiency.

33. Health policymakers and health care managers in many countries are seeking opportunities to increase efficiency in health care delivery by modernising the roles and mix of health professionals, including the roles of nurses, in response to growing demands for care (driven by population ageing and the rising prevalence of chronic diseases), limited supply of doctors (in general or for certain specialties or geographic areas), and tight budget constraints. In some countries where the supply of nurses itself may be an issue, the development of more advanced practice nursing (APN) roles may also be seen as a way to increase the attractiveness and retention rates in the profession by enhancing career prospects.

34. The International Council of Nurses (ICN) has proposed the following broad definition of advanced practice nursing:

"A Nurse Practitioner/Advanced Practice Nurse is a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A Master's degree is recommended for entry level" (ICN, 2008).

35. Among English-speaking countries, two main categories of advanced practice nurses can be found: (advanced) nurse practitioners (NPs); and clinical nurse specialists (CNSs).

36. In most countries where this category exists, NPs generally carry out a range of activities that may otherwise be performed by physicians, including diagnostics, screenings, prescriptions of pharmaceuticals or medical tests, activities in the fields of prevention and health education, the monitoring of patients with chronic illnesses, and a general role in care coordination (alone or together with doctors). NPs practice in the primary care and hospital sectors.

37. The roles of clinical nurse specialists include clinical practice, education, research and leadership. They work mainly (but not exclusively) in hospitals, where their more advanced skills and competencies enable them to provide consultation to patients, nurses and others in complex situations, promote and improve quality of care through the support of evidence-based practice and facilitate system change.

38. Given the particular focus of this study on APN roles in the primary care sector, there is less emphasis on describing and evaluating the work of NPs and clinical nurse specialists in hospitals.

39. In many countries, discussions about possible extensions in the roles of nurses take place in the context of broader efforts to re-organise health service delivery, in particular the primary care sector and the development of home-based care options to reduce hospitalisations.

40. Countries are at very different stages in implementing new APN roles. Some countries, including the United States, the United Kingdom and Canada, have been experimenting and implementing new APN

roles for many decades. In the United States, the introduction of nurse practitioners, responsible for delivering a wide range of services with a high level of autonomy, dates back to the mid-1960s. In other countries, the development of more APN roles is still in its infancy, although some countries such as France have recently launched a series of pilot projects to test new models of teamwork between doctors and nurses in primary care and chronic disease management.

41. The subject of advanced roles for nurses remains sensitive and controversial in several countries, leading to possible opposition among the medical profession in particular, and potential issues concerning quality/safety of care and coordination of care. If the development of APN roles was to result in unintended problems in quality and coordination of care, the expected benefits in terms of increasing access to care, at lower cost, would be reduced.

42. Building on an earlier OECD study that reviewed the experience with APN roles focusing mainly on the experience in the United Kingdom and the United States (Buchan and Calman, 2004), this study examines recent developments in APN roles in 12 developed countries: Australia, Belgium, Canada, Cyprus, the Czech Republic, Finland, France, Ireland, Japan, Poland, the United Kingdom and the United States. These countries were selected mainly on the basis of their interest and willingness to provide the necessary information to carry out this study. They include countries that have a long experience in implementing APN roles, and others that are just beginning.

43. The study has four aims:

1) To review briefly the main factors driving the development of APN roles in different countries (Part 1);

2) To describe the development of new roles of nurses in different countries, including the related education and training requirements. The description focuses in particular on the growing roles that nurses play in the primary care sector (Part 2);

3) To review results from available evaluations on the impacts of APN roles in terms of access, quality and costs, to assess to what extent the initial objectives and expectations of such reforms are being met (Part 3); and

4) To analyse the main factors facilitating or hindering the development and implementation of new APN roles (Part 4).

44. The information contained in this study comes largely from a policy and data questionnaire which was completed by designated national experts in the 12 participating countries in the autumn of 2009. Additional information was also gathered through a review of the literature. Annex A to this report provides more specific information on the development of APN roles in each of the 12 countries covered in this report. Annex B provides the list of national experts who have contributed to this study.

PART 1: REASONS MOTIVATING THE DEVELOPMENT OF ADVANCED PRACTICE NURSING

45. A number of reasons may explain the growing interest in the development of advanced roles for nurses, with these reasons possibly varying according to each country's circumstances. However, in most countries, the main reasons for developing advanced practice nursing (APN) roles are to improve access to care in a context of growing demand for different types of health services and a limited supply of doctors. In several countries, discussions on how best to respond to growing demand for care are also taking place in a context of tight government budgetary constraints and discussions on how to control the growth in health spending. The development of APN may provide some opportunities to reconcile these two potentially contradictory objectives.

46. This part reviews some of the main factors that may explain interest in the development of APN roles in different countries.

1.1 Responding to shortages of doctors

47. In those countries that have led the way in APN (e.g., the United States and Canada), these new roles were initially introduced mainly to address gaps in services traditionally performed by doctors, in order to improve access to care particularly in areas under-served by doctors. In the United States, the introduction of nurse practitioners (NPs) in the mid-1960s coincided with the introduction of the Medicare and Medicaid legislation. NPs were then seen as a welcome addition to provide services to a greater number of people (Mundinger, 2002). Responding to tensions in the supply and types of health care professionals continues to be one of the main motivations for the further development of APN. In the United Kingdom, where nurses in APN roles were first introduced in the 1970s, their further development was given a new impetus following the 2004 European Working Time Directive regulations which reduced the working time of junior doctors (Buchan *et al.*, 2008). Similarly, in the United States, there was an immediate increase in the employment of advanced practice nurses in hospitals when the working time for resident doctors was limited to 80 hours per week (Aiken *et al.*, 2008).

48. Looking at the data, there are a lot of variations in the number of doctors, the number of nurses, and the ratio of nurses to doctors across the countries covered in this study (Table 1.1). The number of practising doctors per capita varies from less than 2.5 per 1 000 population in Canada, Japan, Poland and the United States, to over 3.5 in the Czech Republic. The average across the 12 countries is slightly less than 3 doctors per 1 000 population. Focussing more specifically on general practitioners (GPs), the number per capita was particularly low (less than 1 per 1 000 population) in the Czech Republic, Ireland, Poland, the United Kingdom and the United States. It was the highest in Australia and France.

49. The number of practising nurses per capita (all categories included) also varies greatly, from under 5 nurses per 1 000 population in Cyprus to around 16 in Finland and Ireland, with an average of slightly less than 10 per 1 000 population. On average, there were around 3.5 nurses per doctor across the 12 countries covered in this study. This ratio varied from 1.6 in Cyprus, to 5 or more in Finland and Ireland.

Table 1.1 Number of doctors and nurses per 1 000 population, and ratio of nurses to doctors, 12 countries covered under this study, 2008 (or latest year available)

		Practising doctors	*Of which:* GPs	**Practising nurses**	Professional nurses	Associate professional nurses	**Number of nurses per doctor**
Australia	2007	3.0	1.5	10.1	7.9	2.2	3.4
Belgium	2008	3.0	1.2	..	..	..	..
Canada	2008	2.3 [a]	1.1 [a]	9.2	7.1	2.2	4.1
Cyprus	2008	2.9	..	4.7	..	..	1.6
Czech Republic	2008	3.6	0.7	8.1	..	..	2.2
Finland	2007	2.7	1.0 [a]	15.5	9.0	6.5	5.8
France	2008	3.3 [a]	1.6 [a]	7.9 [a]	7.9	0.0	2.4
Ireland	2008	3.2 [b]	0.6 [b]	16.2 [a]	..	..	5.0
Japan	2008	2.2	..	9.5	6.6	2.9	4.4
Poland	2008	2.2	0.2	5.2	5.2	0.0	2.4
United Kingdom	2008	2.6	0.8	9.5	7.4	2.1	3.7
United States	2008	2.4	0.3	10.8 [a]	8.4	2.4	4.4
Average (12 countries)		2.8	..	9.7	..	..	3.6

a) Data include not only doctors/nurses providing direct care to patients, but also those working in the health sector as managers, educators, researchers, etc.

b) Data refer to all doctors who are licensed to practise.

Source: *OECD Health Data 2010*. Data for Cyprus are from the Eurostat database.

50. As might be expected, APN roles (in particular, nurse practitioners) tend to be more developed in those countries where there are a relatively low number of doctors, a relatively high number of nurses, and thus a high nurse-to-doctor ratio. This is the case in Finland, the United States, Canada and the United Kingdom. In these countries, the much greater number of nurses compared to doctors may be both a *cause* for developing advanced roles for nurses and a *consequence* of this development.

51. On the other hand, Japan provides the example of a country that combines a low number of doctors, a high number of nurses, and a high nurse-to-doctor ratio, but this supply-side "imbalance" has not yet been accompanied by a strong development of APN roles. The fourth part of this study examines in more detail some of the factors that may either facilitate or hamper the development of APN roles, beyond basic supply-side factors.

52. It is important to look not only at the *current* composition of the workforce, but also at *future* trends. In countries like France, discussions about extending the roles of nurses are taking place in a context of a projected decline in the number of doctors per capita, and in particular a reduction of GPs (DREES, 2009). Hence, the development of APN roles is considered as a possible way to respond to a reduced supply of doctors while at the same time providing incentives to increase the recruitment and the retention of nurses.

53. In some geographically large countries, the uneven distribution of doctors across different regions has also reinforced the interest in developing APN roles, in order to respond to the needs of the population in rural and remote areas. In Finland, Canada and Australia, advanced practice nurses play a significant role nowadays in providing a range of services to people in these remote areas (see part 2 and Annex A).

54. Some countries, such as the United States and the United Kingdom, have also begun to use other complementary approaches than APN to respond to growing care needs, for instance through the development of "physician assistants" or "medical assistants" to assist doctors in their clinical and/or administrative work (Box 1.1). The roles of these new assistants to doctors may overlap to a certain extent with those of advanced practice nurses.

Box 1.1 The development of physician assistants and/or medical assistants in Germany, the United States, Canada and the United Kingdom

Certain countries have opted to develop new categories of health personnel to try to improve efficiency in health care delivery and reduce the workload of doctors by delegating certain tasks that can equally be performed by others. This is the case, for instance, of physician assistants and/or medical assistants.

Germany is one of the countries that has moved the furthest thus far in developing the category of medical assistants. In 2002, there were 493 000 medical assistants in Germany, or almost twice the number of doctors. Following three years of training, these medical assistants work in doctors' offices carrying out activities such as administrative duties and clinical tasks requiring basic technical competences (such as the removal of thread after stitching, dressing of wounds and taking blood samples). The development of this professional category may explain to some extent why nurses do not play a large role in primary health care in Germany (Bourgueil *et al*., 2005).

Medical assistants also exist in the United States, performing routine clinical and clerical tasks. In addition, there are also physician assistants who perform more advanced tasks. Physician assistants often have a Master's degree and perform tasks that are similar in many ways to those of nurse practitioners, such as providing health check up and preventive care, diagnosing and treating minor illness, providing prenatal care and performing routine follow-up for illness and surgery. There were about 74,800 physician assistant jobs in the United States in 2008, and the employment of physician assistants is expected to grow fairly rapidly over the next ten years, particularly in rural and inner-city clinics given the difficulties in attracting physicians (US Department of Labor, 2010).

Canada has also begun in recent years to experiment with physician assistants, and their role has already been tested and evaluated in certain hospitals, generally indicating positive results (Ducharme *et al*., 2009). New educational programmes have also been created to train a growing number of physician assistants, for instance at McMaster University in Ontario.

The United Kingdom has also decided recently to experiment with the deployment of physician assistants. A first pilot programme was launched in 2002. In 2007, the number of physician assistants was still very limited, at about 50 in England (Hooker *et al*., 2007). The tasks of physician assistants in the United Kingdom include making diagnosis, developing patient management plans, prescribing medications, undertaking patient education, counselling and health promotion (Department of Health, 2006). Physician assistants have to complete a degree-level academic programme of no less than 90 weeks (including 1,600 hours of clinical experience), followed by an internship of 12 months. A Bachelor's degree in a life science may also be required, although for the time being there are no common basic educational requirements across England and the United Kingdom (Farmer *et al*., 2009; Department of Health, 2006).

1.2 Responding to changing demand for care and promoting high quality of care

55. A majority of countries in this study reported that responding more efficiently to changing patient needs was one of the most important factors behind the development of APN roles. The development of such practices is viewed as a way to improve access to care and to enhance the continuity of care across different health care settings. In addition, the development of some types of APN, such as the functions assumed by clinical nurse specialists in hospitals, is seen as a way to promote quality of care.

56. Population ageing, the growing prevalence of certain chronic diseases and co-morbidities (multiple health problems) are increasing the demand for care in different settings. In particular, the development of home-based care options in many countries, as a way to reduce hospitalisations, provides new opportunities to develop APN roles, in order to free up doctors' time and other hospital staff's time to deal with more acute or complex cases. Patients suffering from one or more chronic diseases generally need more frequent visits at home or in other settings (long-term care institutions) for follow-up and

monitoring to prevent further complications, and advice on self-care management and lifestyle changes. Many of these time-consuming tasks can be performed by nurses with proper training and skills (Bourgueil *et al.*, 2006).

57. New task sharing often occurs in the context of the establishment of new multi-professional health care teams to tackle complex health problems, in which each health care professional acts more independently yet as part of a team (MacKee *et al.*, 2006; Polton *et al.*, 2004).

1.3 Responding to growing health cost

58. Containing the growth in health spending may be an additional reason for promoting new forms of cooperation among health professionals and more APN roles. By delegating certain tasks from more expensive "peak professional" doctors to less expensive "intermediate level" advanced practice nurses, it may be possible to deliver more services at the same or at lower cost.

59. The importance of cost containment as an objective underlying the interest in APN roles varies across countries. While this is seen as an important objective in Poland, Cyprus, Finland and the United States, in other countries such as the United Kingdom and Canada, this is not reported by the authorities as being an important motive.

60. Some researchers have tried to estimate the potential savings that may be associated with promoting the delivery of certain services by other health professionals than doctors. In the United States, Hussey *et al.* (2009) have estimated that the further use of nurse practitioners and medical assistants may lower the growth in health care spending by 0.3-0.5% per year.

61. The extent to which the development of APN roles may actually reduce cost (compared with a *status quo* where the activities would continue to be delivered by doctors) will theoretically depend on at least six factors: 1) the earnings differential between advanced practice nurses and doctors; 2) the "productivity" differential between advanced practice nurses and doctors (measured, for instance, by the number of consultations per hour or per day); 3) the type and quantity of activities that are actually transferred to advanced practice nurses, and whether these activities still require the supervision of a doctor; 4) the "indirect cost" related to any difference in the prescription of additional medical tests or pharmaceutical drugs (when advanced practice nurses are given such responsibilities); 5) the additional "front-end" cost related to education and training of advanced practice nurses; and 6) any longer-term savings resulting from avoiding complications of conditions and hospitalisations (possibly resulting from activities such as more intensive patient counselling and higher quality of care). Some of these factors may offset one another.

1.4 Improving career prospects for nurses

62. Several countries (e.g., Poland, Cyprus, Ireland, Czech Republic) consider that the development of APN roles may also serve to attract and retain more nurses in the profession by enhancing career prospects. One of the arguments is that the nursing profession needs to maintain its attractiveness in a context of a reduced number of young people entering the labour market. The development of more advanced education and training programmes, leading to more highly-skilled nursing jobs, may help improve recruitment and retention rates (Aiken *et al.*, 2008). In some countries such as the Czech Republic and Poland, the development of APN roles is also seen as a possible means to reduce the emigration of nurses to other European countries to seize better job opportunities.

PART 2: STATE OF DEVELOPMENT OF ADVANCED PRACTICE NURSING

63. This part describes the development of advanced practice nursing (APN) in the 12 countries covered in this study, focussing on those countries that are further ahead in implementing such new roles. It starts with a discussion of the definition of APN and the broad types of activities it may involve. It then reviews some of the main categories of advanced practice nurses in different countries, their main tasks and educational requirements. Where available, data are also provided on the quantitative importance of these advanced practice nurses. The last section focusses more specifically on the growing role of advanced practice nurses in the prescription of pharmaceutical drugs in certain countries.

64. The state of development of APN varies greatly across countries, reflecting possibly differences in the underlying pressures to develop these new roles (see part 1) or a number of factors that may have facilitated or hampered their development (see part 4).

65. The United States is the country that has the longest experience with advanced practice nurses, having established the role of nurse practitioner as early as 1965. The United Kingdom and Canada also have longstanding experiences of nurses in APN roles, and in recognising them as such, although some variations in the roles and recognition of different categories of advanced practice nurses may continue to exist within each of these two countries. Even though Finland has not formally developed categories of "nurse practitioner" or "clinical nurse specialist", it also has a long and extensive experience in teamwork and task sharing between doctors and nurses. The development of APN in Ireland and Australia is more recent, but these two countries have had a dynamic policy to develop new APN education programmes and posts in recent years.

66. In other countries (such as Belgium, the Czech Republic, France, Japan and Poland), the development and formal recognition of APN is still in its infancy, although some of these countries have already carried out pilot studies to test new APN roles and some unofficial practices may already exist.

2.1 Defining Advanced Practice Nursing

67. The term "advanced practice nursing" first appeared in the nursing literature in the 1980s (Ruel *et al.*, 2009). However, there remain difficulties in providing a concise and clear definition of "advanced practice(s)", stemming from the fact that they encompass a wide (and growing) variety of competencies and practices. At the international level, achieving a broad consensus on the definition of "advanced practice nursing" is even more difficult as countries are at different stages in implementing these advanced roles. In countries that are just now beginning to consider extensions to traditional roles of nurses, some new practices may be considered "advanced", while these same practices may no longer be considered "advanced" in those countries that began earlier.

68. The International Council of Nurses (ICN) has proposed the following broad definition of advanced practice nursing:

"A Nurse Practitioner/Advanced Practice Nurse is a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which s/he is credentialed to practice. A Master's degree is recommended for entry level" (ICN, 2008).

69. Existing national definitions of advanced practice nursing are generally consistent with the proposed ICN definition, though they reflect the specific national contexts (see Box 2.1).

Box 2.1 National definitions of advanced practice nursing in Australia, Canada, Ireland and the United States

Australia (Australian Nursing and Midwifery Council, ANMC)

"Advanced practice nursing defines a level of nursing practice that utilises extended and expanded skills, experience and knowledge in assessment, diagnosis, planning, implementation and evaluation of the care required… Nurses practising at this level are educationally prepared at post-graduate level and may work in a specialist or generalist capacity. However, the basis of advanced practice is the high degree of knowledge, skill and experience that is applied within the nurse-patient/client relationship to achieve optimal outcomes through critical analysis, problem solving and accurate decision-making". (ANMC, 2006)

Canada (Canadian Nurses Association, CNA)

"Advanced nursing practice' is an umbrella term describing an advanced level of clinical nursing practice that maximizes the use of graduate educational preparation, in-depth nursing knowledge and expertise in meeting the health needs of individuals, families, groups, communities and population. It involves: analysing and synthesising knowledge; understanding, interpreting and applying nursing theory and research; and developing and advancing nursing knowledge, and the profession as a whole". (CNA, 2008)

Ireland (National Council for the Professional Development of Nursing and Midwifery, NCNM)

"Advanced nursing practice [roles] promote wellness, offer healthcare interventions and advocate healthy lifestyle choices for patients/clients, their families and carers in a wide variety of settings in collaboration with other healthcare professionals, according to agreed scope of practice guidelines. They utilise advanced clinical nursing knowledge and critical thinking skills to independently provide optimum patient/client care through caseload management of acute and/or chronic illness. Advanced nursing practice is grounded in the theory and practice of nursing and incorporates nursing and other related research, management and leadership theories and skills in order to encourage a collegiate, multidisciplinary approach to quality patient/client care. Advanced nursing practice is carried out by autonomous, experienced practitioners who are competent, accountable and responsible for their own practice. They are highly experienced in clinical practice and are educated to master's degree level 1 (or higher). The postgraduate programme must be in nursing or an area which is highly relevant to the specialist field of practice (educational preparation must include substantial clinical modular component(s) pertaining to the relevant area of specialist practice). Advanced nursing practice roles are developed in response to patient/client need and healthcare service requirements at local, national and international levels. Advanced nursing practice must have a vision of areas of nursing practice that can be developed beyond the current scope of nursing practice and a commitment to the development of these areas" (NCNM, 2008a).

United States (APRN Consensus Work Group and National Council of State Boards of Nursing APRN Advisory Committee)

The definition of an "Advanced Practice Registered Nurse" (APRN) is a nurse who:

1. Has completed an accredited graduate-level education program preparing him/her for one of the four recognised APRN roles;
2. Has passed a national certification examination that measures APRN role and competencies and who maintains continued competence as evidenced by recertification;
3. Has acquired advanced clinical knowledge and skills preparing him/her to provide direct care to patients, as well as a component of indirect care;
4. Builds on the competencies of registered nurses (RNs) by demonstrating a greater depth and breadth of knowledge, a greater synthesis of data, increased complexity of skills and interventions, and more autonomous roles;
5. Is educationally prepared to assume responsibility and accountability for health promotion and/or maintenance as well as the assessment, diagnosis, and management of patient problems, which includes the use and prescription of pharmacologic and non-pharmacologic interventions;

6. Has clinical experience of sufficient depth and breadth to reflect the intended license; and

7. Has obtained a license to practice as an APRN in one of the four APRN roles: certified registered nurse anaesthetist (CRNA), certified nurse-midwife (CNM), clinical nurse specialist (CNS), or certified nurse practitioner (CNP).

(Source: APRN Consensus Work Group *et al.*, 2008).

2.2 Distinguishing broad types of APN roles

70. Beyond providing a broad definition of "advanced practice nursing", it is also possible to distinguish, at a general level, the type of activities that may be attributed to advanced practice nurses and the forms of nurse-doctor cooperation.

71. Two broad types of activities of advanced practice nurses can be distinguished:

1- A substitution of tasks*:* Certain tasks formerly carried out by doctors are transferred to advanced practice nurses. The main aim in this case is to reduce the workload for doctors, while also possibly reducing costs.

2- A supplementation of tasks: In this case, advanced practice nurses take responsibility for new services not previously provided, for instance as part of new chronic disease management programmes or to promote higher quality of care in hospital settings. These new activities are not traditionally performed by doctors. The main aims are service enhancements through improved continuity of care or quality of care, while the aim to reduce costs is secondary at best.

72. The distinction between task *substitution* and task *supplementation* is not always clear-cut however. When duties are transferred from doctors to nurses, there is also often a diversification or intensification of certain activities (for instance, more time spent by advanced practice nurses on providing health education and self-care advice).

73. Two types of more advanced nurse consultations can also be distinguished:

1- More intensive/extensive nursing consultations: These types of consultations are still grounded in standard nursing theory and practice, although they involve greater expertise in the field. For example, an advanced nurse consultation by a psychiatric nurse may involve a "psychological assessment" (*e.g.* regarding anxiety or stress) requiring greater knowledge and application of scales and tools for assessing mental conditions. The distinction between an "advanced" consultation carried out by an advanced practice nurse and a "non-advanced" consultation carried out by a highly-experienced registered nurse is not always clear-cut however.

2- ***More medical-type consultations***: These types of consultations are closer to a doctor consultation, and generally involve task *substitution*. In this type of consultation, tests and diagnoses may be carried out by nurses in advanced roles, which in other countries would be performed solely by doctors. These medical-type consultations may be carried out with or without the supervision of a doctor. If they are carried out under the supervision of a doctor, and merely involve participation in a medical consultation, then they may be considered a "false" advanced role (in the sense that nurses may not play any greater role than in the past). If they are carried out without the supervision of a doctor, then they correspond more closely to "real" advanced roles.

74. The forms of coordination between doctors and advanced practice nurses can differ. It can be *hierarchical* (advanced practice nurses working under the supervision of a doctor), involving possibly

variables degrees of autonomy, or *non-hierarchical* (advanced practice nurses working autonomously, not under the supervision of a doctor).

2.3. Identifying different categories of advanced practice nurses and their main tasks

75. Reflecting the variety of experimentations with new roles of nurses, there are many different categories of advanced practice nurses in each country, and even more so across countries.[2] A recent international review identified no less than 13 different titles that advanced practice nurses may have in different countries, such as "nurse practitioner", "advanced nurse practitioner", "nurse consultant", "clinical nurse specialist" and others (Pulcini *et al.,* 2010).

76. Table 2.2 summarises the main categories of advanced practice nurses found in those countries where they are recognised as such, their numbers, their main tasks, and the educational level required or recommended to hold these positions. It is important to note that the table does not include the category of "nurse midwives" (which in many countries are considered as an advanced role for nurses), nor a variety of nursing specialties which may also be considered as advanced roles (e.g., psychiatric/mental health nurses, nurse anaesthetists, emergency nurses). In addition, the tasks described are not exhaustive, as advanced practice nurses may also carry out other tasks.

2. In the United Kingdom, a recent report from a Prime Minister's Commission on the future of nursing in England pointed out that: "The Nursing and Midwifery Council must regulate advanced nursing practice, ensuring that advanced practitioners are recorded as such on the register and have the required competencies. Stakeholders must also consider how to reduce and standardize the proliferation of roles and job titles in nursing" (Prime Minister's report Commission, 2010).

Table 2.1 Categories of nurses in advanced practice roles, their numbers, main tasks and education level

Country	Category	Number (absolute)	% of all RN	Main tasks	Education level (required or recommended)
Australia	1- Advanced Practice Nurses (clinical nurses, consultants)	n.a.	n.a.	- clinical / technical tasks: • advanced nurse consultation and diagnosis (advanced physiological and psychological assessment) • prescription of drugs with supervision of doctors (although there are variations in prescription rights across states) • triage activity to prioritise patients - education and teaching - professional leadership such as dissemination of expert knowledge - tasks linked to improving quality of care - research	Graduate diploma or Master's level
	2- Nurse Practitioners	400 (2010)	0.2 %	- same clinical / technical tasks as for advanced practice nurses -additional clinical / technical tasks: • ordering and interpretation of diagnostic tests (including X-ray prescription and diagnostic ultrasound prescription) • management of a range of chronic diseases (follow-up, monitoring, health education and lifestyle advice for non-acute cases) • prescription of drugs without medical supervision • vaccination without a doctor prescription • referral of patients to specialists	Master's level
Canada	1- Clinical Nurse Specialists	2222 (2008)	0.9 %	- assess patients, develop or contribute to the plan of care, and intervene in complex situations within their selected clinical specialty - provide consultation to patients, nurses and other health-care providers to improve patient care and deal with complex issues - support other nurses in direct care by providing clinical teaching and promoting evidence-based practice - review existing research evidence and provide expert opinion to determine most effective application to practice - lead the development and application of clinical practice guidelines - facilitate system change	Master's level
	2- Nurse Practitioners (2 categories:	1626 (2008)	0.6 %	- provide comprehensive care to clients of all ages including health promotion and disease prevention, supportive, curative, rehabilitative and palliative care - in primary care settings, curative care may involve diagnosis and treatment of acute common illnesses and injuries, and monitoring / management of stable chronic diseases	Master's level for all acute care NPs Master's level for primary health care

Country	Category	Number (absolute)	% of all RN	Main tasks	Education level (required or recommended)
	1. Primary care 2. Acute care (adult, paediatric and neonatal)			- in acute care settings, curative care may involve diagnosis and treatment of patients who are acutely or chronically ill. - order and interpret diagnostic tests (including X-rays , diagnostic ultrasounds and laboratory tests) - prescribe drugs without supervision of doctors (although there are variations in prescription rights across provinces) - perform specific procedures within their legislated scope of practice - refer patients to specialists (although there are variations across provinces)	NPs in all except 3 provinces (Ontario, Saskatchewan, Newfoundland /Labrador) (note: the Canadian Nurse Practitioner Initiative targets 2015 as the year when NP education in all provinces should be at the graduate level).
Cyprus	1- Diabetic Nurses	123 (2008)	3.4 %	- advanced nurse consultation and diagnosis for diabetic patients - follow-up, monitoring, health education and lifestyle advice for non-acute cases - referral of patients to specialists	Specialisation through short-term educational programmes or post-graduate courses of 12 to 18 months
	2-Community Mental Health Nurses	80 (2008)	2.2 %	- advanced nurse consultation and diagnosis (advanced psychological assessment) - management of chronic diseases (follow-up, monitoring and health education and lifestyle advice for non acute cases) - triage activity to prioritise patients (dependent on training) - referral of patients to specialists	*Idem*
	3- Mental Health Nurses	72 (2008)	2.0 %	- advanced nurse consultation and diagnosis (advanced psychological assessment) - triage activity to prioritise patients (dependent on training)	*Idem*
	4- Community Nurses (including health visitors)	164 (2008)	4.6 %	- advanced nurse consultation and diagnosis (advanced physiological and psychological assessment) - vaccination without a doctor prescription (health visitors only) - triage activity to prioritise patients (dependent on training) - referral of patients to specialists - follow-up and monitoring for non acute cases	*Idem*
	1- Clinical Nurse Specialists	2066 (2009) (including	3.8 % (including midwives	Application of specialty-focused knowledge and skills to improve quality of care. Role includes: - assessment, planning, delivery and evaluation of care - participation in and dissemination of nursing research and audit - working closely with medical and paramedical colleagues, including	Bachelor's degree (for entrants to nursing from 2002) plus a Post-graduate diploma in the relevant

Country	Category	Number (absolute)	% of all RN	Main tasks	Education level (required or recommended)
Ireland		midwives)	in RNs)	making alterations in prescribed clinical options along agreed protocol guidelines - providing consultancy in education and clinical practice to nursing colleagues and the wider interdisciplinary team. - prescribing medication and ionizing radiation (with additional education, training and registration)	specialist area of clinical practice.
	2- Advanced Nurse Practitioners	121 (2009) (including midwives)	0.2 % (including midwives in RNs)	The core concepts of the advanced nurse practitioner role include autonomy in clinical practice, expert practice, leadership and research. Scope beyond that of CNS: - autonomy in practice such as managing Emergency Department Minor Injury Clinics - case management and follow-up, monitoring, health education and lifestyle advice for a range of patients with chronic diseases - medication and ionizing radiation prescribing under protocol or independently with recognized education, training and registration - additional diagnostics: echocardiography /laboratory test prescription	Master's level
Finland	1- Public Health Nurses (with advanced degree)	n.a.	n.a.	- advanced nurse consultation and diagnosis (advanced physiological and psychological assessment) - ordering and carrying out diagnostic tests (including diagnostic ultrasound prescription and echography) - management of a range of chronic diseases (follow-up, monitoring and health education and lifestyle advice for non acute cases) - referral of patients to specialists	Post-graduate diploma or Master's level
	2- Nurses (with advanced degree)	n.a.	n.a.	- advanced nurse consultation and diagnosis (advanced physiological and psychological assessment) - ordering and carrying out diagnostic tests (echography in hospitals) - management of a range of chronic diseases (follow-up, monitoring, health education and lifestyle advice for non-acute cases) - management of a range of acute health problems (examination of patient´s symptoms and assessment of care needs in minor infections and injuries) - triage activity to prioritise patients	Post-graduate diploma or Master's level
United Kingdom (England)	1- Clinical Nurse Specialists	n.a.	n.a.	- advanced nurse consultation and diagnosis (advanced physiological and psychological assessment), dependent on training and competency level - ordering and interpretation of diagnostic tests (including X-ray prescription, diagnostic ultrasound prescription and echography, laboratory test prescription), dependent on training and competency level - prescription of drugs with or without supervision of doctors (if the nurse is registered as a non-medical prescriber)	University first degree or Master's level, supplemented by extensive experience in field of practice and continuing professional

Country	Category	Number (absolute)	% of all RN	Main tasks	Education level (required or recommended)
				- management of a range of chronic diseases (follow-up, monitoring, health education and lifestyle advice for non-acute cases), dependent on role and training - triage activity to prioritise patients (dependent on training and competency level) - referral of patients to specialists (dependent on training and competency level) / discharge management of a caseload	development
	2- (Advanced) Nurse Practitioners	n.a.	n.a.	Same tasks as for clinical nurse specialists but more oriented towards medical consultations, frequently replacing doctors Tasks include: - receive patients with undifferentiated and undiagnosed problems and make an assessment of their health care needs - screen patients for disease risk factors and early signs of illness - make differential diagnosis - develop with the patient an ongoing nursing care plan for health, with an emphasis on preventive measures - order necessary investigations, and provide treatment and care - provide counselling and health education - have the authority to admit or discharge patients from their caseload and refer patients to other health care providers	At least Bachelor's degree – most are educated to Master's level
	3- Nurse Consultants	971 (2009) (England)	0.2 %	Nurse consultants are highly experienced nurses who specialise in a particular field of practice. They have four main functions: 1) expert practice 2) leadership and consultancy 3) education, training and service improvement 4) research and evaluation [Nurse consultants must spend 50% of their time in clinical practice]	Master's and Doctorate level
	4a- Modern Matrons	5255 (2009) (England)	1.0 %	Modern matrons have three main roles: 1) securing and assuring the highest standards of clinical care by providing leadership to front-line nursing and other staff 2) ensuring that administrative and support services are designed to achieve the highest standards of care (including tackling hospital cleanliness, prevent hospital acquired infection) 3) providing a strong presence in ward settings – be someone to whom patients and their families can turn for support	Master's level or extensive experience
	4b- Community Matrons	1654 (2009) (England)	0.3 %	Community matrons are experienced nurses working with patients with long term conditions, who have highly complex needs, and are at risk of frequent, unplanned hospital admissions. They act as case managers and are able to handle acute exacerbations in the home, to prevent admissions.	

Country	Category	Number (absolute)	% of all RN	Main tasks	Education level (required or recommended)
United States	1- Clinical Nurse Specialists	59 242 (2008)	2.5 %	- integrate care across the continuum of patient, nurse and system - promote improvement of patient outcomes and nursing care - develop evidenced-based practices to alleviate patient distress - facilitate ethical decision-making - diagnose and treat health/illness states - manage diseases and promote health - prevent illness and risk behaviors among individuals families, groups and communities	Master's level (followed by national certification exam)
	2- Nurse Practitioners	158 348 (2008)	6.5 % (2008)	- diagnose and treat patients in both primary and acute care - provide initial ongoing care including comprehensive histories, performs physical examinations and other health assessment and screening activities, - treat and manage patient with acute and chronic diseases including ordering laboratory studies, prescribing medication and making appropriate referrals for patients and families. - provide health promotion, disease prevention, health education and counselling	Master's level (followed by national certification exam)

Note : This table does not include different categories of nurse specialists who may be considered as performing advanced roles in different countries (e.g. nurse midwives, psychiatric / mental health nurses, nurse anaesthesists, emergency nurses).

Source: See Annex A for the sources used in each country.

77. Among English-speaking countries, two main categories of advanced practice nurses can be found:

1- ***Nurse practitioners*** (or advanced nurse practitioners); and

2- ***Clinical nurse specialists.***

2.3.1. Nurse practitioners (NPs)

78. In most countries where this category exists, NPs generally carry out a range of activities that may otherwise be performed by physicians in primary care, including diagnostics, screenings, prescriptions of pharmaceutical or medical tests, activities in the fields of prevention and health education, the monitoring of patients with chronic illnesses, and a general role in care coordination (alone or together with doctors).

79. NPs were first introduced in the United States in the mid-1960s, in response to shortages of primary care doctors in rural and inner city (disadvantaged) urban areas. In 2008, there were 158 348 NPs in the United States, an increase from 141 209 in 2004 (US Department of Health, 2010). Two-thirds of NPs were working in primary care (AANP, 2009).

80. In Canada also, NPs were initially introduced in the mid-1960s as a response to general care needs in rural and remote areas where doctors were in short supply (DiCenso *et al.*, 2009). Their number decreased sharply in subsequent decades, before their re-emergence in the 1990s (Box 2.2). Two broad categories of NPs now coexist in Canada: primary care NPs and acute care NPs (working in hospitals). While the number of all NPs in Canada doubled between 2003 and 2008, they still account for only about 0.6% of all registered nurses.

Box 2.2 The "re-emergence" of nurse practitioners in Canada

While nurse practitioners in primary care first appeared in Canada in the mid-1960s, their role became largely obsolete in the 1980s for a number of reasons, including: a perceived oversupply of physicians (particularly in urban areas), a lack of financial incentives for nurses to take on these positions, the absence of provincial/territorial legislation and regulation, little public awareness of their role, and weak support from policy makers and other health professionals.

In the 1990s, the "health system renewal", combined with limited resources and the will to develop primary care, renewed the interest in nurse practitioners. Many provinces introduced university-based education programmes and legislation to support a renewal of nurse practitioners to improve access to primary care in a context of growing concerns about shortages of doctors and growing interests in developing a team-based approach. In Ontario, for instance, the Ministry of Health announced in 1994 a new nurse practitioner initiative as part of broader efforts to improve access to primary care, supported by a new education programme in 1995. Besides nurse practitioners in primary care, acute care nurse practitioners also emerged in hospitals in the 1990s to address gaps in services traditionally performed by specialist physicians and residents whose numbers had declined. In the late 1990s, nurse practitioner regulation was supported by doctors in order to have guarantees of appropriate skills. Acute care nurse practitioners and primary health care nurse practitioners are now recognised in the legislation of all ten provinces and three territories.

Sources: Nurse Practitioners' Association of Ontario (2010), DiCenso *et al.* (2009) and CNA (2005).

81. In the United Kingdom, NPs have been part of the National Health Service since the early 1970s, but their role was consolidated at the end of the 1990s and their number has increased significantly since then (Royal College of Nursing, 2005). It remains difficult, however, to assess

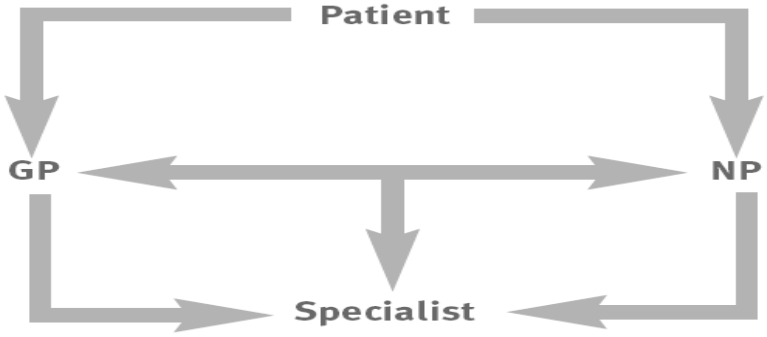
precisely their number because many of these new jobs and roles are not based on a registrable qualification, and there are sometimes local differences between job titles and grades (Buchan *et al.*, 2008). NPs in the United Kingdom are mainly working in the primary care sector, although some NP posts have also emerged recently in hospitals.

Box 2.3 The roles of NPs, GPs and other health professionals in primary care in the United Kingdom

The type of relationships between NPs and GPs in primary care group practices can vary a lot across countries as well as across different settings in each country. In some countries/settings, a more hierarchical organisation may exist, providing less autonomy to NPs.

In the United Kingdom, advanced nurse practitioners are in many cases working with a high level of autonomy, yet collaboratively with GPs in the same group practice. The following diagram depicts the referral system proposed by the Royal College of Nursing of an (advanced) nurse practitioner working in primary care.

Diagram 2.1: Referral system in primary care in the United Kingdom



Source: RCN, 2008.

In this system, the patient can consult with either a GP or an advanced nurse practitioner, or indeed both. The advanced nurse practitioner may work with the patient to determine a care plan, and may deliver a large proportion of that care themselves, or in collaboration with medical colleagues and other members of the group practice.

In reality, group practices in the United Kingdom may remain more hierarchical than the system depicted in Diagram 2.1, with some advanced nurse practitioners *de facto* working under the supervision of doctors.

In addition, a new advanced nursing role has recently emerged in primary health care in the United Kingdom in relation to chronic disease management, inspired by the approach used by certain Health Maintenance Organizations (HMOs) in the United States. A community "matron" sometimes manages a group of patients with severe conditions, often requiring further hospital treatment and other types of care. They assume responsibility for the planning, coordination and provision of care, as well as the ongoing monitoring of care quality and outcomes (Goodman *et al*, 2005). The role of community matron overlaps a great deal with the traditional role of GPs as care coordinators.

82. In Finland, there is also a long tradition of cooperation between doctors and nurses in primary care centres, with nurses playing a number of advanced roles. Advanced nursing consultations take place in special reception facilities in health centres, with support provided by doctors as requested. Such consultations may also involve an approach whereby nurses and doctors work in tandem in a health centre.

83. In Australia and Ireland, the development of NPs is more recent. There were only 400 NPs in Australia in 2010 and 121 NPs in Ireland in 2009, accounting for about 0.2% of all registered nurses, although their numbers are growing.

Box 2.4 The extended roles of nurses in rural/remote areas in Australia, Canada and Finland

In several countries such as Australia, Canada and Finland, nurses in advanced roles were first introduced in rural or remote regions to provide primary care to populations who were underserved by doctors. Still nowadays, nurses in these rural and remote areas often act as the first health care provider.

In Australia, nurse practitioners play an important role in the delivery of primary care in many rural areas. Their roles and tasks for these include: assessing, diagnosing, treating and monitoring a variety of health problems; initiating, ordering and interpreting pathology and radiology; counselling and referring patients for depression through the development of close networks with area psychologists; organising out-of-area transfers for patients requiring complex acute care; providing preventative health and education, and family childcare/midwifery.

In Canada, registered nurses in extended roles are allowed in certain rural and remote regions to carry out the assessment, diagnosis and treatment of patients with simple health problems, which account for around half of all cases (BC Ministry of Health, 2002). Nurses may be in telephone contact with the doctor on duty to receive advice, with a possible transfer to the doctor in case of complex emergencies.

Finland has also developed nursing reception facilities in smaller health stations in remote areas, which are supported by e-consultations with doctors working in main health stations when necessary. Nurses can manage up to 70% of the service needs in these remote health stations (Jaatinen *et al.*, 2002).

2.3.2. Clinical nurse specialists (CNSs)

84. In most countries where this category exists, the roles of clinical nurse specialists include clinical practice, education, research and leadership. They work mainly (but not exclusively) in hospitals, where their more advanced skills and competencies enable them to support staff nurses, project leaders and quality control managers.

85. The number of clinical nurse specialists has increased in recent years in some countries, but not all. Their number has nearly doubled in Ireland between 2001 and 2008, although it started from a very low number. In the United States, the number of clinical nurse specialists decreased from 72 521 in 2004 to 59 242 in 2008, a reduction of 22% (US Department of Health, 2010). This reduction was more than offset by the increase in the number of NPs.

2.4. Education and training requirements

86. The education and training requirements to become an advanced practice nurse vary to some extent across countries, and in some cases there are even some variations within countries. In most countries, a graduate degree in nursing (e.g., a Master's degree) is now recommended or required to qualify as an advanced practice nurse. This is the educational requirement that has been established, for instance, in Australia, as new university-based programmes are being set up to produce advanced practice nurses. In the United States and Canada, there has been a gradual increase in the educational requirement of NPs and clinical nurse specialists, with a Master's degree now becoming the norm, although in some Canadian provinces, a post-baccalaureate certificate is still sufficient to become an NP. In the United States, 88% of NPs had at least a Master's degree in 2008 (AANP, 2009), up from 62% in 2000.

87. By contrast, in the United Kingdom, a first-level university degree (e.g., a Bachelor's degree) is still sufficient to become an NP or a clinical nurse specialist, with relevant work experience and on-the-job training playing a more important role in determining the suitability of candidates to move to more advanced posts. Specific training programmes of a short duration have been set up for all registered nurses (not only advanced practice nurses) interested in extending their scope of practice in certain areas, such as drug prescribing.

2.5. Increasing role of advanced practice nurses in drug prescription

88. In many countries (Australia, the United States, the United Kingdom, Canada and Ireland), certain categories of nurses are now authorised to prescribe pharmaceutical drugs. While drug prescription by nurses in other countries covered under this study has until now been prohibited, some changes are expected in countries such as Finland.[3]

89. The United States was the first country to introduce the right for nurses to prescribe drugs in the mid-1970s, followed at the beginning of the 1990s by the United Kingdom and Australia. Certain provinces in Canada began to authorise this role at the end of the 1990s, and this right has progressively been extended since then. Ireland started to authorise this type of practice in 2007. The authorisation for nurses to prescribe medications has required legislative changes in all of these countries (see Table 2.2).

90. An important distinction regarding the rights for nurses to prescribe drugs is whether they can prescribe independently or only under the supervision of a doctor. Table 2.3 indicates that the categories of nurses allowed to prescribe drugs without the supervision of a doctor are more or less restricted in different countries. Some countries, such as the United States, grant the authorisation to prescribe drugs to all categories that are defined as advanced nurses, while others are more restrictive and grant it to some categories only. For instance, in Canada, only NPs in primary care are allowed to prescribe drugs without supervision by doctors. In some countries, such as the United Kingdom or Ireland, this authorisation may be granted to all nurses, provided they complete appropriate training.

91. The range of drugs that nurses can prescribe in these countries is broad, including antibiotics, antiviral drugs, anticoagulants, anticholesterols and others. Nevertheless, there are variations across countries concerning the right for nurses to prescribe "controlled drugs" in particular (e.g., narcotics and strong pain killers). While Australia, Ireland and the United Sates allow certain categories of nurses to prescribe drugs for palliative care and narcotics, Canada does not authorise them to prescribe these controlled substances. The United Kingdom authorises nurses to prescribe controlled drugs for palliative care, including strong opiates, but not other controlled drugs such as narcotics.

3. In Finland, a number of steps have been taken to extend the rights of nurses to prescribe pharmaceutical drugs. For many years, nurses have been entitled to prescribe contraceptive pills. Since 2000, many health centres have defined local guidelines on collaborative prescribing, allowing nurses to propose a limited number of prescriptions to certain patient groups, but these prescriptions still required the approval of doctors. In early 2010, the government has proposed a new legislation to allow nurses to prescribe a limited number of drugs (see country note in Annex A).

Table 2.2 Key milestones in the rights of nurses to prescribe drugs in five countries

Countries	Dates of introduction / extension	Possible next steps
Australia	Introduction: Since 1991, depending on the State Extension: In 2007, some states were still piloting the implementation of nurse prescribers (McMillan, 2007). According to the first national census (Gardner *et al.*, 2009), almost one-third of nurse practitioners were still awaiting approval to prescribe medications. Legislation in one jurisdiction was amended in 2006 to allow nurse practitioners to prescribe drugs of dependence.	November 2010: rebates provided for the costs of drugs prescribed by nurse practitioners
Canada	Introduction: Legislation is now in place in all provinces and territories (beginning in Ontario in 1998 and most recently in the Yukon Territory in 2009) to allow nurse practitioners in primary care settings to prescribe autonomously. Some provinces/territories began with list-based prescribing rights but most have moved or are moving toward open prescribing (e.g., Bill 179 was approved in Ontario in 2009 supporting open prescribing). In many provinces and territories, nurse practitioners working in hospitals are still not allowed to independently prescribe drugs (they can only prescribe drugs with the support of medical directives, that is, indirect supervision by a physician).	Prescription of controlled substances (e.g., narcotics) will require federal approval; this is currently being explored by nurse practitioner associations in Canada.
Ireland	Introduction: Since 2007, certain nurses have obtained the right to independently prescribe drugs.	
United Kingdom (England)	Introduction: Early 1990s Extension: - additional prescription supervised by a doctor, in particular for patients with chronic diseases in 2003 - authorisation to issue prescriptions independently broadened in 2004 ("nurse prescriber's extended formulary") to cover 180 products and 80 clinical situations - fully independent prescription rights in 2006	Drugs for palliative care (including strong opiates) can be prescribed but not yet other controlled drugs such as morphine. However, legislative changes are currently undergoing approval.
United States	Introduction: mid-1970s, depending on the state Extension: The majority of states now allow advanced practice nurses broad prescribing authority, and 47 states and the District of Colombia allow nurse practitioners to prescribe controlled substances (Pearson, 2009)	

Table 2.3 Categories of nurses involved in drug prescription (with or without the supervision of a doctor), and required additional training

	Prescription of drugs		Training
Country	**With supervision of doctors**	**Without supervision of doctors**	
Australia	Nurse practitioners and Advanced Practice Nurses in some regions	Nurse practitioners in some regions	Additional training (beyond initial training): 60-80 hours
Canada	Nurse practitioners in acute care settings (hospitals) can prescribe under medical directives (indirect medical supervision)	Nurse practitioners in primary care (community-based settings)	Training included in nurse practitioner education programme
Ireland	All nurses may supply and administer drugs under medication protocol agreed and signed by the relevant medical practitioners and the health service provider	Registered nurses/ midwives in all grades who have successfully completed a post-registration education programme on nurse/ midwife prescription and who are registered as nurse prescriber with the Irish Nursing Board.	Additional training (beyond initial training): 6 month post-registration programme at Bachelor's degree level
United Kingdom (England)	All nurses can prescribe medicines through a process called "patient group direction" delegated by a doctor.	All categories subject to registration as nurse prescribers. Nurses can become independent prescribers through completion of a training course and registration with the Nursing and Midwifery Council.	Additional training (beyond initial training) for prescription without supervision of a doctor: completion of non-medical prescribing course involving 26 days of theory and 12 days of practice supervised by a doctor.
United States	Nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists	Nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists in some states	Training included in Master's level education programme specific to the type of advanced practice registered nurse.

Source: OECD questionnaire (2009).

PART 3: EVALUATIONS OF ADVANCED PRACTICE NURSING ON CARE AND COST

Introduction

92. To what extent do different types of advanced practice nursing (APN) effectively meet their initial goals of improving patient care through greater access, higher quality and/or better health outcomes? And what is the impact on cost (compared to a more "traditional" approach of health service delivery)? This part summarises the results of evaluation studies carried out in a number of countries on the impact of APN on patient care and cost. It builds on recent reviews of such evaluations that have been carried out by other researchers.

93. Sibbald (2008 and 2009) conducted two international reviews of evaluation studies, dealing with APN roles in primary care in general (2008 review) and in chronic disease management more specifically (2009 review). The general conclusions drawn from her 2008 review were that: a) nurses can generally deliver as high quality care as general practitioners in the areas of preventive health care, routine follow-up of patients with long-term conditions, and first contact for people with minor illness; b) nurses tend to provide more information and advice to patients, resulting in higher patient satisfaction; c) efficiency gains in health service delivery can be achieved if doctors focus on health problems of a more complex nature and with a high degree of uncertainty regarding diagnosis or treatment; d) the impact on cost tends to be negligible, as savings associated with paying lower salaries for nurses compared to doctors tend to be offset by longer consultations, higher patients recall rates and sometimes the ordering of more tests. Her 2009 review, which covered 4 evaluations of the impact of advanced nurse practices in chronic disease management involving a *substitution* of tasks previously done by doctors and 17 studies involving *supplementary* activities/tasks, concluded that: 1) nurses performing such advanced practice roles can indeed reduce the demand for doctors while being able to deliver these services at the same level of quality and even in some cases achieving a higher level of quality and patient satisfaction (again mainly because nurses tend to spend more time in providing advice to people with chronic diseases); 2) the impact on cost depends mainly on the activities of advanced practice nurses: if the activities involve a *substitution* of tasks, the impact is cost neutral; if they involve *supplementary* (new) activities, this results in higher cost.

94. DiCenso *et al.* (2009) also carried out an extensive review of the available evaluations in a number of OECD countries, including both the activities of advanced practice nurses in hospitals and in primary care facilities. The review, covering a total of 78 studies, concluded that nurses in advanced practice generally provide safe and effective care, in many cases resulting in improved patient outcomes and satisfaction. Among the fewer number of studies that tried to estimate the impact on costs, the majority concluded that the impact was either cost neutral or cost reducing, with only one study finding a cost increase.[4] In several cases, the cost reduction was linked to a shorter average length of stay in hospitals for patients receiving follow-up care from advanced practice nurses after discharge and fewer hospital readmissions.

4. This study by Litaker et al. (2003) assessed the impact of a chronic disease management programme in the United States; it is reported in Table 3.1.

95. Table 3.1 summarises some of the main evaluations of the impact of advanced practice nurses, including some evaluations covered in the reviews just mentioned above and recent evaluations reported by national experts involved in this study. It is important to note that the table reviews solely the activities of advanced practice nurses in the primary care sector; it does not include evaluations reviewing their activities in hospitals. The evaluations are grouped by the broad type of activities that advanced practice nurses can play in primary care: 1) general roles (including being a first contact with patients, and routine follow-up for a broad range of patients); 2) more specific roles in chronic disease management (e.g., for asthma, diabetes, cardiovascular problems); 3) specific roles in prescribing pharmaceutical drugs. Two main criteria have been used to select the evaluations presented in the following table: 1) study design (with the selection focusing on evaluations based on randomised controlled trials and other rigorous evaluation methods); 2) country coverage (with the selection attempting to cover as many countries as possible while maintaining a balance in the number of evaluations per country).

96. As might be expected, most of the evaluations have been carried out in countries that have a long experience in experimenting with and deploying advanced practice nurses in primary care – the United States, Canada, the United Kingdom and Finland. A small number of evaluations are also reported for Australia, Ireland and France (an evaluation of pilot projects on new nurse-doctor collaborations in chronic disease management). Most evaluations have been carried out in the past ten years.

97. Many evaluations are based on randomised controlled trials, which involve comparing the activities of advanced practice nurses with those of doctors, for a group of patients assigned randomly to the two groups of providers. Some evaluations are based on observational studies that also compare nurse activities with those of doctors, but without any attempt to randomly assign patients (thereby possibly creating some bias). The evaluations use a range of measures of access, quality or outcomes of care, including: waiting times to obtain services, provider compliance with quality and safety clinical guidelines, patient compliance with therapeutic advice and recommendations, the health outcomes of patients in terms of morbidity (either diagnosed or self-reported), and overall patient satisfaction.

98. Certain studies have also tried to assess the impact of advanced practice nurses on cost, including both direct and indirect cost such as: the cost per consultation (e.g., comparing the average cost of an NP consultation with that of a GP consultation), the length of consultations (with longer consultations involving higher cost if providers are remunerated through salaries), the number of referrals to doctors (e.g., GP in the same practice or other specialists), the number of prescriptions of additional tests and pharmaceutical drugs (in countries where nurses are allowed to make such prescriptions).

Table 3.1 Review of evaluations of the impact of advanced practice nursing in primary care (general role), chronic disease management and drug prescription

Country	Author and Year	Type of activities	Method	Main findings *Access and quality care*	Main findings *Costs*	Main conclusions and recommendations
Advanced Practice Nursing in Primary Care (general role)						
Canada	Martin-Misener *et al.* (2009)	Evaluation of primary health care and emergency services for adults in a rural community provided by a team including an on-site nurse practitioner and paramedics and an off-site family physician	Structured questionnaires and interviews with patients, health and social service providers and administrators	Increased access to primary and emergency services, high level of acceptance and satisfaction with NPs, and effective collaboration among care providers.	Lower travel costs Reduced visits to hospital emergency departments by 40% Lower pharmaceutical drug costs (due to earlier interventions and less complications)	
Finland	Peltonen (2009)	Comparing a health service delivery model of a pair of primary health care physician and nurse with a traditional model of a multiprofessional team (physicians, nurses and assistants in health centres)	Survey questionnaire (10 health centres, 788 patients)	Better access to care (higher proportion of patients seen within 3 days) Follow-up visits planned more often by the primary health care nurse. Patients felt they received more often competent services and information from primary health care nurse and were better able to manage their health condition themselves. Greater implementation of local clinical guidelines.		Proposing a generalization of this new health service delivery model for health centres Needs to be supported by common training for doctors and nurses in team-based work and common access to same software for consultation planning and care coordination
Finland	Hukkanen and Vallimies-Patomaki (2005)	Survey of the pilot projects on health workforce division carried out within the National Health Care Project (tasks transferred from doctors to nurses including monitoring of chronic	Survey questionnaire (25 health centres)	Emergency visits to doctors were reduced by 18-25% a month as a result of nurses' receptions and telephone advice. Nurses also handled up to 30% of all emergency visits		Proposing development of national guidelines to promote these new forms of nurse-doctor collaboration Proposing development of regulated postgraduate

Country	Author and Year	Type of activities	Method	Main findings *Access and quality care*	Main findings *Costs*	Main conclusions and recommendations
		diseases and acute and minor health problems).		in health centres.		education programme in nursing to increase the number of highly qualified nurses.
United Kingdom	Horrocks *et al.* (2002)	Comparing the care of NPs as first point of contact with that of GPs	Systematic review and meta-analysis RCT and prospective observational studies	NP consultations longer and including more investigation than GP consultations. No differences in drug prescriptions, return visits or referrals. No differences in patient health outcomes. Patients generally more satisfied with care provided by NPs.		Although on average NPs provide at least the same quality of care as GPs, there are a lot of variations in the training and practice of different NPs. Hence, it is important to further harmonize their training and competencies.
United Kingdom	Kinnersley *et al.* (2000)	Primary care outcomes in patients treated by NPs or GPs	Randomised controlled trial (10 general practices – 1368 patients)	NPs provided more information to patients and longer consultations. Similar number of prescriptions, investigations ordered, and referrals to specialists. Resolutions of symptoms and other health concerns did not differ between NPs and GPs. Patients consulting NPs were significantly more satisfied.		
United Kingdom	Venning *et al.* (2000)	Cost effectiveness of NP and GP care	Randomized controlled trial in 20 general practices (1316	NP consultations were significantly longer. No significant difference in patterns of prescribing or health status outcome for the two groups. Patients were more satisfied	No significant difference in costs (the average NP consultation cost less than a GP consultation -£18,11 vs £20,70- but took	Possible to improve cost-effectiveness in health service delivery if NPs were able to maintain the benefits to patients while reducing their return consultation rate or

Country	Author and Year	Type of activities	Method	Main findings *Access and quality care*	Main findings *Costs*	Main conclusions and recommendations
			patients, with half seen by NPs and the other half by GPs)	with NP consultations (this difference remained even after controlling for consultation time).	longer).	shortening consultation times.
United Kingdom	Extended Role of Staff (EROS Project) (1999)	Comparing NPs in general practice with GPs	Comparison of NP trainees diagnoses and clinical treatment decisions, after one year of practice, with those of GPs (586 patients).	GPs and NP trainees agreed on 94% of diagnoses and 96% of management decisions. NP trainees transferred 38% of patients to GPs (mainly more complex/uncertain cases) NPs particularly appreciated for ability to listen and advise patients. They achieved better results for health prevention and promotion of self-care.		
United States	Edwards *et al.* (2003)	9 clinics of nurse-managed primary care	Observational study	High quality of care (94% consistency with existing guidelines; 91% of patients highly satisfied with 94% indicating intention to return).		
Advanced Practice Nursing in Primary Care (disease specific)						
Australia	Smith et al. (2001)	Home care by advanced nurses for chronic obstructive pulmonary disease (COPD)	Systematic review of RCTs	The outcomes were dependent on the seriousness of cases: possible positive outcome with nurse led community-based management when the disease was moderate but not when it was severe.	Most studies have been unable to demonstrate cost savings	A change in admissions from reactive emergency admissions, to proactive elective admissions, while not necessarily resulting in an overall reduction in admissions and costs, should still be

Country	Author and Year	Type of activities	Method	Main findings *Access and quality care*	Main findings *Costs*	Main conclusions and recommendations
						considered worthwhile in terms of societal value.
Canada	Russell *et al.* (2009)	Comparison of chronic disease management outcomes by 4 models of primary health care delivery and identification of practice organizational factors associated with high quality care Patients treated by NPs for: diabetes, congestive heart failure, coronary artery disease, hypertension	Cross-sectional survey with nested qualitative case studies of 137 randomly selected primary care practices from 4 delivery models (fee-for-service, capitation, blended payment and salary)	Chronic disease management was superior in community health centres (salary model) due to longer consultations and interprofessional collaboration. High quality chronic disease management was associated with the presence of an NP, lower patient-family physician ratios and when practices had no more than 4 full-time equivalent family physicians No difference however in health outcomes (e.g., as measured by blood glucose control for diabetic patients)		Nurse practitioner involvement in primary care teams had a positive association with chronic disease management.
France	Mousquès *et al* . (2010)	Cooperation between GPs and nurses for the follow up of diabetic patients in the framework of pilot projects. .	Medico-economic evaluation	Better results than for the control groups. The nurse/ GP cooperation model proved to be efficient. Health education provided by nurses improved blood sugar levels. The data management related to patient by the nurse also improved the follow-up. No change in the number of consultations per doctor (not clear if doctors were more focused on difficult cases).	Equivalent cost (no significant difference)	

Country	Author and Year	Type of activities	Method	Main findings *Access and quality care*	Main findings *Costs*	Main conclusions and recommendations
United Kingdom	Griffiths *et al*. (2004)	Test of a new model of practice in asthma care combining education of patient following hospital discharge and care support	Randomised controlled trial (324 patients)	Reduced hospital admissions for unplanned acute asthma cases in the year after intervention.		
United States	Aiken *et al.* (2006)	Outreach registered nurse case managers for severe chronic obstructive pulmonary disease (COPD)	Randomised controlled trial (192 patients)	Significantly better outcomes in self-management of illness, greater appreciation of resources available to help with their illness and legal preparation for end of life.		Programme of palliative care and coordinated care management for seriously chronically ill patients appeared to benefit from these treatments.
United States	Litaker *et al.* (2003)	Chronic disease management outcomes in patients treated by NPs or physicians (hypertension and diabetes)	Randomised controlled trial (157 patients)	Significant patient improvement in blood pressure control and diabetes control. Higher patient satisfaction.	Higher one-year cost for personnel.	
United States	Lenz *et al.* (2004)	Role of NPs in monitoring patients with different chronic diseases	Randomised controlled trial (406 patients)	Comparable results between NP and GP on physiological results, health status as reported by patients and patient satisfaction.		
United States	Lenz *et al.* (2002)	Diabetes care processes and outcomes in patients treated by NPs or physicians	Randomised controlled trial (3397 patients)	NPs more likely to give education about nutrition, weight, exercise and medications. NPs prescribed monitoring tests more frequently than GPs. No differences in patient outcomes in 6-month follow-up.		
United States	Mundinger *et al*. (2000)	Health service use and outcomes of patients treated by nurse practitioners or	Randomised controlled trial (6 and 12	Health status was equivalent for patients who had an initial appointment with		

Country	Author and Year	Type of activities	Method	Main findings *Access and quality care*	Main findings *Costs*	Main conclusions and recommendations
		physicians	months after initial appointment) 1316 patients (e.g., asthma, diabetes)	either an NP or a GP 6 months earlier. Health service utilization was equivalent at both 6 and 12 months, and patient satisfaction was also globally equivalent.		
Advanced Practice Nursing in drug prescription						
Ireland	Drennan *et al.* (2009)	Independent National Evaluation of the Nurse and Midwife Prescribing Initiative	Survey questionnaire, audit of prescriptions, semi-structured interviews	No safety problems Reduction of waiting time to obtain access to care and drugs (90% of patients) High patient satisfaction		The national rollout of independent nurse prescribing should continue and be further supported and strengthened
United Kingdom (Scotland)	Watterson *et al.* (2009)	Evaluation of the expansion of nurse prescribing	Case studies and 2 surveys of patients	Improved patient access to pharmaceutical drugs (less waiting time). No problem regarding patient safety. Some GPs expressed concerns that nurse prescribers may be less aware of the dangers of over-use of certain drugs.		Need for effective education, supervision and auditing of nurse prescribing work.
United Kingdom	Nutall *et al.* (2008)	Evaluation of the antibiotic prescribing by the NP trainees	Audit of all consultations and prescriptions of antibiotics by 3 NPs over a 6 month period	82% of the antibiotics prescribed were found to adhere to practice guidelines; the others 18% were prescribed with clear clinical indication.		

3.1 Impact on patient care (access, quality, outcomes and satisfaction)

99. The evaluations reported in Table 3.1 generally confirm the findings from earlier reviews that advanced practice nurses in different countries can provide equivalent quality of care when compared with that provided by doctors for certain patient groups in primary care and in chronic disease management (e.g., patients with minor health problems or whose condition has been stabilized). None of the evaluations have found any meaningful negative impact on patient safety or patient outcomes following the transfer of certain tasks from doctors to nurses, and patient satisfaction either remains stable or increases, particularly because nurses tend to spend more time listening to patient's problems and providing them with advice.

100. In the United Kingdom, findings from the 1999 EROS project indicate that NPs (who were still undergoing training) and GPs agreed on 94% of diagnoses and 96% of management decisions regarding general practice activities.

101. In Finland, the model of a general practitioner working together with an advanced practice nurse has shown positive results in terms of greater provision of health education and routine follow-up of patients by advanced practice nurses. Patients felt that they received useful services from the "family nurse" on a more regular basis and were better able to follow and manage their health condition by themselves, particularly people with chronic diseases (Peltonen, 2009).

102. In Australia, Canada and Finland, some evaluations have shown that nurses in advanced practice roles have helped increase access to care in rural and remote areas where there may be very few doctors, without compromising quality of care. One condition for the success of many of these initiatives is good interprofessional cooperation and the possibility for nurses to consult or refer patients to doctors for cases that are more severe or acute.

103. In Canada, the results from a 2009 study assessing the management of a set of chronic diseases in primary care found that the quality of care (in terms of process measures) was superior in community health centres, a particular type of group practices involving at least one nurse practitioner working along with doctors and other health professionals, all of whom are paid by salary (Russell *et al.*, 2009). Across all the different types of primary care models, higher-quality of chronic care delivery was more likely when there was a nurse practitioner. On the other hand, the study could not detect any difference in patient health outcomes (e.g., as measured by blood glucose control for diabetic patients).

104. In France, the results from pilot studies assessing new forms of cooperation between doctors and nurses in providing care for people with diabetes and other chronic conditions also indicate better quality of care, notably through the provision of greater advice to patients on lifestyle and self-care by nurses. These have contributed to better health outcomes, at no greater cost (Mousquès *et al.*, 2010).

105. Only a limited number of evaluations have been carried out to assess drug prescription practices of certain categories of nurses in the United Kingdom and Ireland. These evaluations have not raised any concerns about appropriateness or patient safety. Patients have generally expressed a high level of satisfaction due to quicker access to prescription drugs through nurse prescribers. In Ireland, 90% of patients could reduce their waiting time to obtain access to care and pharmaceutical drugs (Drennan *et al.*, 2009). In Scotland, some GPs expressed concerns about the possible over-prescription of certain drugs by nurse prescribers, but the evaluation did not reveal any adverse patient outcomes (Watterson *et al.*, 2009). In United Kingdom, nurses in primary care reported more continuing professional development needs to keep up their knowledge with best practices in prescribing (Courtenay *et al.*, 2007).

106. However, as pointed out by Sibbald (2009) and Sibbald *et al*. (2006), there may also be some potential unintended effects of the development of APN roles, particularly in the context of large group practices involving many doctors and nurses. Given the multiplicity of health care providers, *personal* continuity of care (between patients and their "family" doctor or nurse) may be reduced, and it may become more difficult to achieve proper care coordination, with a risk of higher transaction cost/time.

3.2 Impact on cost

107. Those studies that have tried to measure the impact of greater use of APN on cost tend to conclude that results are either cost neutral or may slightly reduce the cost of health service delivery compared with a doctor-based approach, when the activities involve a *substitution* of tasks. Several studies have found that any savings on nurses' salaries (compared with doctors' salaries) is offset partly or fully by different factors such as longer consultations, higher patient referrals to other doctors or recall rates, and sometimes the ordering of more tests. If the services involve *supplementary* tasks by advanced practice nurses, then the cost may increase, as reported for instance in the evaluation of a chronic disease management programme in the United States (Litaker *et al*., 2003). However, these evaluations may not have taken into account some potential savings related to avoiding severe complications of these chronic conditions.

Conclusions

108. Although the bulk of evaluations shows that advanced practice nurses with proper qualifications can provide care of at least equivalent quality to doctors for those activities delegated to them, one needs to be cautious in drawing general conclusions from these studies because of differences in the specific contextual factors in which these new roles are implemented.

109. One of the limitations of most of the available evaluations of the impact of advanced practice nurses on patient care and costs is that they do not take into account the effect of the many other organisational or financial factors that may come along with the introduction of new APN roles and may affect the cost-effectiveness of health service delivery. With the development of group-based practices in primary care and the development of chronic disease management programmes involving several practitioners, it is becoming increasingly difficult to *isolate* the specific impact of any individual member of the group practice on patient care and cost, including the impact of advanced practice nurses. The implication for evaluation approaches is that there is a need to broaden the scope of the study, from "simply" comparing how advanced practice nurses do a certain set of activities compared with doctors, to looking more broadly at the organization and integration of services between different providers (advanced practice nurses, doctors and other health professionals), and identifying some of the "success factors" that contribute to cost-effectiveness in health service delivery, including the role played by advanced practice nurses. This is challenging and requires sophisticated statistical methods, but some of the evaluations reviewed in this section have already moved in such directions (e.g., Russell *et al*., 2009; Litaker *et al*., 2003; Mousquès *et al*., 2010).

PART 4: BARRIERS AND FACILITATORS TO ADVANCED PRACTICE NURSING

110. The experience from countries that are ahead in implementing advanced practice nursing (APN) roles as well as those which are lagging behind shows that many factors can either hinder or facilitate the development of such roles in primary care facilities and hospitals. As noted in the first part of this study, APN roles tend to have flourished more in countries in which there are relatively few doctors compared with nurses (Table 1.1). In these countries, there may be a greater interest from all parties in calling upon advanced practice nurses to fill the gaps created by a low supply of doctors. However, a high nurse-to-doctor ratio does not necessarily mean that nurses will actually be called upon to play more advanced roles. For instance, the nurse-to-doctor ratio is as high in Japan as it is in the United States, Canada or the United Kingdom, yet nurses in Japan have to date continued to play fairly traditional and limited roles. Thus, a number of other factors also play a role in explaining why APN roles have emerged in certain countries and not in others.

111. This part focuses on four factors that may act either as a barrier or facilitator to the development of APN roles:

1. *Professional interests*
2. *Organisation of care and funding mechanisms*
3. *Legislation and regulation regarding the scope of practice*
4. *Education and training opportunities*

4.1 Professional interests

112. The position of professional associations – in particular nurse associations and medical associations – can play an important role in determining the possibility and speed of implementation of new APN roles.

113. In nearly all countries where advanced practices nursing has been implemented, nurse associations have played a key role in putting the issue on the policy agenda first and mobilising the required political support. They have also made proposals for extending the scope of practice of nurses, as well as defining the additional education and training requirements. Furthermore, they have supported the implementation of any adopted reform.

114. Nurse organisations in countries like the United Kingdom and the United States are better organised and have more influence than in other countries. For instance, in the United Kingdom, the development of APN has been supported over the years by the Royal College of Nursing (RCN). Beyond playing an advocacy role, the RCN has supported the development of APN by clarifying the potential scope of practice of different categories of nurses and identifying the skills and competencies required for certification (RCN, 2008). By contrast, in other countries, nurse organisations are not as well organised and do not have the same capacity to exert pressures for reforms, develop reform proposals and support implementation. In France, for example, the Conseil de l'Ordre national infirmier ("National Nursing Order Council") has only been established in 2008.

115. The opposition of the medical profession has been identified as one of the main barriers to the development of APN roles in most countries covered under this study (with a few exceptions). The main reasons for physician resistance to APN roles include a potential overlap in the scope of practice and loss of activities, the degree of autonomy and independence of advanced practice nurses, concerns about legal liability in cases of malpractice, and concerns about the skills and expertise of advanced practice nurses. The potential overlap in the scope of practice between advanced practice nurses and doctors may be greater for nurse practitioners (NPs) working in primary care than for clinical nurse specialists working in hospitals (whose role involves more service/quality enhancements than task substitutions).

116. In the United States, the American Medical Association and other medical organisations such as the American College of Physicians (ACP) have long been the main opponents of advanced practice nurses. For example, the American College of Physicians recently said that "greater autonomy of NPs has been a point of contention between the medical and advanced-practice nursing communities. Questions have been raised about the adequacy of NP training and certification, quality of patients outcomes, and perceived intentions to displace or replace primary care physicians" (ACP, 2009). For the American Medical Association (AMA), at least one doctor in the integrated practice must be immediately available for supervision and consultation by the NP (AMA, 2009). To reduce the opposition from medical associations, nurse associations and other stakeholders supporting the development of APN roles have tried to work with them to address as much as possible their concerns, emphasising the benefits for all professional groups of teamwork and collaboration.

117. In France, the National Council of Doctors (CNOM) has raised concerns about the legal liability of doctors in cases of malpractice in the context of teamwork, and requested a clearer definition of roles and responsibilities of different health care providers (CNOM, 2009).

118. Similarly, in Canada, doctors have raised concerns that they may be held financially responsible for lawsuit claims involving joint care if NPs have insufficient coverage against malpractice. As in France, they have requested greater clarity about their medical and legal responsibility when working in partnership with NPs. In response to these concerns, the Canadian Medical Protective Association and the Canadian Nurse Protective Society have prepared a joint policy statement that provides a set of principles and criteria for defining the scopes of practice and clarifying liability issues (Canadian Medical Protective Association *et al.*, 2005).

119. The United Kingdom provides the example of a country where there has generally been less opposition from the medical profession to the implementation of APN. This can be explained by a different organisation and financing of health services, particularly in primary care, which has provided greater incentives for group practices to recruit and use NPs and other advanced practice nurses.

4.2 Organisation of care and funding mechanisms

120. The organisation of primary care is a crucial factor in determining the extent to which APN roles may grow in this sector. In general, one might expect that there will be greater opportunity to test and implement new APN roles in countries where primary care is delivered mainly in group practices, compared with countries where primary care is still based predominantly on general practitioners/family doctors working in solo practice.

121. The organisation of primary care varies widely in the group of countries covered in this study (Table 4.1). In some countries (Belgium, Czech Republic, France, Ireland), the predominant mode of provision of primary care continues to be based mainly on solo practice, whereas in other countries (Australia, Canada, Finland, United Kingdom and United States), group practices is the dominant mode. In Finland, over 95% of general practitioners work in group practices, while this proportion reaches close

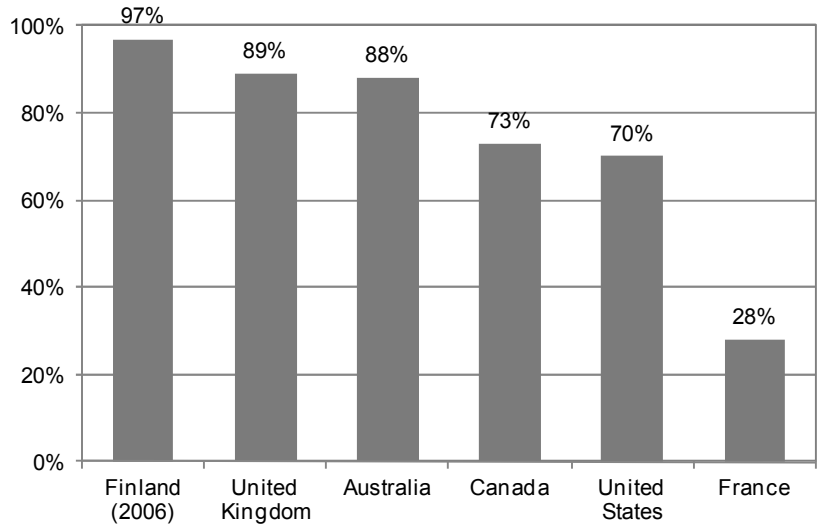
to 90% in Australia and the United Kingdom. By contrast, only about 30% of general practitioners in France work in group practices (Figure 4.1). As expected, APN roles in primary care are more developed in those countries where primary care is mainly delivered in group practices.

Table 4.1 Predominant modes for the provision of primary care services

Country	Predominant mode of provision for primary care services	Second mode of provision for primary care services
Australia	private group practices	
Belgium	private solo practices	private group practices
Canada	private group practices	private solo practices
Czech Republic	private solo practices	
Finland	public centres	private group practices
France	private solo practices	
Ireland	private solo practices	
Japan	private clinics	
Poland	private clinics	private solo practices
United Kingdom	private group practices	
United States	private group practices	private solo practices

Source: OECD Survey on health system characteristics 2008-2009 (Paris et al., 2010).

Figure 4.1 Proportion of general practitioners working in group practice, 2009



Note: Group practice is defined as 2 FTE doctors or more
Source: Commonwealth Fund International Health Policy Survey of Primary Care Physicians, 2009. Finland: Bourgueil et al., 2007.

122. The remuneration methods of doctors may also provide different incentives for the recruitment and use of advanced practice nurses. The main methods for paying doctors include fee-for-service, capitation, salary, or a combination of some or all of these methods. The methods used vary widely across countries and even within countries, different methods can coexist to pay for primary care physicians (general practitioners) and specialists (Table 4.2). More recently, pay-for-performance methods have also emerged in countries such as the United States and the United Kingdom.

Table 4.2 Predominant modes of payment for physicians in selected OECD countries

	Primary care physicians	Out-patient specialists	In-patient specialists
Australia	Fee-for-service	Fee-for-service	Salary
Belgium	Fee-for-service	Fee-for-service	n.a.
Canada	Fee-for-service	Fee-for-service	Fee-for-service
Czech Republic	Fee-for-service/Capitation	Fee-for-service/Salary	Salary
Finland	Salary	Salary	Salary
France	Fee-for-service	Fee-for-service	Salary
Ireland	Capitation	Fee-for-service	Salary
Japan	Fee-for-service	Fee-for-service	Fee-for-service
Poland	Capitation	Fee-for-service	n.a.
United Kingdom	Salary/Capitation/ Fee-for-service	Salary	Salary
United States	Salary/Capitation/ Fee-for-service	Fee-for-service	n.a.

n.a. Not available.

Source: OECD Survey of Health System Characteristics 2008-2009.

123. A significant body of research indicates that *individual-based* fee-for-service payments for doctors can act as a barrier to the development of APN roles in primary care (e.g., Bourgeault *et al.*, 2008). Any transfer of tasks to nurses may result in a loss of income for doctors, unless they are able to offset this reduction in activities by providing other and potentially more lucrative services. By contrast, fee-for-service payments or capitation payments for *group* practices (combined possibly with pay-for-performance schemes at the group practice level, as is done in the United Kingdom) may provide greater incentives for doctors to accept task sharing with advanced practice nurses, as long as the supplementary revenues derived from APN employment exceed cost. Under salary payments, doctors may have an interest in having nurses providing part of the services, as long as budget constraints do not involve competition for posts among different professional groups.

124. In Finland, primary care is delivered mainly in group practice in municipal heath centres. In addition to providing general primary care, these health centres may also offer maternal and child health care, preventive services, cancer screening services, school health care and occupational health care, dental care, minor surgical interventions, as well as some in-patient services. They tend to be large units, including not only general practitioners (GPs) and nurses, but also (depending on their size) midwives, social workers, dentists, physiotherapists, psychologists and some medical specialists. GPs working in health centres in Finland are supported by nurses who outnumber them by a ratio of about 2-to-1. Nurses handle many preventive and routine chronic care consultations, and almost all home visits. Most doctors and nurses delivering primary care and other services in municipal health centres are salaried. However, where doctors have joined the "personal doctor scheme", they are paid approximately 60% by salary, 20% by capitation, 15% by fee-for-service and 5% by local allowances (OECD, 2005).

125. In the United Kingdom, government has actively supported the development of group practices in primary care since the 1970s, including the employment of NPs and other advanced practice nurses along

with GPs. Government initially encouraged the recruitment of nurses by GP practices in the 1970s and 1980s by subsidising a large part of their wages (70%). This incentive was introduced in a context of growing concerns about shortages of GPs and a government policy to promote greater access to primary care (Bourgueil *et al.*, 2005). Most GPs in the United Kingdom continue nowadays to be independent contractors practising in group practices, and are paid through a mix of capitation payments and, since 2004, a major "pay-for-performance" scheme which accounts on average for about 25% of practice income (OECD, 2009b). Bourgueil *et al.* (2006) have argued that the introduction of the new GP contract in 2004 has provided further incentive for group practices to recruit nurses, because it linked funding for GP group practice *not* to the number of doctors, but rather to the quantity of patients and services provided. It thereby became financially attractive to replace some GPs by nurses to provide some of these services. The pay-for-performance scheme also provided direct incentives for the further development of multi-professional teams. In 2006/07, GP practices in the United Kingdom had on average 24 staff members, including about 5 GPs and 5 nurses (Information Centre, 2006/07 UK General Practice Workload Survey).

126. In France, by contrast, primary care continues to be delivered mainly by general practitioners working in solo practice, thereby limiting the emergence of APN roles in that sector. However, there has been a recent development of multi-disciplinary health centres ("maisons de santé pluridisciplinaires"), in response to a reduced supply of general practitioners in certain regions (particularly rural areas) and a growing interest of the new generation of doctors in teamwork and group practices. A recent review of some of these new health centres indicates that there were on average 14 health professionals in each centre (including about 4 GPs, 3 nurses and 7 other professionals), although there are a lot of variations from one centre to the other (Bourgueil *et al*., 2009). While the cooperation between doctors and nurses can take different forms, it often involves a greater role of nurses in the management of patients with chronic diseases (e.g., diabetes and hypertension), including patient education and counselling. The evaluation of new approaches to chronic disease management generally shows positive results, with higher quality of care achieved (notably through the provision of more advice to patients on lifestyle and self-care) at no greater cost (Mousques *et al*., 2010). However, the degree of interprofessional cooperation often remains limited due to the fact that health professionals in these group practices continue to be paid on the basis of individual-based fee-for-services. This suggests a need to experiment with new forms of collective or group-based payment methods to promote greater doctor-nurse cooperation (Bourgueil *et al*., 2009).[5]

127. In the United States, the initial deployment of advanced practice nurses occurred in rural and remote areas that were under-served by doctors, leaving more room for nurses to extend their scope of practice. The development of advanced practice nurses in primary care was further encouraged in the 1990s by the reduced interest of doctors in primary care activities, given the growing differential in fees and incomes between general and specialist practice (Mundinger, 2002). At the same time, certain categories of advanced practice nurses, including NPs, obtained the right in the 1990s to be paid directly by private health insurance or public health insurance (i.e., Medicare on Medicaid) on a fee-for-service basis. For Medicare and Medicaid patients, advanced practice nurses are normally reimbursed at 85% of the "customary fee" for physicians. This extension in reimbursement options promoted the further development of APN roles. Furthermore, the development of group practices in primary care also provided financial incentives to employ "intermediate" health practitioners such as advanced practice nurses to contain costs and increase profit margins.

5. In France, a sizeable proportion of nurses (15% in 2009) are self-employed and paid on a fee-for-service basis as well. These independent nurses are often not in favour of working as an employee in a group practice and prefer to keep their autonomy. Fee-for-service payment for these nurses does not facilitate either the development of closer doctor-nurse cooperation in primary care (see country note in Annex A).

128. In Canada, individual-based fee-for-service payments have also been identified as a barrier to the use of NPs in primary care, as transferring care tasks to NPs sometimes results in a loss of physician income. There is a movement towards experimenting with alternative payment methods that promote greater collaboration between doctors and advanced practice nurses. Regarding advanced practice nurses in hospitals (e.g., clinical nurse specialists), one of the issues in Canada is the stability of funding for these posts. When there are budget cutbacks in hospitals, hospital managers may not have the necessary funding to support the introduction or maintenance of advanced practice nurse posts (Di Censo *et al*., 2009).

129. In Ireland, the government has funded the creation of 921 clinical nurse specialist posts between 2001 and 2008 (NCNM, 2008b). However, the recent economic downturn may make it difficult to sustain this rate of growth.

130. Another factor that may facilitate the establishment of multi-professional teams and new forms of collaboration between doctors and nurses is the adoption of information and communication technologies (ICTs) in health, such as electronic medical/health records (EMRs/EHRs). The adoption of EMRs and other electronic tools can greatly facilitate the exchange of information and coordination of care across different providers. However, the adoption of EMRs varies widely across the countries covered in this study. In Australia and the United Kingdom, EMRs are used by almost all primary care doctors (including those working in solo or small group practices), while primary care doctors in Canada, the United States and France are lagging behind (Schoen *et al*., 2009).[6]

4.3 Legislation and regulation on the scope of practice

131. The implementation of new APN roles often requires changes to legislation and regulation to remove barriers to extensions in their scope of practice.

132. The legislative and regulatory context varies in at least two ways across countries: 1) there are differences concerning the extent to which legislation and regulation are centralised at the national level or decentralised; and 2) there are also variations on the extent to which the scope of practice of different health professionals are defined through legislation and regulation.

133. In the United Kingdom (England), the scope of practice of advanced practice nurses is *not* defined in a specific legislation, thereby reducing the barriers to modify their scope of practice. Some health care activities, however, are covered under legislation, with one of them - the right to prescribe drugs - being related to more advanced roles for nurses. In order to allow nurses to prescribe drugs, a series of legislative and regulatory changes was required in the United Kingdom (see Box 4.1). Once adopted, these national legislative and regulatory changes applied to all nurses concerned.

134. By contrast, in countries where responsibilities for regulating health professional activities are more decentralised, the adoption of new legislation and regulation allowing more advanced roles for nurses has often occurred at different speed and in different ways across states or provinces/territories. This has often resulted in a certain degree of variation in the scope of practice of nurses across the country. For instance, in Canada, while legislative changes across all provinces have enabled a significant growth in NP roles, their roles have been more narrowly defined in some provinces. In Australia, current efforts are

6. In Australia, the Great Southern Managed Health Network (GSMHN) provides a good example of a web-based patient management system that is supporting the work of health professionals in the vast rural area of Western Australia. Launched in 2007, the main aims of the project are to: increase collaboration between health professionals working in different settings, reduce the time they spend on paperwork, reduce the risk of clinical errors, improve patient notes and improve medication management. The GSMHN allows health providers to improve how they communicate with each other and is perceived as a key enabler of multipurpose service delivery in primary care centres in rural areas (OECD, 2010).

underway to harmonise different legislation defining the scope of practice of different health professions, including that of advanced practice nurses. The new national law is expected to come into effect on 1 July 2010.

Box 4.1 Changes in the rights for nurses to prescribe drugs in the United Kingdom

The right of nurses in the United Kingdom to prescribe medications has evolved markedly since the early 1990s. One may distinguish various types of authorisations which have been gradually introduced.

1. Nurse Prescribers' Formulary for Community Practitioners (formerly District and Health Visitors), 1994

The right for some nurses to prescribe pharmaceutical drugs was introduced in 1994, following a pilot programme. The Nurse Prescribers' Formulary contains a limited list of drugs, including 13 drugs requiring prescription and other drugs which can be purchased without prescription. Nurses with these prescription rights must be registered with the Nursing and Midwifery Council, and have followed a special training. There are currently over 26 000 nurses prescribing via this route.

2. Supplementary Nurse Prescribers, 2003

Introduced in April 2003, supplementary prescription is defined as a voluntary partnership between the independent prescriber (a doctor) and a supplementary nurse prescriber, in order to implement an agreed patient-specific clinical management plan, with the patient's agreement.

3. Extended Nurse Prescribers' Formulary, 2004

The purpose of this extension was to broaden the list of drugs that some nurses can prescribe (given that the Nurse Prescribers' Formulary was and still is fairly limited). The Extended Nurse Prescribers' Formulary contained 180 products, including antibiotics and local corticoids, and 80 clearly defined clinical situations when nurses can use this extended formulary. The training requirement comprises 26 days of theory and 12 days in practice supervised by a doctor.

4. Further extension in Nurse Prescribers rights, 2006

In May 2006, changes in legislation enabled independent nurse prescribers to prescribe all medicines for any condition they are competent to treat, with the exception of some controlled drugs. This replaced the 2004 Extended Nurse Prescribers' Formulary which has been discontinued. As with the previous programme, the training requirement comprises 26 days of theory and 12 days in clinical practice supervised by a doctor. Nurse Independent Prescribers are registered by the Nursing and Midwifery Council.

In 2009, a new legislation was proposed to allow independent prescribers to prescribe more controlled drugs (other than strong opiates for palliative care), including psychotropic substances. This is likely to be implemented in 2010.

Sources: *OECD questionnaire 2009 and Bourgueil et al. (2005)*

135. France faces a different challenge. While the responsibility for defining the scope of practice of different health professions is very much centralised, one of the barriers to the expansion of the role of nurses is that current national legislation defines in very specific terms what each health profession can (or cannot) do. Any modification to the scope of practice of nurses therefore requires legislative changes, which often raise sensitive issues. A more general definition of the scope of practice of different professions, for instance in terms of general "missions" rather than specific tasks/acts, would provide greater flexibility to adapt the roles of nurses to evolving needs at the regional/local level.

4.4 Education and training opportunities

136. A majority of countries covered in this study stressed the importance of ensuring that the education and training system provides sufficient opportunities to train nurses with more advanced skills as a key factor for successful development. A lack of skilled nursing staff may make it difficult to fill new

APN posts. In the United States, governments have recently increased funding to support new education and training programmes for all nurses including advanced practice nurses, in response to concerns that the education system was not producing enough nurses at the level required to perform advanced practices (Aiken *et al*., 2008). In Canada and Ireland, the funding of new Master's level programmes and the growing ability of universities to enrol more students in these programmes have contributed greatly to the growing number of advanced practice nurses in recent years (DiCenso *et al.*, 2009; NCNM, 2008b).

137. Financial support from government is required not only to fund universities or other institutions to set up and maintain new education programmes, but also to provide financial assistance to students entering into these APN programmes. For instance, in the United States, 23% of nurses had a federal traineeship, scholarship or grant in 2004, 38% a federally assisted loan and 18% a state or local government scholarship loan or grant (US Department of Health, 2004).

138. As noted in section 2.4, there are some variations across countries in the educational level required to become an advanced practice nurse. In most countries, a graduate degree (e.g., a Master's degree) is now required. However, the United Kingdom provides the example of a country where only a first-level university degree is required for many APN posts. Initial educational attainment can be complemented by taking specific training programmes for nurses wishing to expand their practice in certain areas, such as drug prescribing. To move on to more advanced nursing posts, greater value and importance is put on relevant work experience.

139. Different approaches to setting the educational and training requirements of advanced practice nurses will have an impact on cost for governments related to the direct spending on the education and training programmes and on providing financial assistance to students, and the opportunity cost for APN trainees related to the time spent on education and training (Box 4.2). Careful attention needs to be paid to matching as closely as possible the length and content of educational and training programmes with the skill requirements for advanced practice nurses, including both generic and more specialised skills.

Box 4.2 Advantages and disadvantages of increasing minimum educational requirement in nursing

Professional associations of nurses in many countries have argued in favour of raising the minimum education level to become a registered nurse in the first place and a higher education level to become an advanced practice nurse. In several countries, the minimum requirement to become a registered nurse is now a first-level university degree (e.g., a Bachelor's degree) while a graduate degree (e.g., a Master's degree) is required to become an advanced practice nurse. The main arguments that have been put forward to support raising the minimum educational requirements of nurses include: 1) the growing skill requirements and responsibilities of nurses in a context of more complex health care processes and clinical practices; and 2) improving the recognition of nurses and advanced practice nurses as professionals in their own right by achieving a greater education parity between healthcare disciplines (reducing the education "gap") (Dracup *et al*., 2005).

However, there are also potential drawbacks to continue raising the educational requirements to become a nurse, an advanced practice nurse or any other health occupation. Canadian health economist, Robert Evans, has recently expressed some of these potential drawbacks in the following terms:

"*Training is expensive, both directly and in the form of the "opportunity cost" of the time that trainees must spend out of the workforce. If less-extensively trained personnel can perform the same functions, to equivalent standards of quality, then the higher-level personnel are "over-capitalized"… The bias toward overcapitalization – excess human capital – is not exclusive to peak professionals such as physicians and dentists. A threat to the health human resource productivity potential of intermediate personnel is the pressure from universities and professional organizations to expand their training requirements to the point that their graduates may become as costly as physicians, particularly if they have shorter "service lives" or years of full-time work per graduate. Do midwives or "physician extenders" under various labels need a full four-year degree in nursing before training in their respective roles? Assurances from university faculties that more of their product – training – is essential may be effective marketing, but they are not outcome-based evidence".* (Evans *et al.*, 2010)

CONCLUSIONS

140. Many countries are currently considering a possible expansion of the roles of nurses to respond to pressures on health care systems from both the *supply-side* -- in particular a limited supply of doctors and general practitioners – and the *demand-side* -- the need to respond in an efficient manner to the growing number of people with chronic illnesses requiring close monitoring, treatment and education and counselling to manage their condition. These pressures may offer substantial opportunities in the years ahead to expand further the roles of nurses.

141. OECD countries are at very different stages in implementing new APN roles. While some countries such as the United States, Canada and the United Kingdom began to formally implement such new roles back in the 1960s and the 1970s, other countries are only just beginning to explore possibilities. This provides good opportunities for countries that are considering the introduction of such new roles to learn lessons from the experience of those countries that are further along regarding the potential benefits and costs of developing APN roles, and strategies that might be used to overcome potential barriers to implementation. These lessons will necessarily need to be adapted to each national context.

142. Even in those countries that are further ahead in implementing more advanced roles for nurses, the number of advanced practice nurses often represents a very small proportion of all nurses, suggesting that there may be room to expand further different APN categories.

143. This study has reviewed four of the main factors that may either act as a barrier or facilitator to the development of APN roles:

- Professional interests: The position of professional associations – in particular nurse associations and medical associations -- can play an important role in determining the possibility and speed of development of new APN roles. In most countries, the opposition from medical associations has been the main barrier to the development of more advanced roles for nurses. The main reasons for physician resistance to APN roles include a potential overlap in the scope of practice and a loss of activities, the degree of autonomy and independence of advanced practice nurses, concerns about legal liability in cases of malpractice, and concerns about the skills and expertise of advanced practice nurses. Governments, nurse associations and other stakeholders supporting the development of advanced practice nurses need to find ways to address or mitigate these concerns. For instance, Canada provides a good example where the Canadian Nurse Protective Society has worked together with the Canadian Medical Protective Association to prepare a joint policy statement providing a set of principles and criteria for defining the scopes of practice of different providers and clarifying liability issues. Changes in the organization and funding of health services also need to encourage collaboration, teamwork and "win-win" situations.

- Organisation of care and funding mechanisms: There are a lot of variations across countries in the organisation and funding of health services, particularly in primary care. Different modes of organisation and funding provide different incentives for the development of more advanced roles for nurses. In general, advance practice nursing in primary care is more developed in countries where primary care is mainly delivered in group practices compared to those countries where it continues to be predominantly provided in doctor solo practice. In countries such as

France, opportunities to implement more advanced roles for nurses will likely be provided in the years ahead as primary care delivery is re-organised, and there is a move away from solo practices to group practices. To be successful, the movement towards group practices will need to be accompanied and supported by an adaptation in the remuneration methods of different providers, with a move away from *individual-based* fee-for-service payments to different forms of *group-based* payments, to provide the right incentives for teamwork and the use of advanced practice nurses.

- Legislation and regulation: In most countries, the development of more advanced roles for nurses has required legislative and regulatory changes, in order to remove barriers to the implementation of these new roles. Such barriers may relate, for instance, to the rights of nurses to prescribe pharmaceutical drugs or to perform other roles in primary care or in hospitals. For example, the United Kingdom has introduced a series of legislative changes over the past fifteen years to gradually extend the rights of nurses to prescribe a growing number of drugs, while ensuring that patient safety would be protected through requiring proper training. In countries where responsibilities for health care delivery and the regulation of health professionals is more decentralised, legislative changes to enable a broader scope of practice of nurses may vary within the country. In Australia, current efforts are underway to harmonise all state legislations defining the scope of practice of various health professions, including that of advanced practice nurses.

- Education and training: There is also a need to ensure a sufficient availability of education and training places to provide the necessary skills to fill new APN posts. The education and training programmes should be based on a careful assessment of the generic and specific skills required for different categories of advanced practice nurses, in order to align as much as possible the content and length of education and training programmes with skills requirements. There may also be a need in some countries to strengthen interprofessional education modules as part of the curriculum for doctors and nurses, to prepare them better for close collaboration and teamwork.

144. This study has reviewed a fairly large number of evaluations of advanced practice nurses, focusing on their roles in primary care. Although it is difficult (if not risky) to try to draw any general conclusion from the many evaluations that have been carried out in different countries, one of the general findings is that the use of advanced practice nurses can be very useful to increase the capacity in the primary care sector to deliver timely services to the population. The set of services provided by advanced practice nurses are generally of equal quality to services provided by doctors. However, while access can be improved and quality maintained, one should not expect that the use of advanced practice nurses will result in any substantial cost saving. In fact, if the main motivation for introducing advanced practice nurses is to increase the quality or intensity of services (for instance, as part of chronic disease management programmes), the short-term impact is likely to be higher cost. However, most of the available evaluations have not attempted to take into account potential longer-term savings from such APN activities, including savings related to avoiding complications and unnecessary hospitalisations through a better management of chronically-ill patients outside hospitals.

145. Some evaluations have pointed out that there may be some unintended effects related to the deployment of advanced practice nurses in primary care, related in particular to care coordination. As primary care becomes increasingly shared among multiple health care providers, the *personal* continuity of care (between *individual* patients and *individual* GPs or NPs) may be reduced, and it may become time-consuming and costly to achieve proper care coordination. Some evaluations have suggested that medium-sized group practices may be better able to achieve the required continuity and coordination of care than larger groups.

146. There is a need to continue to assess the development and implementation of new APN roles with proper evaluation of their impact, focusing mainly on the impact on patient care and costs. This is particularly important for countries that are just beginning the process, so that they can identify early on any implementation issues. Many countries have rightly started by testing new "models" of health service delivery involving advanced practice nurses through local pilot projects. It is important to evaluate properly the results of these projects. In many cases, such pilot projects have demonstrated positive results in terms of patient care and costs, but they have not been pursued and extended more broadly. These represent missed opportunities to achieve efficiency gains in health service delivery.

147. Evaluations will also increasingly need to take a broader approach to assessing new approaches to health service delivery. The movement towards greater teamwork and group practices in primary care (including chronic disease management programmes) increases the need to look not only at the impact at one specific member of the team. The scope of evaluation studies needs to expand from "simply" comparing how advanced practice nurses do a certain set of tasks compared with doctors, to looking more broadly at the overall organisation of services and identifying those factors or characteristics which are linked to better results in terms of patient care, at the least possible cost. This requires sophisticated statistical methods and some evaluations reviewed in this study have already moved in this direction.

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ANNEX A: NATIONAL EXPERIENCES WITH ADVANCED ROLES IN NURSING

AUSTRALIA

Australia has taken a number of steps over the past ten years to support the development of advanced roles in nursing. The category of nurse practitioners appeared in 2000, initially in emergency departments in hospitals. The government is currently facing the challenge of extending nurse practitioners in primary care where needs are growing, due to the increase of chronic diseases and population ageing.

1. Description of advanced roles of nurses

There are at least two categories of advanced practice nurses in Australia: 1) Advanced Practice Nurses (clinical nurses, consultants); and 2) Nurse practitioners.

Table 1. Categories of nurses in advanced roles, numbers, main tasks and education level, Australia

Category	Number (absolute)	% of all RN	Main tasks	Education level (required or recommended)
1- Advanced Practice Nurses (clinical nurses, consultants)	n.a.	n.a.	- Clinical / technical tasks: • advanced nurse consultation and diagnosis (advanced physiological and psychological assessment) • prescription of drugs with supervision of doctors (although there are variations in prescription rights across states) • triage activity to prioritise patients - Education and teaching - Professional leadership such as dissemination of expert knowledge - Tasks linked to improving quality of care - Research: create and support a culture of inquiry	Graduate Diploma or Master's level
2- Nurse practitioners	400 (in 2010)	0.2 %	- Same clinical / technical tasks as for advanced practice nurses -Additional clinical / technical tasks: • ordering and interpretation of diagnostic tests (including X-ray prescription and diagnostic ultrasound prescription) • management of a range of chronic diseases (follow-up, monitoring, health education and lifestyle advice for non-acute cases) • prescription of drugs without medical supervision • vaccination without a doctor prescription • referral of patients to specialists	Master 's level

Source: Sources: OECD 2009 questionnaire, Gardner et al. (2007) and ANMC (2006).

Advanced practice nurses work on improvement of care and provide professional leadership. They have developed skills in nursing care to be able to optimise the organisation of care. By contrast with nurse practitioners, their titles are not protected.

Nurse practitioners are more involved in direct clinical care than advance practice nurses, including in the management of chronic diseases such as asthma, cardiac care, stroke (follow-up), diabetes, cancer, HIV, hepatitis and renal disease. The first national survey on nurse practitioners, done in 2007, revealed that emergency nurse practitioners in hospitals were the most commonly employed nationally (26.9% of all nurse practitioners) (Gardner *et al*., 2009). The nurse practitioner role is also central to the delivery of primary health care in rural and remote areas.

Nurses in rural and remote areas often practice at an advanced level. Their roles include: 1) expert assessment, diagnosis, treatment, monitoring and follow up; 2) initiating, ordering and interpreting pathology and radiology; 3) medication treatment options and management; 4) extended counselling skills, recognition and referral for depression and the development of close networks with area psychologists; 5) emergency management, treatment of acute care and the organisation of out-of-area transfer; 6) preventative health and education; 7) family childcare/midwifery.

Rights to prescribe pharmaceutical drugs

Nurse practitioners can prescribe drugs without supervision of doctors, although there are some variations across states. These rights have been introduced since 1991, depending on the state. While nurse practitioners can prescribe a large range of drugs without supervision of doctors (including antibiotics, antiviral drugs, antidepressants), certain drugs can only be prescribed under the supervision of doctors (such as anticoagulants or anticholesterols). Legislation in one jurisdiction was amended in 2006 to allow nurses to prescribe drugs of dependence. Nurse practitioners can even prescribe strong opiates and narcotics such as morphine, which is not the case in countries such as Canada.

Nurse practitioners have to follow an additional training of 60-80 hours to be able to prescribe drugs.

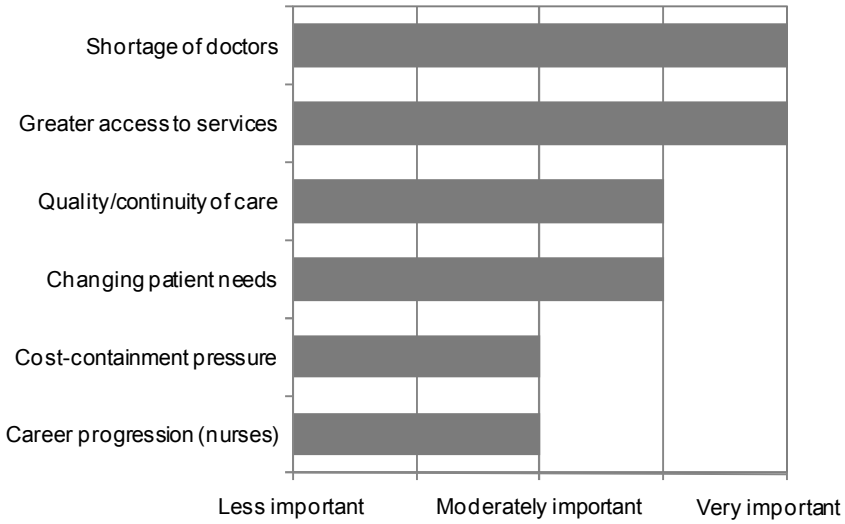
Up until now, nurse practitioners are authorised under state law to prescribe medications but the Commonwealth legislation does not recognise the nurse practitioner as a prescriber as such (Gardner, 2009). Consequently, this is a serious limitation to their practice. However, regulation is expected to change in November 2010 to promote nurse prescribing by offering rebates to patients.

2. Reasons motivating the development of new advanced roles for nurses

Like other parts of the world, Australia is faced with a long-term shortage of health care professionals. This is especially true in rural and remote parts of the country. Recent health reform is addressing workforce shortages through a variety of strategies, in particular through expanding the role of nurses and increasing the number of nurses who work at advanced levels.

Changing health needs of the Australian people (brought about by a rise in chronic disease and an ageing population) is increasing the need for primary health care, and another key aspect to the reform agenda is increasing access to primary care. Nurses, especially those who work at advanced levels, are seen as crucial to this expansion of the primary care workforce.

Graph 1: Main reasons for introducing or extending advanced roles for nurses in Australia



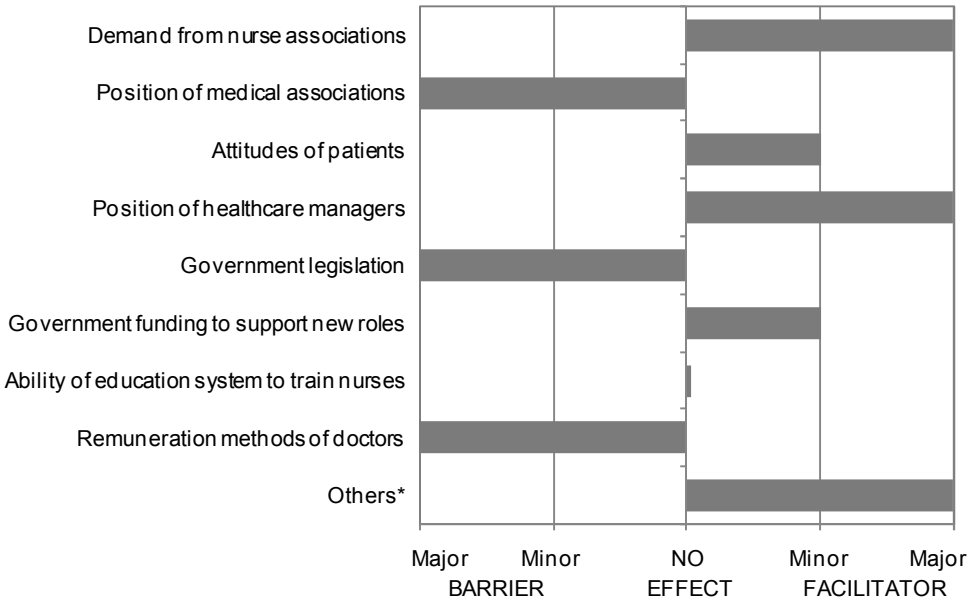
Source: Department of Health and Ageing's response to OECD 2009 questionnaire.

3. Factors hindering or facilitating the development of advanced roles for nurses

Three main factors have facilitated the development of advanced practice roles for nurses in Australia: 1) the demand from nurse associations (nurse organisations began lobbying for advanced roles in 1988); 2) the position of healthcare managers (they have supported the implementation of nurse practitioners and other advanced nursing roles in the hospital sector); 3) the remote nature of major areas in Australia (the fact that the population is sparse in many parts of Australia has inhibited the access of those populations to health care). Nurses have stepped in to fill gaps and provided services without always having the relevant legislative or clinical cover.

Three main barriers have also been identified: 1) the opposition of medical associations, although their positions are slowly changing; 2) government legislation and related funding mechanism (the prescription rights are difficult to put into practice because of the absence of a funding mechanism, and harmonisation is necessary between federal and state legislation); 3) the remuneration methods of doctors (primary care practitioners are largely paid by fee-for-services, and this payment method has not been extended yet to include nurse practitioners, although the funding system should change late 2010 to allow nurse practitioners to practice independently and be paid on a fee-for-service basis).

Graph 2: Main facilitators or barriers to the development of advanced practice nursing in Australia



* Others include the remote nature of major areas of Australia.

Source: Department of Health and Ageing's response to OECD 2009 questionnaire

4. Evaluations in primary care

Very few evaluations have been conducted thus far on advanced roles of nursing in Australia. Smith *et al.* (2001) have evaluated home care services provided by advanced nurses for chronic obstructive pulmonary disease (COPD). Their main finding was that patient outcomes were dependent on the seriousness of cases: outcomes were rather positive with nurse led management of COPD when the disease was moderate but not when it was severe.

5. Future directions

As of 1 November 2010, the activities of nurse practitioners working outside the public hospital sector will be encouraged by providing rebates for their services and drug prescriptions via the Medical Benefits Schedule and the Pharmaceutical Benefits Scheme. This is an important step to allow nurse practitioners to work in primary care.

BELGIUM

In Belgium, the recognition of advanced practice nurses has not officially occurred, although nurses can perform certain advanced tasks in hospital or in primary care.

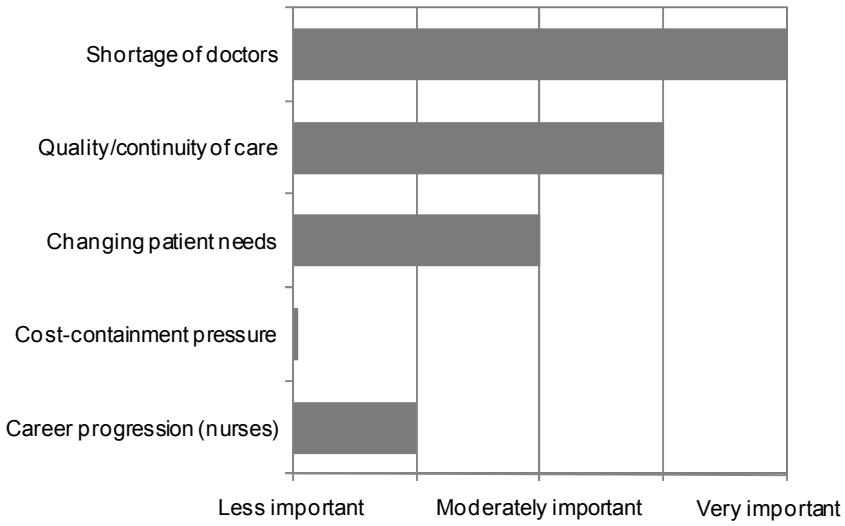
Registered nurses in Belgium can perform advanced tasks in nursing diagnosis and consultation (advanced physiological and psychological assessment) and may refer patients to specialists (Belgium does not have a compulsory general practitioner gatekeeping system for referrals to specialists). They can also be involved in the management of chronic diseases such as asthma, cardiac care, stroke (follow up), diabetes, cancer. But these new roles of nurses in chronic disease management have not yet resulted in any formal recognition that they are practising at a higher level. No category of nurses is officially considered as advanced nurses, with the exception perhaps of nurses in "emergency and intensive care" who can perform some advanced tasks without physician prescriptions, such as triage activity to prioritise patients or invasive resuscitation (e.g. intubation).

The education level of nurses in Belgium has increased for some registered nurses with the creation of Bachelor's or even Master's degrees. Some nursing programmes at graduate level have been introduced and are supporting the development of advanced practice nursing in clinical settings (De Geest *et al*, 2008), although this has not yet resulted in the establishment of advanced practice roles in official statutory terms. It is yet unclear what positions graduates from these Master's degree programmes will fill upon graduations. In 2008, around 30% of hospital nurses in Belgium held Bachelor's, Master's or a specialisation through additional training (a nursing specialisation takes about 1 year of study).

1. Reasons motivating the development of new advanced roles for nurses

The shortage of doctors in some specialisations and geographic areas (e.g., shortage of geriatric physicians) is a key factor motivating the development of more advanced roles of nurses in Belgium. Promoting the quality/continuity of care is also an important reason for the development of such new roles. This development is also related to the increase of chronic diseases and population ageing.

Graph 1: Main reasons for introducing advanced roles for nurses in Belgium

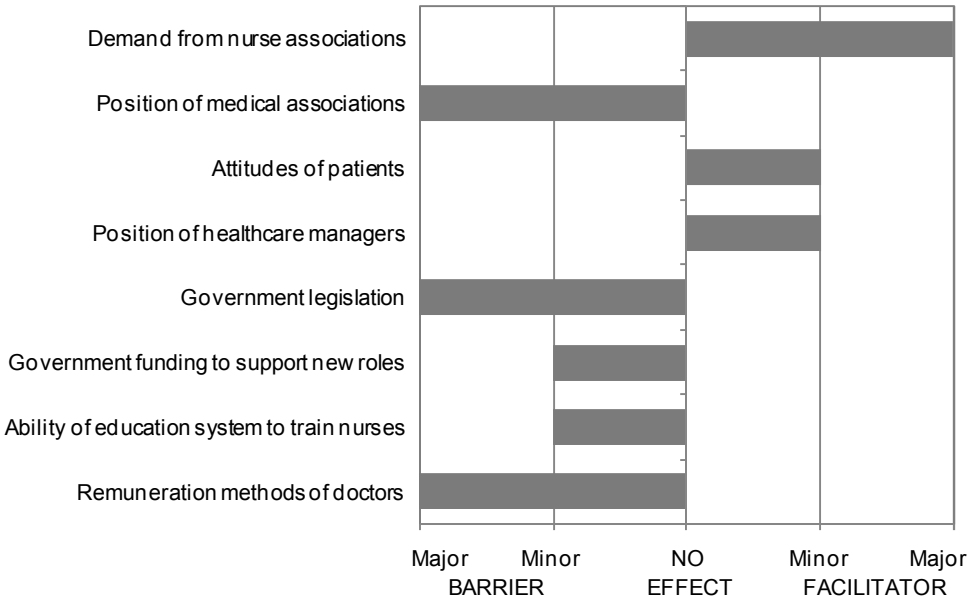


Source: OECD 2009 questionnaire

2. Factors hindering or facilitating the development of advanced roles for nurses

The demand from nurse associations is an important factor supporting the implementation of more advanced practice roles for nurses. To a lesser extent, the position of healthcare managers may also encourage the development of these new roles. On the other hand, the position of medical associations is the most important barrier, as in many other countries. Doctors in primary care mainly work in solo practices and are paid on a fee-for-service basis, which is not conducive to the development of more advanced nursing roles. In addition, the involvement of many stakeholders in the health system, in the three communities and the federal levels, does not facilitate legislative and other changes at the national level.

Graph 2: Main facilitators or barriers to the development of advanced practice nursing in Belgium



Source: OECD 2009 questionnaire

3. Future directions

Future directions in the area of advanced practice nursing might include the following steps:

- Developing roles of nurses in follow-up of diabetic patients.
- Testing new roles of nurses in pain management.

CANADA

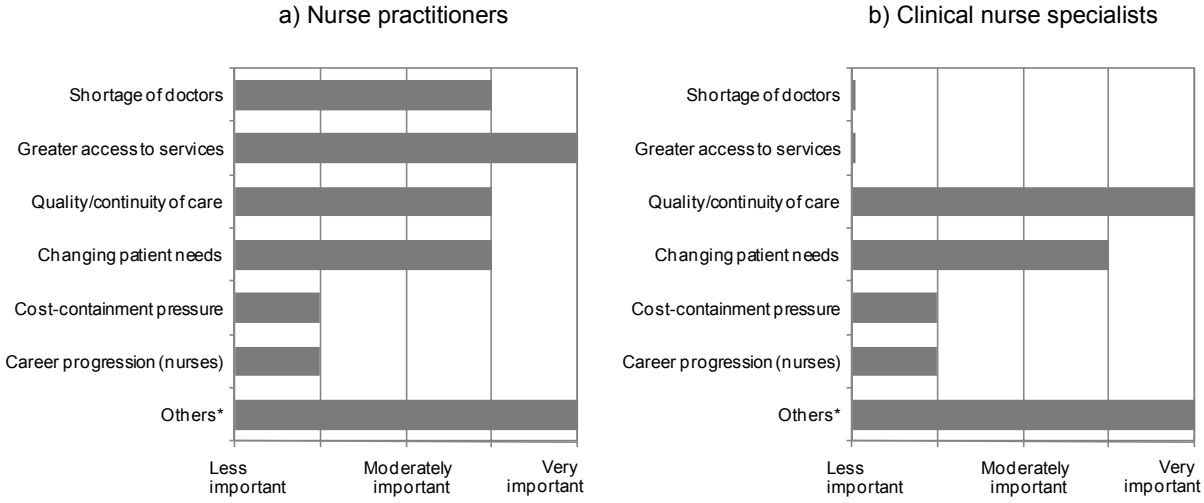
Canada has a long experience of nurses in advanced practice roles. There are two broad categories of advanced practice nurses in Canada: 1) nurse practitioners (NPs) who work in primary care or acute care settings; and 2) clinical nurse specialists (CNSs who work mainly in hospitals). NPs first appeared in Canada in the 1960s in response to shortages of primary care physicians in rural and remote areas. Although their role became largely obsolete by the 1980s as the number of doctors increased, there was renewed interest in NPs in the 1990s as part of efforts to improve access to primary care in a context of new concerns about shortages of doctors. Acute care NPs also emerged in hospitals in the 1990s to address gaps in services traditionally performed by specialist physicians and residents whose numbers had declined. CNSs were introduced in hospital settings in the late 1960s to improve the quality of nursing care in response to increasing specialization and technology. However, hospital funding cutbacks in the 1980s and 1990s led to the elimination of many of these positions (DiCenso *et al*., 2009).

1. Reasons motivating the development of advanced practice nursing roles

The reasons motivating the further deployment of NPs and CNSs differ. Key drivers behind current efforts to promote the NP role are: public calls for increased and more equitable access to care and reduced wait times as well as increased demands for service related to the ageing population, chronic illnesses, and mental health problems. There is a perceived general shortage of health human resources and there is an emphasis on reviewing the division of tasks among providers.

The key driver behind current efforts to promote the CNS role is to enhance quality of care by supporting nursing practice through the education and mentorship of nurses, providing consultation to address complex patient care needs, developing programmes and quality assurance activities, and leading the development of initiatives to promote evidence-based practice.

Graph 1: Main reasons for promoting advanced practice nursing roles in Canada



*Addressing general health human resources shortages, reviewing the roles of professionals deployment to respond to population's health needs across the country.

* Providing nursing support at the point of care, supporting nurses' learning needs.

Source: OECD 2009 questionnaire

2. Description of advanced practice nurses

NPs are "registered nurses with additional educational preparation and experience who possess and demonstrate the competencies to autonomously diagnose, order and interpret diagnostic tests, prescribe pharmaceuticals and perform specific procedures within their legislated scope of practice" (Canadian Nurses Association, 2006). Primary health care NPs (also known as family NPs or all-ages NPs), work in the community and their main focus is health promotion, preventive care, diagnosis and treatment of acute common illnesses and injuries, and monitoring and management of stable chronic diseases. Acute care NPs (also known as adult, paediatric or neonatal NPs) provide advanced nursing care in hospitals for patients who are acutely or chronically ill. These NPs work in hospital departments such as neonatology, nephrology, and cardiology.

CNSs are registered nurses with graduate education, who have expertise in a clinical nursing specialty and perform a role that includes practice, consultation, education, research and leadership. They contribute to the development of nursing knowledge and evidence-based practice and address complex health care issues (Canadian Nurses Association, 2009). CNSs specialize in a specific area of practice that may be defined in terms of a population, a setting, a disease or medical subspecialty, type of care, or type of problem.

Table 1. Categories of advanced practice nurses, numbers, main tasks and education level, Canada

Category	Number (absolute)	% of all RN	Main tasks	Education level (required or recommended)
1- Nurse practitioners 2 groups: primary care (family or all-ages NPs) and acute care (adult, paediatric and neonatal)	1626* (2008)	0.6 %	- provide comprehensive care to patients of all ages including health promotion and disease prevention, supportive, curative, rehabilitative and palliative care - in primary care settings, curative care may involve diagnosis and treatment of acute common illnesses and injuries, and monitoring / management of stable chronic diseases - in acute care settings, curative care may involve diagnosis and treatment of patients who are acutely or chronically ill. - order and interpret diagnostic tests (including X-rays, diagnostic ultrasounds and laboratory tests) - prescribe drugs without supervision of doctors (although there are variations in prescription rights across provinces) - perform specific procedures within their legislated scope of practice - refer patients to specialists (although there are variations across provinces)	Master's level for all acute care NPs Master's level for primary health care NPs in all except 3 provinces (Ontario, Saskatchewan, Newfoundland /Labrador) (note: the Canadian Nurse Practitioner Initiative targets 2015 as the year when NP education in all provinces should be at the graduate level).
2- Clinical nurse specialists	2222* (2008)	0.9 %	- assess patients, develop or contribute to the plan of care, and intervene in complex situations within their selected clinical specialty - provide consultation to patients, nurses and other health care providers to improve patient care and deal with complex issues - support other nurses in direct care by providing clinical teaching and promoting evidence-based practice - review existing research evidence and provide expert opinion to determine most effective application to practice - lead the development and application of clinical practice guidelines - facilitate system change	Master's level

*Canadian Institute for Health Information (CIHI), 2010
Source: OECD 2009 Questionnaire

The number of NPs in Canada has more than doubled between 2003 and 2008, although it remains low compared to the total number of registered nurses. This may explain why Canadians remain largely unaware of their role (Thille *et al.*, 2008). The true number of CNSs that meets the criteria for advanced nursing practice is unknown because current CNS estimates are based on self-report and many of these individuals lack graduate education or specialty-based experience. NPs work mainly in the primary care sector (40%) and in hospitals (30%), while CNSs work mainly in hospitals (65%).

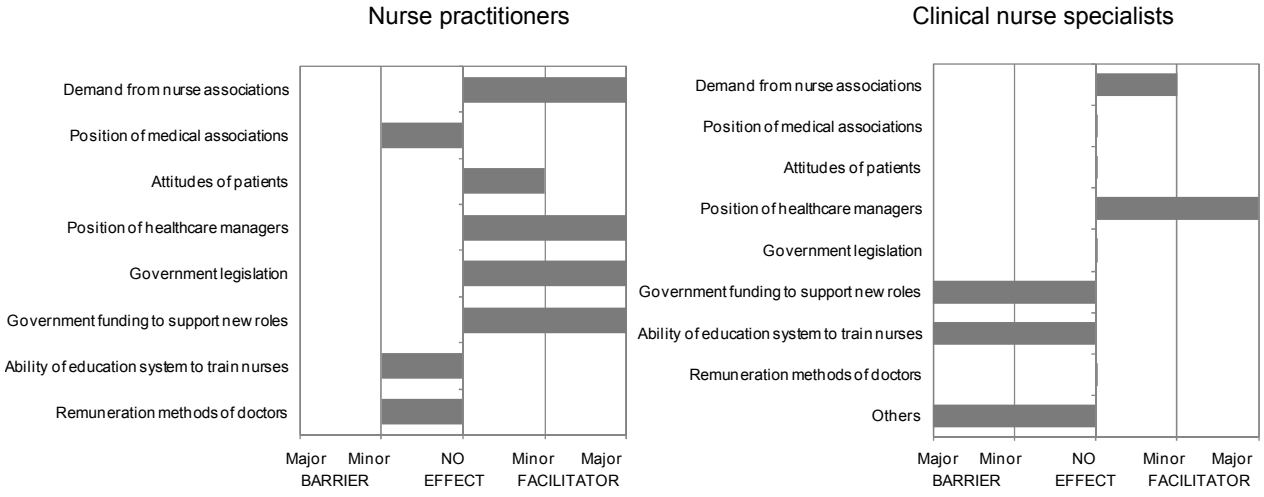
Only NPs are allowed to prescribe drugs without the supervision of doctors. NPs first acquired the right to prescribe drugs autonomously in 1998 in Ontario and now NPs in all provinces and territories have this authorization. Some provinces/territories began with list-based prescribing privileges but most now have or are moving toward open prescribing. While NPs can prescribe most drugs, they are not allowed to prescribe narcotics or other controlled drugs. The training required for NPs to prescribe drugs autonomously is included in their regular education programme.

3. Factors hindering or facilitating the development of advanced practice nursing roles

Three main factors have facilitated the integration of NPs in primary care: 1) government legislation and regulation; 2) the provision of government funding for NP positions; and 3) an emphasis on interprofessional collaboration facilitated by a shift away from the fee-for-service physician reimbursement model. The main barrier has been the opposition by organized medical associations who have perceived a loss of control in clinical care given the overlap in scope of practice and autonomy of NPs. In the hospital sector, the main factors that have facilitated the integration of NPs are the support from medical and nursing administrators within hospitals, as well as the support from physician colleagues who appreciate help with heavy patient care demands. The main barrier has been hospital restrictions to NPs' autonomous ordering and prescribing.

For CNSs, the main factors facilitating their integration have been the support from health administrators and an increased emphasis on promoting evidence-based practice. There are four main barriers: 1) lack of a common vision and understanding of the CNS role; 2) lack of formal CNS education programmes; 3) lack of title protection or credentialing; and 4) lack of funding (given that CNSs are paid out of hospital budgets, their posts are vulnerable when government funding to hospitals is cut back).

.Graph 2: Main facilitators or barriers to the development of advanced practice nursing in Canada



Source: OECD 2009 questionnaire

4. Evaluations

Recent Canadian studies have shown primary health care models that include NPs result in improved chronic disease management (Russell *et al*. 2009) and improved accessibility, especially in underserved areas (Centre for Rural and Northern Health Research 2006; Martin-Misener *et al*. 2009). Patient satisfaction with the role continues to be high (Thrasher *et al*., 2008). According to a 2009 survey, the Canadian public is increasingly aware of and comfortable with NPs and many more citizens are willing to see an NP instead of their physician (Harris Decima, 2009). There is very little research about the CNS role in Canada. One Canadian study (Forster *et al*. 2005) found that the addition of a CNS to a medical team improved patient satisfaction but did not impact hospital efficiency or patient safety.

5. Future directions

A multidisciplinary roundtable of representatives from key nursing, medical, government, regulatory, and professional associations in Canada was convened in April 2009 and made the following recommendations to support the integration of advanced practice nurses in Canada (DiCenso *et al*., 2009):

- Create vision statements that clearly articulate the value-added role of CNSs and NPs
- Establish a pan-Canadian multidisciplinary task force involving key stakeholder groups to facilitate the implementation of advanced practice nursing roles
- Consider the contribution and implementation of advanced practice nursing roles in health human resources planning based on a strategic and co-ordinated effort to address population health care needs
- Develop a communication strategy to educate nurses, other health care professionals, the Canadian public and health care employers about the roles and responsibilities of advanced practice nursing
- Protect advanced practice nursing positions and funding support following implementation to ensure some stability for these roles (and the potential for longer term evaluation) once they have been incorporated into the health care structure
- Standardize advanced practice nursing regulatory and education standards and requirements
- Include components that address inter-professionalism in curricula across all health professional training programs
- Conduct further research 1) to quantify the impact of advanced practice nursing roles on health care costs, 2) to study the CNS role in the Canadian context

CYPRUS

There are at least four categories of advanced practice nurses in Cyprus: 1) diabetic nurses, 2) community mental health nurses, 3) mental health nurses for drug and alcohol addiction, 4) community nurses (including health visitors mainly focused on young children and mothers).

Table 1. Nurses in advanced roles, numbers, main tasks and education level, Cyprus

Category	Number (absolute)	% of all RN	Main tasks	Education level (required or recommended)
1- Diabetic Nurses	123* (2008)	3.4 %	- advanced nurse consultation and diagnosis for diabetic patients - follow-up, monitoring, health education and lifestyle advice for non-acute cases - referral of patients to specialists	Specialisations through short-term educational programmes or post-graduate courses of 12 to 18 months
2-Community Mental health Nurses	80* (2008)	2.2 %	- advanced nurse consultation and diagnosis (advanced psychological assessment) - follow-up and monitoring for non acute cases - referral of patients to specialists	As above
3- Mental Health Nurses for drug and alcohol addiction	72* (2008)	2.0 %	- advanced nurse consultation and diagnosis (advanced psychological assessment)	As above
4-Community nurses (including health visitors)	164* (2008)	4.6 %	- advanced nurse consultation and diagnosis (advanced physiological and psychological assessment) - vaccination without a doctor prescription (health visitors only) - referral of patients to specialists - management of a range of chronic diseases (follow-up, monitoring, health education and lifestyle advice for non acute cases)	As above

* Nursing Services, Ministry of Health.

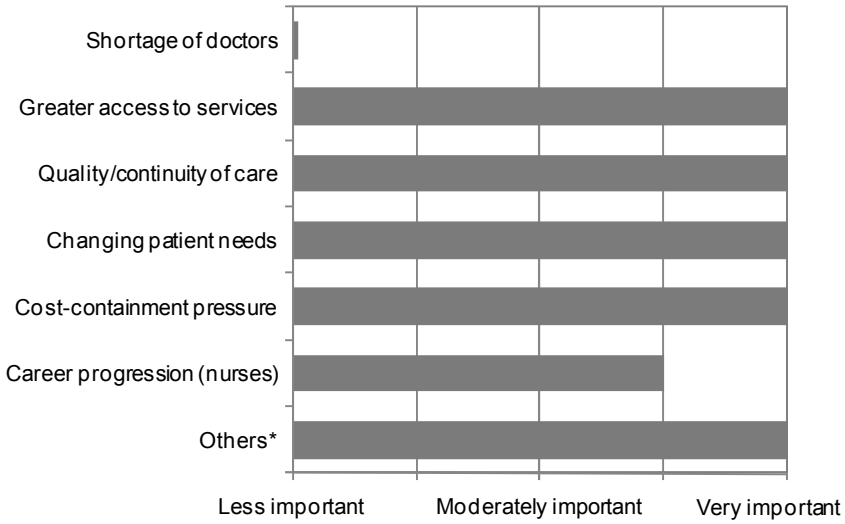
Source: OECD 2009 Questionnaire.

Diabetic nurses, community mental health nurses and community nurses (including health visitors) are involved in the management of chronic diseases such as diabetes, mental illnesses or chronic conditions that need mechanical breathing support. Nurses can also be in charge of a triage activity to prioritise patients as long as two conditions are met: 1) they are registered nurses, 2) they have attended a short course on the subject. On the other hand, no categories of nurses are allowed to prescribe drugs in Cyprus.

1. Reasons motivating the development of new advanced roles for nurses

There are six main drivers behind current efforts to promote more advanced practice roles for nurses in Cyprus: 1) improving access to services, 2) promoting quality and continuity of care, 3) responding better to changing patient needs, 4) containing the growth in health costs, 5) growing education level of nurses, and 6) team work becoming more important in the health sector. Promoting career progression of nurses is also an important factor explaining the development of advanced roles of nurses (Graph 1).

Graph 1: Main reasons for promoting advanced roles for nurses in Cyprus



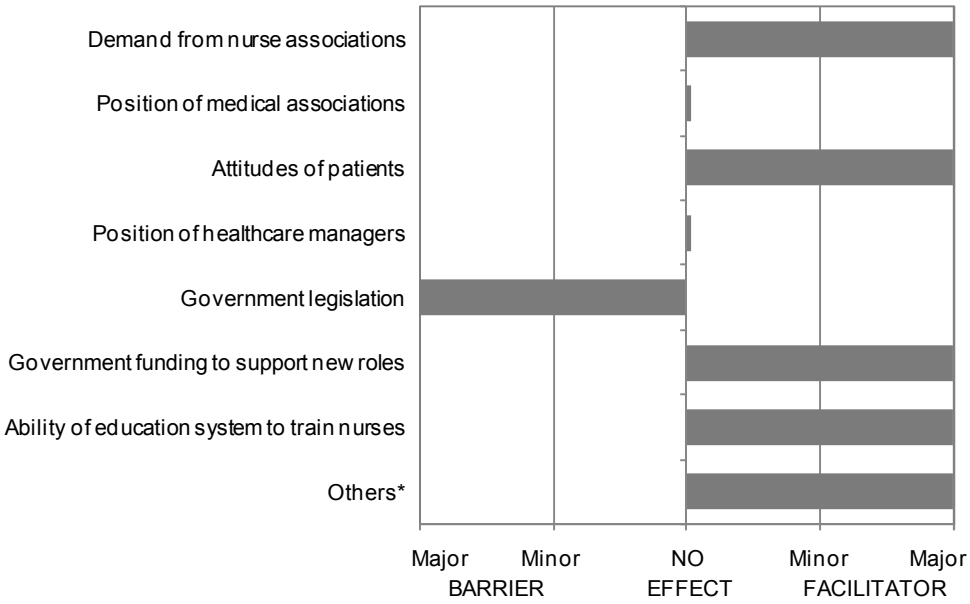
* Others include the rising education level of Cypriot nurses and cultural reasons.

Source: Ministry of Health's response to OECD 2009 questionnaire

2. Factors hindering or facilitating the development of advanced roles for nurses

Five main factors have facilitated the development of advanced roles for nurses: 1) demand from nurse associations, 2) support of patients, 3) government funding to support new roles, 4) ability of the education system to provide additional training, 5) health care reform proposals promoting advanced practice nursing roles. The main barrier is government legislation concerning, for instance, the right to prescribe drugs (Graph 2).

Graph 2: Main facilitators or barriers to development of advanced practice nursing in Cyprus



* Other factors include the introduction of the New Health Care System.

Source: Ministry of Health's response to OECD 2009 questionnaire

3. Future directions

Future directions in the area of advanced practice nursing might include: promoting advanced role of nurses specifically in the community (expansion of care to adults, and not only children and mothers, through home nursing services). A pilot project has already been implemented and has shown good results (satisfaction of patients and families and cost-effectiveness).

CZECH REPUBLIC

The Czech Republic is only just beginning to explore possibilities to develop advanced practice roles for nurses, although nurses may already be playing some advanced roles in the area of chronic diseases and injuries in an unofficial (informal) way.

1. Description of advanced roles of nurses

Advanced nursing practice in the Czech Republic is currently defined as including two categories of nurses:

1) A registered nurse with a specialisation (nurse specialist) that has been certified (examination).
2) A nurse with a Master's degree oriented towards a clinical discipline (e.g., Geriatry, Oncology, Cardiology).

Nurse specialists are increasingly involved in the management of chronic diseases such as asthma, cardiac care, stroke (follow-up), diabetes, cancer, and chronic kidney failure. On the other hand, nurses are not allowed to prescribe drugs in the Czech Republic.

Table 1: Nurses in advanced roles, numbers, main tasks and education level, Czech Republic

Category	Number (absolute)	% of all RN	Main tasks	Education level (required or recommended)
1- Specialised nurses	n.a.	n.a.	- advanced nurse consultation and diagnosis - ordering and interpretation of diagnostic tests (including laboratory test prescription) - management of a range of chronic diseases (follow-up, monitoring, health education and lifestyle advice for non-acute cases)	2 or 3 years of specialisation with an attestation (examination)
2- Nurses with a Master's degree in a clinical discipline	n.a.	n.a.	- advanced nurse consultation and diagnosis - ordering and interpretation of diagnostic tests (including laboratory test prescription)	Master's degree

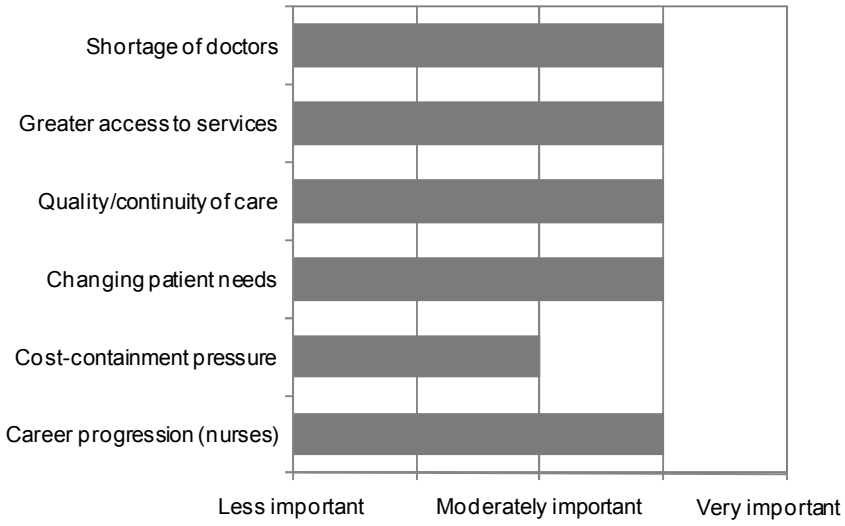
Source: OECD questionnaire 2009

The basic education for all nurses in the Czech Republic includes four years of vocational training at secondary school. To become a specialised nurse, an additional two years of training is required. Some universities also offer a Bachelor's degree in nursing, which take three years, and a Master's degree in five years (Rokosova *et al*., 2005).

2. Reasons motivating the development of new advanced roles for nurses

The key factors behind current interests in promoting more advanced practice roles of nurses include a shortage of health human resources (mainly doctors), the need to improve access to care and the quality/continuity of care in order to respond better to changing patient needs. Promoting the career progression of nurses is also an important factor as well as increasing retention rates by reducing the emigration of nurses to other European countries.

Graph 1: Main reasons for promoting advanced roles for nurses in Czech Republic

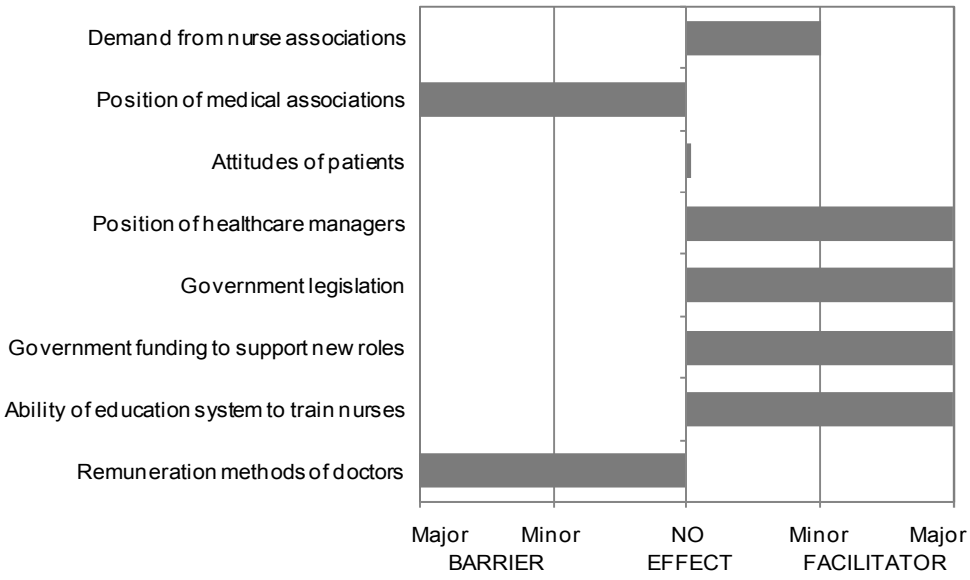


Source: OECD 2009 questionnaire

3. Factors hindering or facilitating the development of advanced roles for nurses

A number of factors are facilitating the development of more advanced roles of nurses, including government support through legislative changes and funding support, and the ability of the education system to train nurses for more advanced positions. The two major barriers are the position of medical associations and the remuneration methods of doctors.

Graph 2: Main facilitators or barriers to development of advanced practice nurses in Czech Republic



Source: OECD 2009 questionnaire

4. Future directions

Future directions in the area of advanced practice nursing might include the following steps:

- Defining different nurse specializations through regulation.
- Developing educational programmes in nurse specializations to allow them to get a special professional qualification (e.g., chemotherapeutics administration).
- Providing government financial support for positions.

FINLAND

Finland is a country that has a long experience of strong cooperation and task sharing between doctors and nurses in primary care centres, even though it has not formally developed categories of "nurse practitioners" as in anglosaxon countries.

1. Description of advanced roles of nurses

There are at least two categories of advanced nurses in Finland: 1) Public health nurses (with advanced diploma or degree); and 2) nurses (with advanced diploma or degree) (Table 1).

Table 1. Categories of nurses in advanced roles, numbers, main tasks and education level, Finland

Category	Number (absolute)	% of all RN	Main tasks	Education level (required or recommended)
1- Public health nurses (with advanced diploma or degree)	n.a.	n.a.	- advanced nurse consultation and diagnosis (advanced physiological and psychological assessment) - ordering and carrying out diagnostic tests (including diagnostic ultrasound prescription and echography, based on the national screening programme in maternity counselling clinics in primary health care) - management of a range of chronic diseases (follow-up, monitoring and health education and lifestyle advice for non acute cases) - referral of patients to specialists (patient sent to the maternity outpatient clinic in hospitals)	Post-graduate diploma (30-60 ECTS i.e. about 750 to 1500 hours) or Master's level (60-90 ECTS i.e. about 1500 to 2250 hours)
2- Nurses (with advanced diploma or degree)	n.a.	n.a.	- advanced nurse consultation and diagnosis (advanced physiological and psychological assessment) - ordering and carrying out diagnostic tests (echography) - management of a range of chronic diseases (follow-up, monitoring, health education and lifestyle advice for non-acute cases) - management of a range of acute health problems (examination of patient´s symptoms and assessment of care needs in minor infections and injuries)	Post-graduate diploma (30-60 ECTS i.e. about 750 to 1500 hours) or Master's level (60-90 ECTS i.e. about 1500 to 2250 hours)

Source: OECD questionnaire 2009

Public health nurses with post-graduate education are working in advanced roles in health centres in primary health care. While they have traditionally provided maternal and child health counselling, they have recently become more involved in providing services for patients with chronic diseases. Nurses with post-graduate education are also working in advanced roles in primary health care as well as in hospitals. These nurses are involved in the management of chronic diseases such as hypertension, asthma, cardiac care, diabetes and stroke.

Nurse consultations are organised in different ways, such as a nurse reception (in that case, she remains a member of a multiprofessional team in a health centre) or as a pair with a physician in a health centre. A nurse working in pair with a doctor can be in charge of health education and routine follow-up. She can also be in charge of acute health problems such as common infections, allergies, minor wounds and minor injuries. She has the possibility to consult or refer patients to doctors for cases that are more severe.

In addition, nurses do have extended roles in rural and remote areas. For example, Finland has nursing reception facilities in smaller health stations which are supported by e-consultations with doctors if necessary. Doctors work at the main health station, while nurses in the health station in the remote area

operate autonomously. Nurses can manage up to 70% of the service needs at the remote health station (Jaatinen *et al*, 2002).

New Master's level programmes continue to be created in polytechnic institutes to produce more nurses in advanced roles. For instance, a new Master's programme explicitly designed for "Advanced clinical care" started in 2006 at Jyvaskyla University Applied Science. The programme is focused on three main areas: preventive nursing and health promotion, assessment of care needs, and care and follow-up of patient with acute and chronic illness (Fagerstrom, 2009).

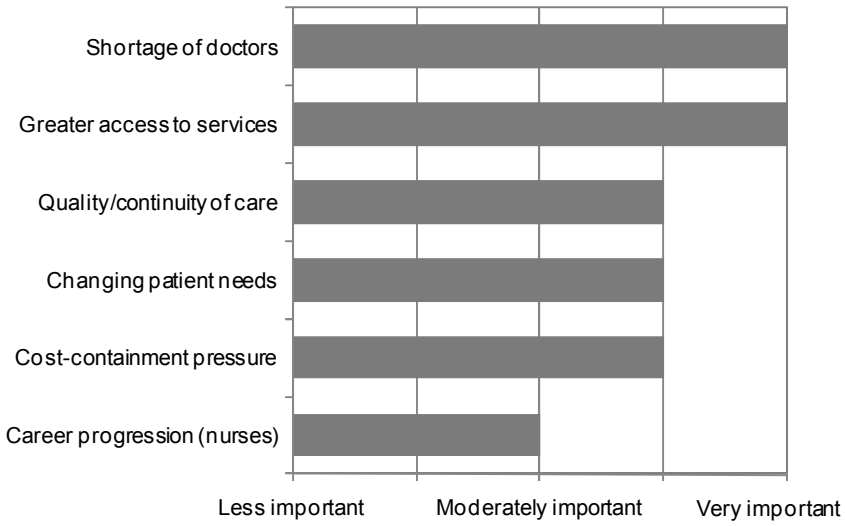
Right to prescribe pharmaceutical drugs

In Finland, the legislation has not allowed nurses to prescribe drugs yet (with the exception of contraceptive pills in health centres), but some steps have been taken in recent years to extend their role in this area. Many health centres have defined local guidelines on collaborative prescribing, allowing nurses to propose a limited number of prescriptions to certain patient groups, but still requiring the approval of doctors. The bill on nurses to allow them to prescribe a limited number of drugs was submitted to the Parliament in January 2010. New legislative amendments concerning nurse prescribing are expected to come into force later in 2010. These amendments would allow nurses to prescribe autonomously a limited number of drugs. The length of postgraduate education required to prepare nurses to prescribe will be 45 European Credit Transfer System (ECTS), i.e. about 1 125 hours (with the programme including a theoretical and a practical part).

2. Reasons motivating the development of new advanced roles for nurses

The key factors behind current interest in promoting more advanced roles of nurses are a shortage of doctors and the need to improve access to care. The need to improve quality/continuity of care in order to respond better to changing patient needs is also important (patient education is particularly important in the context of growing chronic diseases). Containing the growth in health cost is another important reason for the development of such new roles.

Graph 1: Main reasons for promoting advanced roles for nurses in Finland

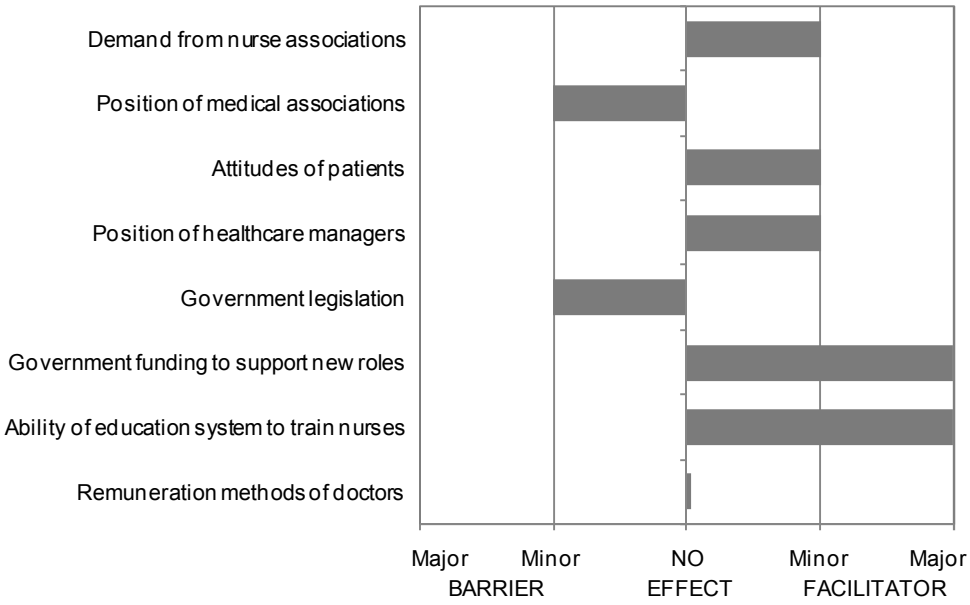


Source: Ministry of Social Affairs and Health's response to OECD 2009 questionnaire

3. Factors hindering or facilitating the development of advanced roles for nurses

The development of advanced roles for nurses has been supported through cooperation between the Ministry of Health, municipalities (which are responsible for health centres), and polytechnics (institutions providing tertiary education in nursing and other fields). Two main factors have facilitated their development: 1) the ability of the education system to train nurses in more advanced roles; and 2) government funding for municipalities to support the development of task shifting and advanced roles of nurses. On the other hand, while physicians at the local level have tended to be very supportive of advanced practice nursing projects, the position of medical associations has not always been supportive. For instance, doctor associations have not considered nurse prescribing as a relevant development. Finally, the present legislation on professional practice in health care is also considered to be a barrier to the development of advanced roles of nurses, in that it limits their scope of practices. Nevertheless, some new legislative amendments are under preparation (see section 5 on future directions).

Graph 2: Main facilitators or barriers to the development of advanced practice nursing in Finland



Source: Ministry of Social Affairs and Health's response to OECD 2009 questionnaire

4. Evaluations in primary care

A number of evaluations have been carried out on the impact of advanced roles of nurses in Finland (see Table 2).

Table 2: Review of evaluations of the impact of advanced practice nursing in primary care

Author/Year	Type of activities	Main Findings Access and quality of care
Peltonen (2009)	Comparing a health service delivery model of a pair of primary health care physician and nurse with a model of a multiprofessional team (physicians, nurses and assistants) in health centres	Model of a pair: ▪ Better access to care (higher proportion of patients seen within 3 days) ▪ Follow-up visits planned more often by the primary health care nurse in co-operation with the patient. Patients also felt that they received more often competent services from the primary health care nurse and were better able to manage their health condition by themselves. This is linked to the nurse commitment to provide them with information and advice to manage their diseases. Model of a multiprofessional team: ▪ Better implementation of local clinical guidelines.
Hukkanen & Vallimies Patomaki (2005)	Survey of the pilot projects on labour division carried out within the National Health Care Project	Acute patient visits to doctors were reduced by 18-25% a month in emergency care (in health centres and hospitals) as a result of nurses' receptions and telephone advice. Nurses handled up to 30% of all emergency visits and 50% of the total amount of patient visits in health centres.
Jaatinen *et al.* (2002)	Nurses in health stations working with physicians trough e-consultations	Nurses only sent 22% of the patients to the main health station to be seen by a physician Physicians could manage 80% of the cases requiring medical judgment through e-consultations.

5. Future directions

Promoting the further implementation and dissemination of advanced roles of nurses is included in the 2008-2011 National Development Plan for Social and Health Care Services. More specifically, future directions in the area of advanced practice nursing include the following steps:

- Preparing legislative amendments concerning nurse prescribing. The bill on nurses to allow them to prescribe a limited number of drugs was submitted to Parliament in January 2010, with legislative amendments expected to come into force later in 2010.

- Preparing draft guidelines on the implementation and dissemination of advanced roles of nurses and multiprofessional co-operation and task shifting.

- Developing new Master degree's programmes in polytechnic institutes in advanced clinical nursing as well as postgraduate education programmes to train a greater number of nurses in advanced roles.

FRANCE

It is not easy to describe the current status of advanced nursing practices in France as it is an area that is changing rapidly both from a legal standpoint and in terms of practices in the field. The profession remains highly regulated and draws a distinction between the specific role of nurses and acts performed under a medical prescription (Articles R4311-3 to R4311-5 of the French Public Health Code with regard to the role of the nurse, and Articles R4311-7 to R4311-10 for acts performed on prescription). This specific regulation can slow down the development of new roles. French nurses, for example, are not permitted to prescribe drugs, although a 2007 Decree allows them to prescribe medical devices (e.g. intravenous drip systems for home use, accessories for the use of certain catheters) and to perform certain "advanced" tasks compared with other countries (e.g. renewal of certain vaccinations without a medical prescription). Moreover, other more informal advanced practices may exist in the field, as a result of close collaboration between doctors and nurses, which may not always be officially recognised.

In France, unlike in other countries, State-qualified nurse anaesthetists, State-qualified operating theatre nurses, and State-qualified paediatric nurses are not considered as advanced practice nurses, but as specialised nurses.

In recent years, further to the Berland report (2003) on the co-operation of health professionals, France has been trialling advanced nursing roles. The 2009 Hospital, Patients, Health and Territories Act contains a section which sets out the general principle of co-operation between health professions which allows the transfer of activities, health acts or the reorganisation of health professional procedures with regard to the patient. However, the implementation of this Act is not straightforward and is facing obstacles. The recognition of advanced practices within an overarching and durable framework is therefore taking time to put in place.

1. Description of pilot projects involving advanced roles for nurses

A number of pilot projects involving advanced nursing practices, both in hospitals and in primary care, have been tested in recent years in the following areas:

1) expert nurses specialised in primary practices (*Action de Santé Libérale en Equipe* "ASALEE") who in particular offer advanced consultations in the area of health education
2) expert nurse in home chemotherapy either in networks or in hospital day care for on-going chemotherapy treatment
3) expert nurses specialised in haemodialysis
4) expert nurses specialised in the treatment of hepatitis C patients
5) contact nurse for neuro-oncology
6) nurses specialised in digestive function explorations
7) pre-blood donation interview approved by a nurse.

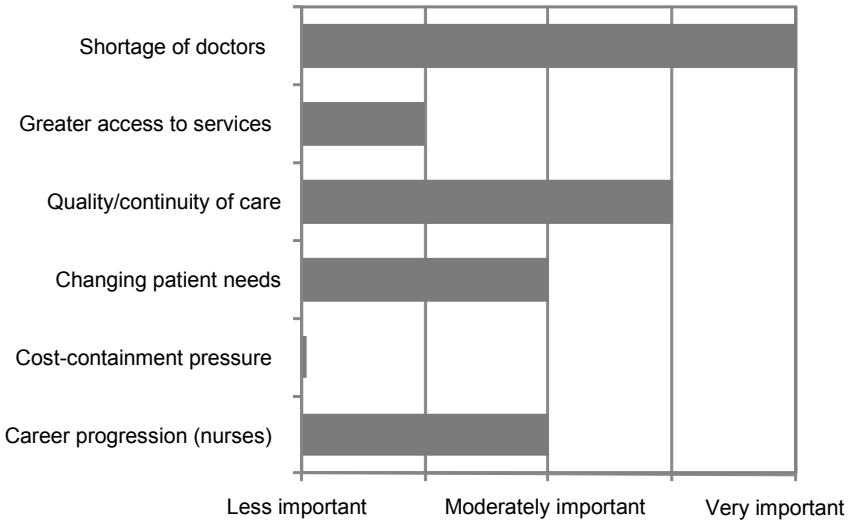
2. Nurses' access to university training

In France, nurses can enrol on an individual basis in Bachelor's or Master's degree courses at university (or through derogations under agreements between healthcare training institutes and the university). They can also acquire specialised skills for which there is often no official qualification. In 2009, a major step has been taken with the recognition of the State nursing diploma as a professional first degree "license professionnelle" within the Bachelor's-Master's-Doctorate degree system. In October 2009, to promote new advanced roles for nurses, a new Master's degree was jointly developed by the University of Aix-Marseille and the National School of Public Health.

3. Reasons motivating the development of new advanced roles for nurses

Advanced nursing roles in France are being developed in response to the projected sharp decline in the number of doctors (10%) over the next ten years (DREES, 2009) and out of a desire to improve the career of nurses. A constant effort to improve the continuity and quality of care, as well as the need to adapt to changing patient needs, are also contributing factors.

Graph 1: Main reasons for promoting advanced roles for nurses in France



Source: Ministry of Health's response to OECD questionnaire (2009)

4. Factors hindering or facilitating the development of advanced roles for nurses

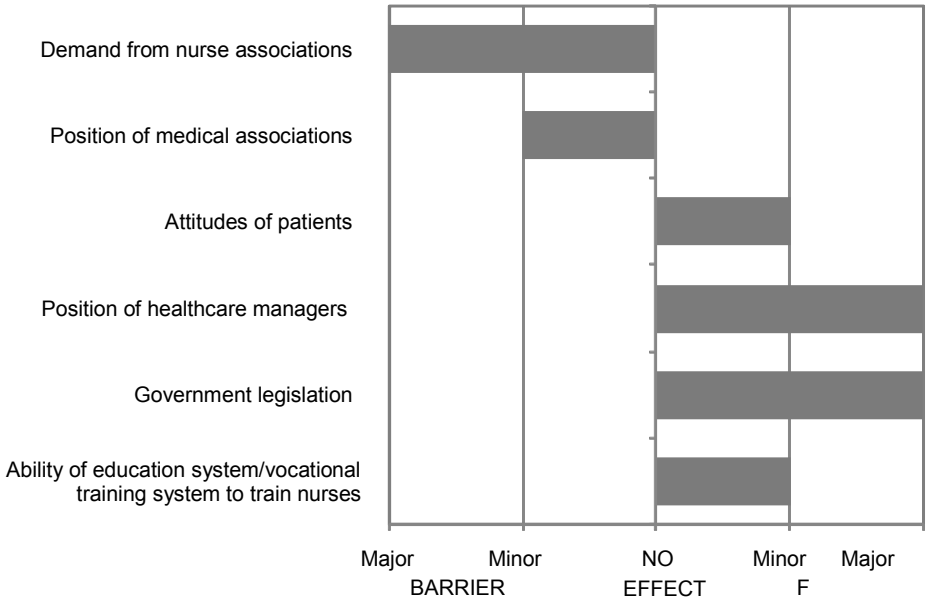
France differs from other countries by allowing some nurses to work on a self-employed basis in which they are paid by fee-for-service (14.6% of all nurses in 2009). These nurses and/or their union representatives do not always support the idea of working as doctors' employees in grouped practices and prefer to retain the independence afforded by their self-employed status. Fee-for-service, and more generally the system for financing self-employed practice, does not facilitate the movement towards greater co-operation between doctors and nurses in the primary care sector.

The 2009 Act (Article 51 of the Hospital, Patients, Health and Territories Act (HPST)) extended the general principle of co-operation between health professionals by moving it out of the trial phase. Henceforth, co-operation can be instigated by professionals within the framework of protocols. The

validation of protocols is based on the recognition of a health need at regional level and on the level of safety offered.

Furthermore, the position of managers in the field (hospital managers, managers of regional administrations) is on the whole very favourable to new types of collaboration between health professionals. Acceptance by patients can also facilitate the introduction of advanced nursing practices.

Graph 2: Main facilitators or barriers to development of advanced practice nursing, France



Source: Ministry of Health's response to OECD questionnaire (2009)

5. Evaluations in primary care

The ONDPS (French National Observatory on the Demography of Health Professions) and HAS (French "High Authority in Health"), which assessed the initial pilot projects, concluded that: "All the projects presented show that it is possible for non-medical workforce to perform medical acts without danger to patients through a reorganisation of the work process and close collaboration with doctors" (HAS, 2008).

With regard more particularly to trial co-operation between general practitioners and advanced practice nurses for the monitoring of diabetic patients in the primary sector, patients monitored by nurses achieved better results than the trial group of patients in which there was no monitoring by nurses. According to the assessors, this model of co-operation is effective. The therapeutic education dispensed by nurses to patients improved patients' health (improved blood sugar balance). The management of patients' data by nurses (the administrative side of the work) can also improve patient monitoring. This co-operation had no impact on the number of doctor's consultations, and there is no evidence that doctors spent more time on complex cases. There was no significant impact on costs (Mousquès *et al*, 2010). The first results of another evaluation ("Sophia") from the CNAMTS (National Health Insurance for Employed people) are also positive.

6. Future directions

According to HAS (2008), new forms of co-operation between health professionals offer a real opportunity to improve the overall care of patients, which is its main objective. Such co-operation is also a key factor in the attractiveness of health professions to both doctors, who at present can suffer from working conditions in isolated practices, and nurses and other health professionals who are calling for increased responsibilities and recognition of their skills. However, such co-operation will probably not, or only slightly, help to reduce health expenditure.

The development of these forms of co-operation between doctors and nurses is hampered by the framework within which health professions operate. Structural changes would therefore be necessary. In 2008, the HAS proposed promoting these new forms of co-operation with the aim of improving the quality of health care by:

- Reforming the current supply of training courses to narrow the gap between medical and paramedical training (reform of the entire training system for nurses is in progress as part of the Bachelor's-Master's-Doctorate cycle);

- Reforming the legal framework defining the professions, based on reference to missions rather than predetermined acts alone;

- Placing greater value on co-operation through pay or career prospects;

- Introducing a support system aimed at guaranteeing the interest and quality of new forms of co-operation.

The next steps in the development of co-operation between health professionals will be based on the HPST Act of July 2009, which encourages teams of professionals to set out innovative practices and/or transfers of tasks in protocols. The protocols must be submitted to, and validated by, the HAS, before being authorised under an Order by the Managers of Regional Health Agencies.

IRELAND

Ireland has a dynamic policy to develop advanced practice nursing. The first roles in advanced practice began to develop in the 1990s, and the first advanced nurse practitioner post in emergency services was approved by the National Council for the Professional Development of Nursing and Midwifery (NCNM) in 2002. There are at least two categories of advanced practice nurses in Ireland: 1) Clinical Nurse Specialists (CNSs) and 2) Advanced Nurse Practitioners (ANPs) (Table 1). Some advanced practice roles for midwives are also considered as advanced categories but they are not in the scope of this study.

Table 1: Categories of nurses in advanced roles, numbers, main functions and education, Ireland

Category	Number (absolute)	% of all RN	Main Functions	Education level – required or recommended)
1- Clinical Nurse Specialists	2066* (2009) (including midwives)	3.8 % (including midwives in RNs)	Application of specialty-focused knowledge and skills to improve quality of care. Role includes: - assessment, planning, delivery and evaluation of care - participation in and dissemination of nursing research and audit - working closely with medical and paramedical colleagues, including making alterations in prescribed clinical options along agreed protocol guidelines - providing consultancy in education and clinical practice to nursing colleagues and the wider interdisciplinary team. - prescribing medication and ionizing radiation (with additional education, training and registration) NCNM (2008a) outlines the standards and requirements of these posts	Bachelor's degree (for entrants to nursing from 2002) plus a Post-graduate diploma in the relevant specialist area of clinical practice.
2- Advanced Nurse Practitioners	121* (2009) (including midwives)	0.2 % (including midwives in RNs)	The core concepts of the advanced nurse practitioner role include autonomy in clinical practice, expert practice, leadership and research. Scope beyond that of CNSs: - autonomy in practice such as managing Emergency Department Minor Injury Clinics - case management and follow-up, monitoring, health education and lifestyle advice for of a range of patients with chronic diseases - medication and ionizing radiation prescribing under protocol or independently with recognized education, training and registration - additional diagnostics: echocardiography /laboratory test prescription NCNM (2008b) outlines the standards and requirements of these posts	Master's level

*NCNM (2009)

Source: OECD questionnaire 2009

The CNS role encompasses a major clinical focus, which comprises assessment, planning, delivery and evaluation of care given to patients and their families in hospital, community and outpatient settings. The core elements of specialist nursing are clinical focus, patient advocacy, education and training, audit, research and consultancy.

ANPs are highly experienced in clinical practice and promote wellness, offer healthcare interventions and advocate healthy lifestyle choices for patients, their families and carers in a wide variety of settings in collaboration with other healthcare professionals. They utilise advanced clinical nursing knowledge and critical thinking skills to independently provide patient care, including management of acute and/or chronic illness such as asthma, cardiac care, stroke (follow-up), diabetes, cancer or mental health. Advanced nursing is carried out by experienced practitioners who are responsible for their own practice.

Nurses can apply to be accredited as ANPs in approved posts, but their accreditation is confined to the specific post and area of employment. Re-accreditation for ANPs is a requirement after five years. A national body (the National Council for the Professional Development of Nursing and Midwifery) sets the criteria and standards for ANP posts, and monitors career pathways for nurses.

Education level

From 1st September 2010 onwards: "all nurses […] who apply for Clinical Nurse Specialist […] post approval must have acquired a level 8 post-registration NQAI [National Qualification Authority of Ireland-major award) relevant to his/her area of specialist practice, [equivalent to a higher/postgraduate diploma]" (NCNM, 2008a). Advanced Nurse Practitioners must have a Master's degree in nursing prior to accreditation. Four universities offer Master's degrees in nursing with specific advanced practice skills, while the others offer generic Master's programmes (NCNM, 2005).

Right to prescribe pharmaceutical drugs

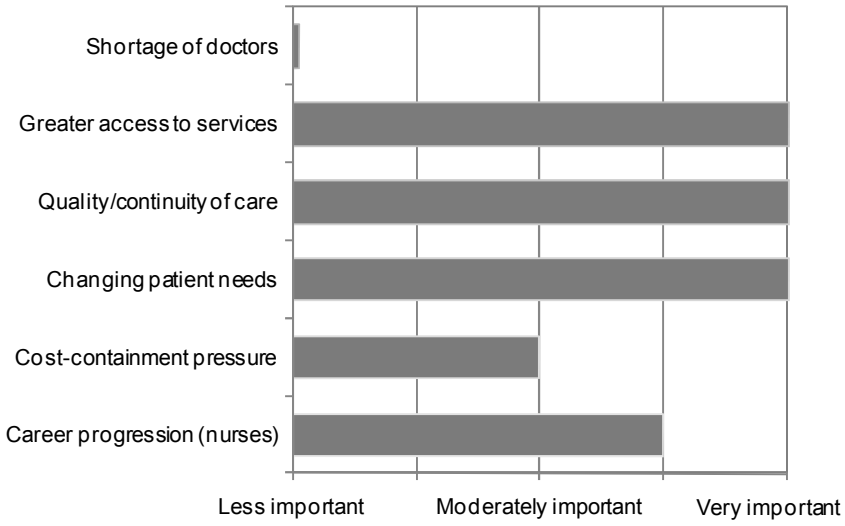
Nurses in Ireland acquired the right to independently prescribe drugs in 2007, subject to certain criteria. This right applies to all registered nurses who have successfully completed a post-registration education programme on nurse prescribing and who are registered as nurse prescribers with the Irish Nursing Board. The additional training (beyond initial training) is a 6 month post-registration programme at level 8 (NQAI framework) – Bachelor's degree level. There were 112 registered nurse prescribers in Ireland in October 2009.

Nurse independent prescribers can prescribe a large range of drugs relevant to their scope of practice (including antibiotics, antiviral drugs, antidepressants), and some controlled drugs.

1. Reasons motivating the development of new advanced roles for nurses

There are three main reasons for the development of advanced roles for nurses in Ireland: 1) improving access to services, 2) promoting quality and continuity of care, and 3) responding more efficiently to patients needs (Graph 1). Promoting career progression of nurses is also an important factor.

Graph 1: Main reasons for introducing or extending advanced roles for nurses in Ireland

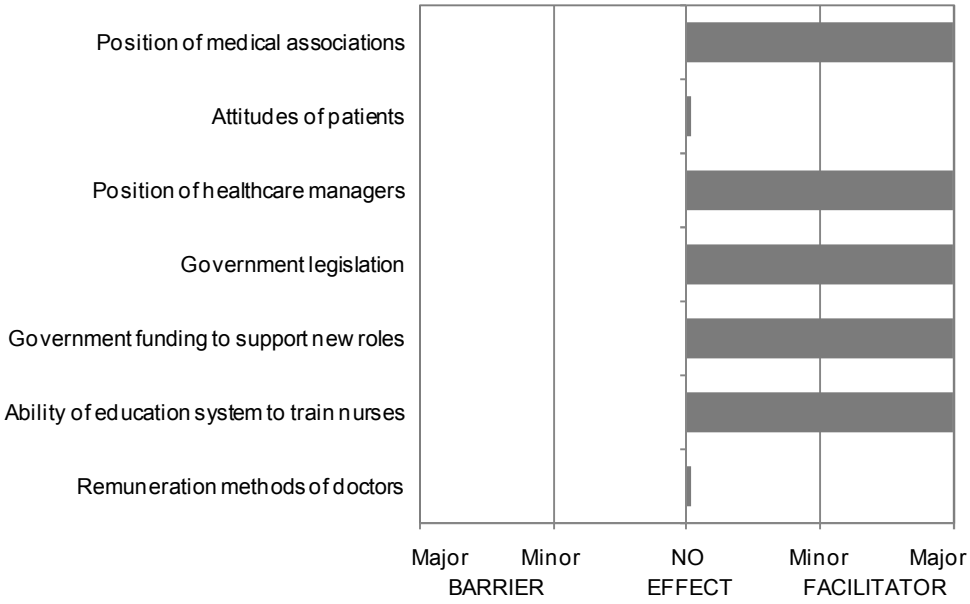


Source: Department of Health and Children's response to OECD questionnaire (2009)

2. Factors hindering or facilitating the development of advanced roles for nurses.

Five main factors have facilitated the development of advanced practice roles for nurses in Ireland: 1) the support of medical associations (which contrasts sharply with the situation in many other countries), 2) the support of health care managers, 3) government legislation, 4) government funding to support new roles, 5) the ability of the education system to train nurses.

Graph 2: Main facilitators to the development of advanced practice nursing in Ireland



Source: Department of Health and Children's response to OECD questionnaire (2009)

3. Evaluations

Two evaluations have already been conducted in Ireland, concluding that advanced practice nurses are safe practitioners in primary care (see table 2).

Table 2: Review of evaluations of the impact of advanced practice nursing in primary care, Ireland

Author /Year	Type of activities	Main findings Access and quality of care
Drennan *et al*. (2009)	National evaluation of the introduction of the new prescription rights of nurses	No safety problems Reduction of waiting time to obtain access to care and drugs (over 90 % of patients) High patient satisfaction
NCNM (2005)	Evaluation of the introduction of the role of the advanced nurse practitioner	Better access to care for patients More personalised care to patients (better communication with patients and as a result better facilities for providing health education)

4. Future directions

Future directions in the area of advanced practice nursing might include the following steps:

- Promoting further advanced roles in chronic disease management (including diabetes, heart failure, older people, mental health rehabilitation).

- Promoting advanced roles for nurses in oncology, mental health primary care, mental health liaison, emergency and critical care, and child health.

JAPAN

Nurses in Japan have, to date, continued to assume fairly traditional and limited roles. However, there are signs of some movements towards the extension of the roles of certain categories of nurses, with the introduction of a category of Certified Nurse Specialist and the recent creation of a graduate programme for Nurse Practitioners at some graduate schools. In addition, the subject of advanced practice roles of nurses was one of the points discussed by the committee on the promotion of teams in health care.

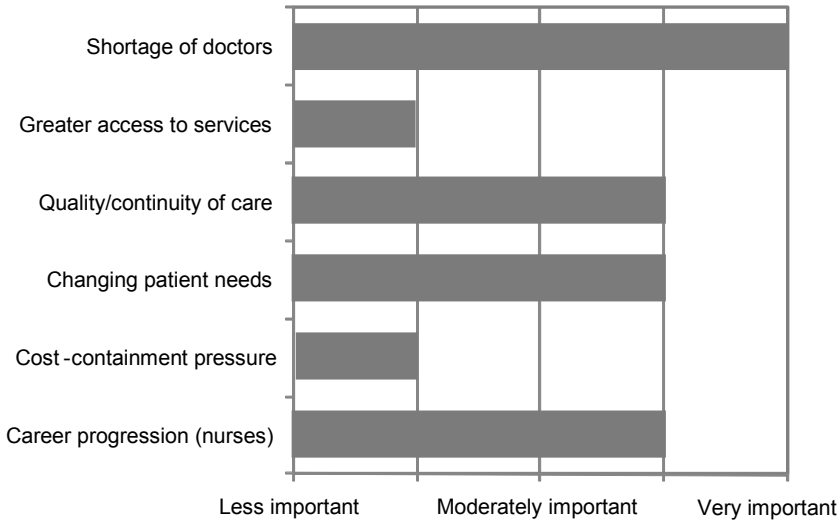
"Registered nurses" in Japan are required to attend three years of education after graduation from high school. The number of nursing universities has increased rapidly in recent years, from 76 in 1999 to 178 in 2009. 119 of these universities are offering some postgraduate programmes, and 43 universities are working towards a "Certified (Clinical) Nurse Specialty".

Certified Nurse Specialists have in-depth knowledge and skills in a certain area of specialisation, with their role being to provide a high level of nursing care to individuals, families and groups. To become a Certified Nurse Specialist, candidates must have completed a Master's degree programme and have at least 5 years of clinical practise (including 3 years in their field of specialty) before taking the exam administered by the Japanese Nursing Association (JNA). There were 451 Certified Nurse Specialists registered by the JNA as of January 2010, representing 0.03% of all employed registered nurses. Their specialties are the following: cancer (193), psychiatric mental health (68), critical care (42), child health (40), chronic care (34), women's health (27), gerontological (24), community health (14), infection control (4), family health (5) (JNA, 2010). No category of nurses in Japan is allowed to make a diagnosis or to prescribe pharmaceutical drugs.

1. Reasons motivating the development of new advanced roles for nurses

The shortage of doctors is a key factor motivating the development of more advanced roles of nurses in Japan. The need to improve the quality/continuity of care in order to respond better to changing patient needs and promoting the career progression of nurses are also important factors.

Graph 1: Main reasons for considering the development of advanced roles for nurses in Japan

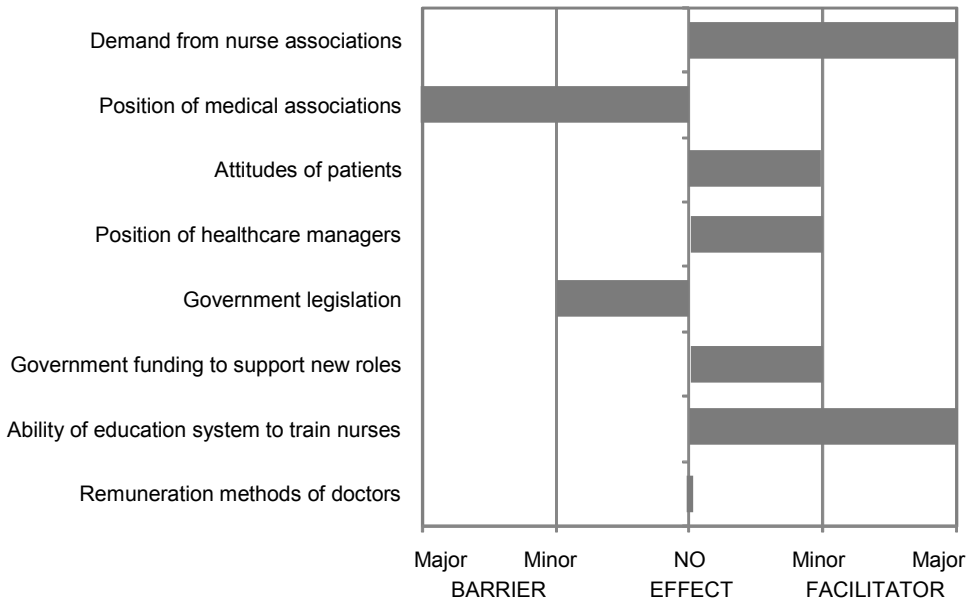


Source: Ministry of Health and Welfare's response to OECD 2009 questionnaire

2. Factors hindering or facilitating the development of advanced roles for nurses

Two main factors have facilitated the development of advanced roles for nurses in Japan: 1) the demand from nurse associations and 2) the ability of the education system to train nurses with adequate skills. On the other hand, the major barrier is the position of medical associations. Current government legislation may also be a barrier to the development of advanced roles for nurses.

Graph 2: Main facilitators or barriers to the development of advanced practice nursing in Japan



Source: Ministry of Health and Welfare's response to OECD 2009 questionnaire

3. Future directions

Following the discussions of the committee on the promotion of teams in health care, the Japanese authorities are planning to authorize "specific practice nurses" (tentative name) to carry out more practical procedures than Certified Nurse Specialists under broader clinical discretion, but still within the range of the doctor's indication. These nurses will have a higher level of medical education.

POLAND

Poland is beginning to explore possibilities to develop advanced practice roles for nurses, although nurse specialists may already be playing some advanced roles in consultations and in the area of chronic diseases.

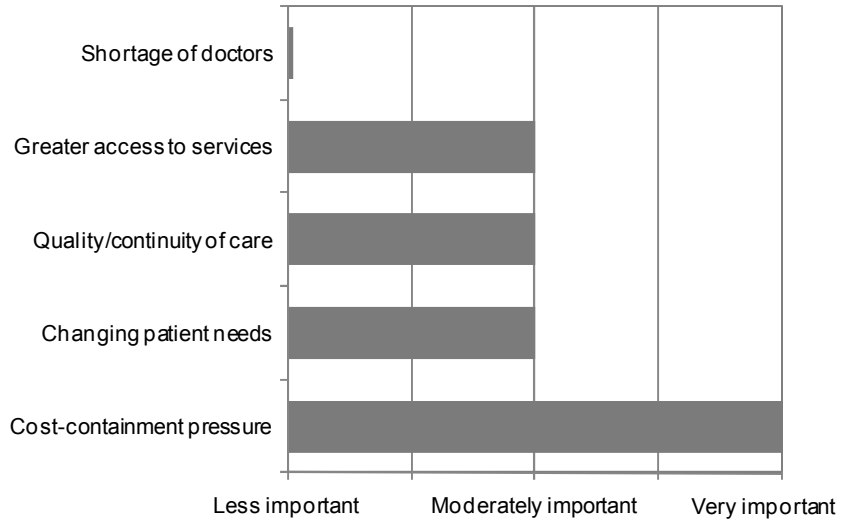
1. Description of advanced roles of nurses

Nurse specialists in Poland can perform advanced tasks in nursing diagnosis and consultation (advanced physiological and psychological assessment). They can also be involved in the management of chronic diseases such as diabetes and end-stage renal disease. Nurses in "rescue medicine nursing" can also perform some advanced tasks such as triage activity to prioritise patients or other advanced tasks in the fields of emergency and first aid (e.g. emergency intubation, emergency tracheotomy). In addition, anaesthetic nurses can also be in charge of advanced tasks in emergency and first aid (e.g. intubation). On the other hand, no category of nurses is allowed to prescribe pharmaceutical drugs in Poland.

2. Reasons motivating the development of new advanced roles for nurses

Cost-containment pressure is a key factor motivating the development of more advanced practice roles of nurses in Poland. The need to improve both access to care and the quality/continuity of care to respond better to changing patient needs are also important reasons encouraging the development of new roles.

Graph 1: Main reasons for promoting advanced roles for nurses in Poland

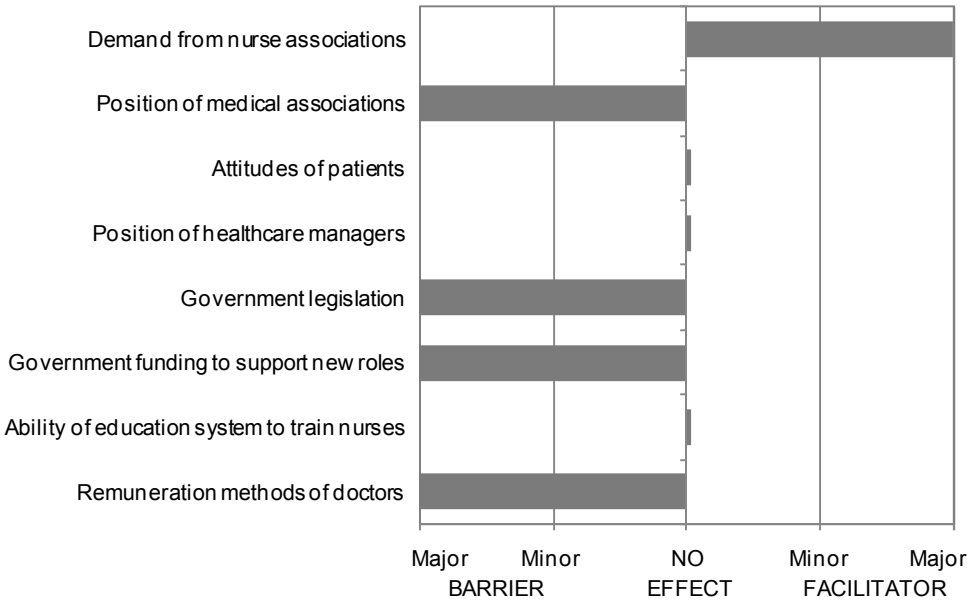


Source: Polish Main Council of Nurses and Midwives' response to OECD 2009 questionnaire

3. Factors hindering or facilitating the development of advanced roles for nurses

The main factor which has facilitated the development of advanced roles for nurses is the demand from nurse associations. On the other hand, four main barriers have been identified: 1) the opposition of medical associations, 2) the government legislation, 3) the government funding to support new roles, and 4) the remuneration methods of doctors.

Graph 2: Main facilitators or barriers to the development of advanced practice nursing in Poland



Source: Polish Main Council of Nurses and Midwives' response to OECD 2009 questionnaire.

4. Future directions

Future directions in the area of advanced practice nursing in Poland might include revising national laws governing what services nurses can provide without doctor supervision. This process is underway, although it is difficult to say when it will be completed.

UNITED KINGDOM (ENGLAND)

The United Kingdom (England) has a long experience of supporting nurses to develop the skills to advance their roles. Nurse practitioners (now often called advanced nurse practitioners) were introduced into the National Health Service in the early 1970s, but it is in the last decade that their numbers have proliferated. At the beginning, advanced nurse practitioners were mostly working in primary care, but more recently they have been introduced into acute care, initially in emergency departments, and then across hospitals.

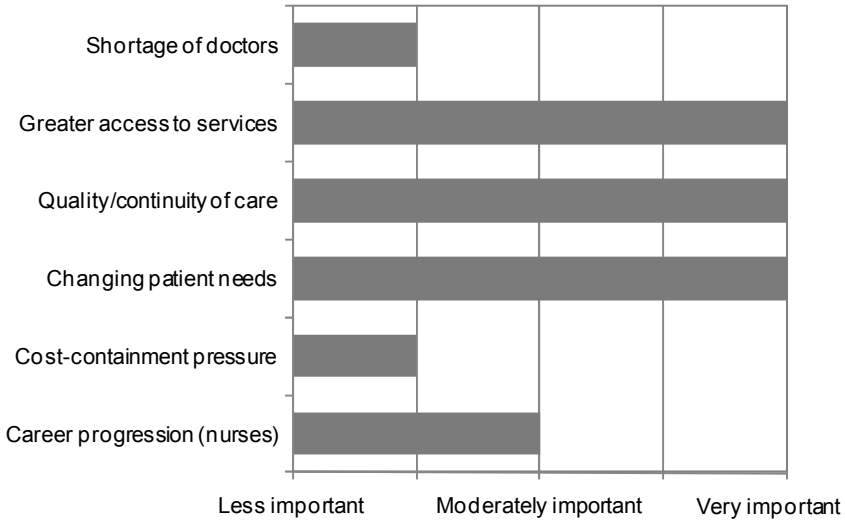
There are at least four models of advanced practice nurses in England: 1) clinical nurse specialists, 2) (advanced) nurse practitioners, 3) nurse consultants, 4) matrons. It should be noted that the title clinical nurse specialist does not automatically mean the nurse is practising at advanced level (Table 1). Some nurses working in a highly specialist area do not diagnose or treat autonomously, nor exercise the higher levels of decision-making and judgement associated with advanced practice.

Nurses in the United Kingdom (England) acquired the right to prescribe drugs in the early 1990s. Nowadays, all nurses (not just those working as advanced practitioners) can train as nurses prescribers, provided they can reach the education level required (first university degree level), and they have at least three years experience. The training programme comprises 26 days of theory and 12 days in practice.

1. Reasons motivating the development of new advanced roles for nurses

There are three main reasons explaining the development of advanced roles for nurses in the United Kingdom (England): improving access to services, promoting quality and continuity of care, and responding more efficiently to changing patient needs (Graph 1).

Graph 1: Main reasons for promoting advanced roles for nurses in England



Source: Department of Health's response to OECD 2009 questionnaire

Table 1: Categories of nurses in advanced roles, numbers, main tasks and education level, England

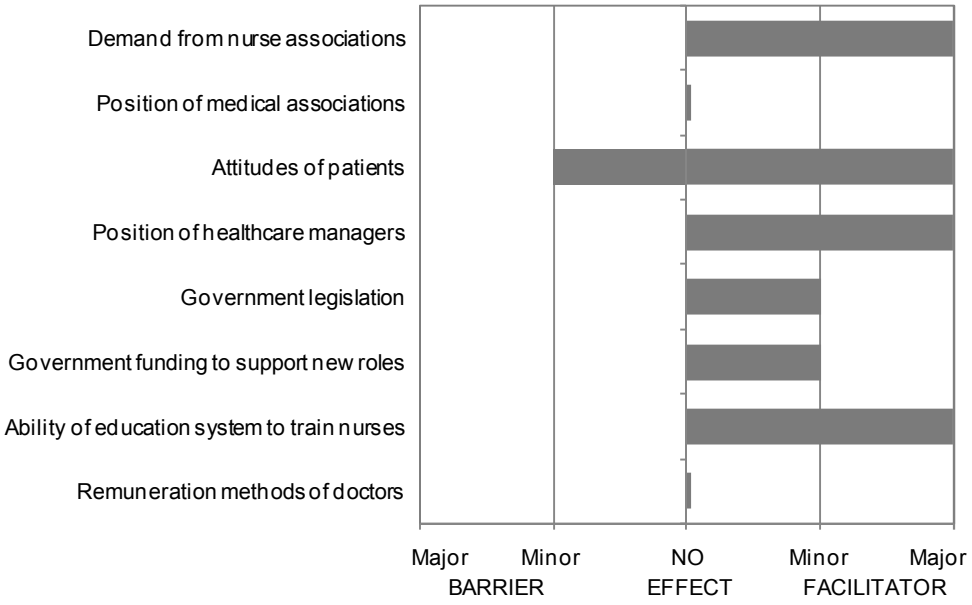
Category	Number (absolute)	% of all RN	Main tasks	Education level (required or recommended)
1- Clinical Nurse Specialists	n.a.	n.a.	- advanced nurse consultation and diagnosis (advanced physiological and psychological assessment), dependent on training and competency level - ordering and interpretation of diagnostic tests (including X-ray prescription, diagnostic ultrasound prescription and echography, laboratory test prescription), dependent on training and competency level - prescription of drugs with or without supervision of doctors (if the nurse is registered as a non-medical prescriber) - management of a range of chronic diseases (follow-up, monitoring, health education and lifestyle advice for non-acute cases), dependent on role and training - referral of patients to specialists (dependent on training and competency level) / discharge management of a caseload	University first degree or Master's level, supplemented by extensive experience in field of practice and continuing professional development
2- (Advanced) Nurse Practitioners	n.a.	n.a.	Same tasks as for clinical nurse specialists but more oriented towards medical consultations, frequently replacing doctors. Tasks include (RCN, 2008): - receive patients with undifferentiated and undiagnosed problems and make an assessment of their health care needs - screen patients for disease risk factors and early signs of illness - make differential diagnosis - develop with the patient an ongoing nursing care plan for health, with an emphasis on preventive measures - order necessary investigations, and provide treatment and care - provide counselling and health education - admit or discharge patients from their caseload and refer patients to other health care providers	At least Bachelor's degree – most are educated to Master's level
3- Nurse Consultants	971* (2009) (England)	0,2 %	Nurse consultants were introduced to keep highly experienced nurses who can provide patient care. They specialise in a particular field of practice and have four main functions: 1) expert practice 2) leadership and consultancy 3) education, training and service improvement 4) research and evaluation	Master's and Doctorate level
4a -Modern Matrons	5255* (2009) (England)	1,0 %	Modern matrons have three main roles: 1) securing and assuring the highest standards of clinical care by providing leadership to front-line nursing and other staff 2) ensuring that administrative and support services are designed to achieve the highest standards of care (including tackling hospital cleanliness, prevent hospital acquired infection) 3) providing a strong presence in ward settings – be someone to whom patients and their families can turn for support	Master's level or extensive experience
4b- Community Matrons	1654* (2009) (England)	0,3 %	Community matrons are experienced nurses working with patients with long term conditions, who have highly complex needs, and are at risk of frequent, unplanned hospital admissions. They act as case managers and are able to handle acute exacerbations in the home, to prevent admissions.	

*NHS information center (2010)
Source: OECD 2009 Questionnaire (for tasks)

2. Factors hindering or facilitating the development of advanced roles for nurses

Three main factors have facilitated the development of advanced roles for nurses: 1) the demand from nurse associations; 2) the support of health care managers; 3) the ability of the education system to provide the required training. While the attitudes of patients were initially a barrier, this has evolved over time and patients have become generally supportive of advanced nursing roles. The position of medical associations had very little overall impact which contrasts sharply with the situation in other countries.

Graph 2: Main facilitators or barriers to the development of advanced practice nursing in England



Source: Department of health's response to OECD 2009 questionnaire

3. Evaluations in primary care

Several evaluations have been carried out in United Kingdom showing that advanced practice nurses were safe and generally of equal quality of comparable services provided by doctors (Table 2).

4. Future directions

Future directions in the area of advanced practice nursing in the United Kingdom (England) might include the following steps:

- Promoting advanced practice nursing roles via the post-registration career framework. The Modernising Nursing Careers programme has described competency levels at different stages of post-registration practice from novice to expert. This is establishing a standard for advanced practice which will operate across the whole of the United Kingdom, and is likely to lead to registration of advanced practice, though this has yet to be confirmed by the Nursing and Midwifery Council.

- Extending the scope of practice of nurse independent prescribers to prescribe more controlled drugs was undergoing approval at the time of the writing of this study.

Table 2: Review of evaluations of the impact of advanced practice nursing in primary care, United Kingdom

Author / Year	Type of activities	Main findings Access and quality of care / Costs
Horrocks et al. (2002)	Comparing the care of nurse practitioners (NPs) as first point of contact with that of GPs (General Practitioners)	NP consultations were longer and included more investigations than GP consultations. No differences were found in drug prescriptions, return consultations or referrals. No differences in patient health outcomes. Patients were generally more satisfied with care provided by NPs.
Kinnersley *et al*. (2000)	Primary care outcomes in patients treated by NPs or GPs	NPs provide more information to patients and consultations are longer. Number of prescriptions, investigations ordered, and referrals to specialists are similar. Resolutions of symptoms and other health concerns did not differ between NPs and GPs. Patients consulting NPs were significantly more satisfied.
Venning et al. (2000)	Cost effectiveness of NP and GP care	NP consultations were significantly longer. No significant difference in patterns of prescribing or health status outcome for the two groups. Patients were more satisfied with NP consultations (this difference remained even after controlling for consultations time). No significant difference in costs (the average NP consultation cost less than a GP consultation -£18,11 vs £20,70- but taken longer).
Extended Role of Staff (EROS) Project (1999)	Comparing NPs in general practice with GPs	GPs and NP trainees agreed on 94% of diagnoses and 96% of management decisions. NP trainees transferred 38% of patients to GPs (mainly more complex / uncertain cases) NPs particularly appreciated for their ability to listen and advise patients. They achieve better results for health prevention and promotion of self-care.
Griffiths *et al*. (2004)	Test of a new model of practice in asthma care	Reduced hospital admissions for unplanned acute asthma cases in the year after intervention.
Watterson *et al*. (2009)	Evaluation of the expansion of nurse prescribing	Improved patient access to pharmaceutical drugs (less waiting time). No problem regarding patient safety. Some GPs expressed concerns that nurse prescribers may be less aware of the dangers of over-use of certain drugs.

UNITED STATES

The United States has been implementing advanced practice nursing roles for many years, with the introduction of "nurse practitioners" (NPs), who deliver a wide range of services with a high level of autonomy, dating back to the mid 1960s (e.g. paediatric nurse practitioners in Colorado in 1965).

1. Definition and description of advanced roles of nurses

According to the APRN Consensus Work Group *et al.* (2008), an "Advanced Practice Registered Nurse" (APRN) is a nurse who:

1. Has completed an accredited graduate-level education program preparing him/her for one of the four recognised APRN roles;
2. Has passed a national certification examination that measures APRN roles and competencies, and who maintains competence as evidenced by recertification;
3. Has acquired advanced clinical knowledge and skills preparing him/her to provide direct care to patients, as well as a component of indirect care;
4. Builds on the competencies of registered nurses (RNs) by demonstrating a greater depth and breadth of knowledge, a greater synthesis of data, increased complexity of skills and interventions, and more autonomous roles;
5. Is educationally prepared to assume responsibility and accountability for health promotion and/or maintenance, as well as the assessment, diagnosis, and management of patient problems, which includes the use and prescription of pharmacologic and non-pharmacologic interventions;
6. Has clinical experience of sufficient depth and breadth to reflect the intended license; and
7. Has obtained a license to practice as an APRN in one of the four APRN roles: certified registered nurse anesthetist (CRNA), certified nurse-midwife (CNM), clinical nurse specialist (CNS), or certified nurse practitioner (CNP).

Until recently, CNSs and NPs tended to practice in different settings. Today, the line between the activities of a CNS and NP is not as distinct especially in health care settings. NPs can be found in acute care settings and CNSs, such as psychiatric/mental health CNS, can be found practicing independently.

Advanced practice registered nurses may specialize in areas such as children, women's health and older adults. The ability of advanced practice registered nurses to practice independently varies by state. In some states, they are not required to have a collaborating physician and in other states, they may be required to have a supervising or collaborating physician. In rural areas, such as Alaska, an NP may be the only health care provider for a community. In these types of rural states, NPs are more likely to be independent practitioners.

Right to prescribe pharmaceutical drugs

The right of advanced practice nurses to prescribe pharmaceutical drugs was introduced in some states in mid-1970s. In 1997, the Balanced Budget Act permitted nurse practitioners to bill Medicare for their services anywhere, and not just in underserved areas allowing NPs to have their own practice. As with the ability to practice independently, states vary in the ability of an advanced practice registered nurse to prescribe without a collaborating physician. In some states, advanced practice registered nurses can prescribe independently and in other states, they must have a collaborating physician.

The majority of states now allow advanced practice nurses broad prescribing authority, and 47 states and the District of Colombia allow nurse practitioners to prescribe controlled substances (Pearson, 2009). In some states, they can prescribe a large range of drugs without supervision of doctors, including strong opiates for palliative care and narcotics such as morphine or psychotropic substances.

Table 1: Selected categories of nurses in advanced roles, numbers, main tasks and education level, United States

Category	Number (absolute)	% of all RN	Main tasks	Education level (required or recommended)
1- Clinical Nurse Specialists	59 242* (2008)	2.5 (2008)	- integrates care across the continuum of patient, nurse and system - promotes improvement of patient outcomes and nursing care - develops evidenced-based practices to alleviate patient distress - facilitate ethical decision-making - diagnoses and treats health/illness states - manages diseases and promotes health - prevents illness and risk behaviours among individuals families, groups and communities	Master's level (followed by national certification exam)
2- Nurse Practitioners	158 348* (2008)	6.5 (2008)	- diagnose and treats patients in both primary and acute care - provides initial ongoing care including comprehensive histories, performs physical examinations and other health assessment and screening activities, - treats and manages patient with acute and chronic diseases including ordering laboratory studies, prescribing medication and making appropriate referrals for patients and families. - provides health promotion, disease prevention, health education and counselling	Master's level (followed by national certification exam)

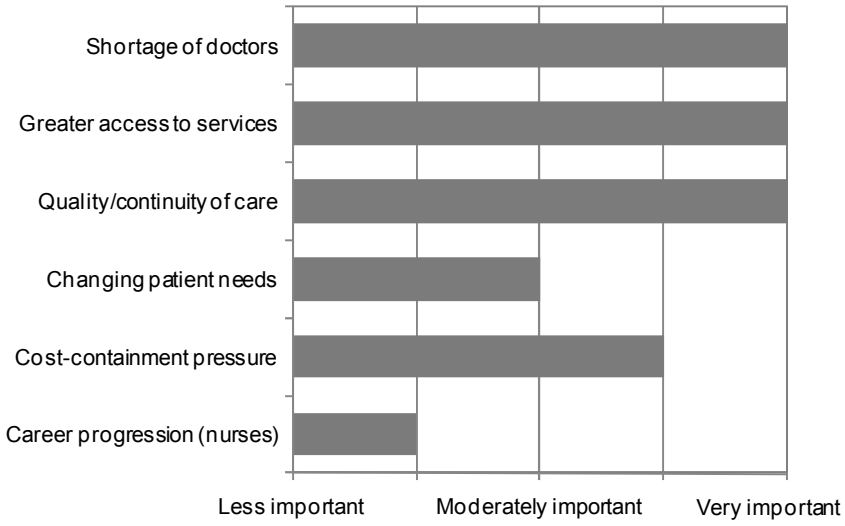
* US Department of Health (2010)

Source: OECD questionnaire (2009)

2. Reasons for the development of new advanced roles for nurses

According to the U.S. National Council of State Boards of Nursing, there are three main reasons explaining the development of advanced practice roles for nurses: 1) the shortage of doctors, 2) the need to improve access to care and 3) the quality/continuity of care. The objective of containing the growth in health cost is also an important factor.

Graph 1: Main reasons for extending advanced roles for nurses in the United States

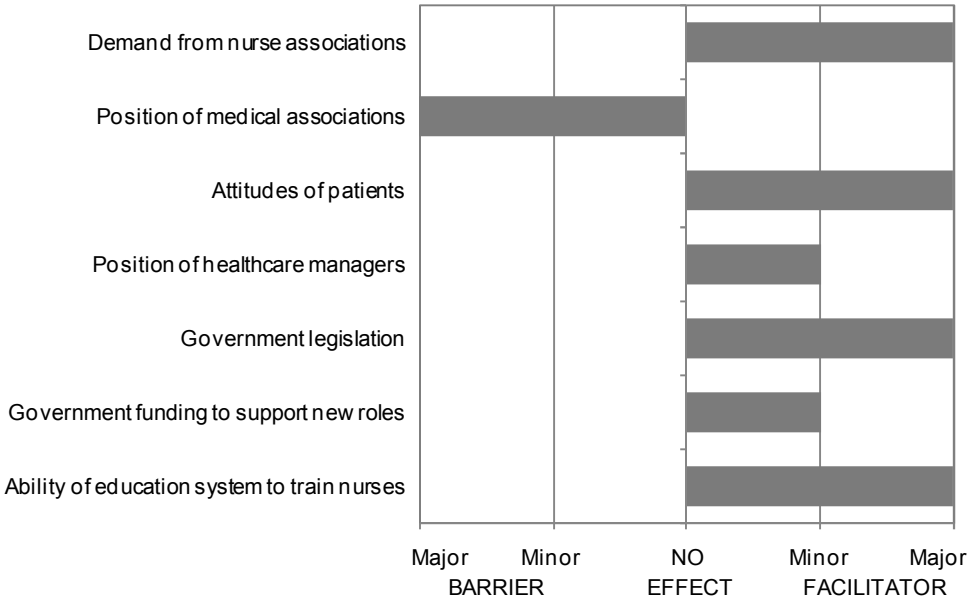


Source: National Council of State Boards of Nursing's response to OECD 2009 questionnaire

3. Factors hindering or facilitating the development of advanced roles for nurses

Four main factors have facilitated the development of advanced practice roles for nurses: 1) the demand from nurse associations, 2) the attitudes of patients, 3) the government legislation, 4) the ability of education system to train nurses. On the other hand, the main barrier is the position of medical associations.

Graph 2: Main facilitators or barriers to development of advanced practice nursing in United States



Source: National Council of State Boards of Nursing's response to OECD 2009 questionnaire

4. Evaluations in primary care

Several evaluations carried out in United States found that advanced practice nurses provide high quality and safe care (Table 2).

Table 2: Evaluations of the impact of advanced practice nursing in primary care, United States

Author / Year	Type of activities	Main findings (Access and quality of care, costs)
Aiken *et al.* (2006)	Outreach registered nurse case managers for severe chronic obstructive pulmonary disease (COPD)	Slight benefits in quality of life for moderate COPD; end-stage COPD requires greater emphasis on palliative care in health care facilities.
Lenz *et al.* (2004)	Role of NPs in monitoring patients with different chronic diseases	Comparable results between an NP and a GP for physiological results, health status according to the patient and patient satisfaction.
Edwards *et al.* (2003)	9 clinics of nurse-managed primary care	Exceptionally high quality of care (94% consistency with existing guidelines; 91% of patients highly satisfied with 94% indicating intention to return).
Litaker *et al.* (2003)	Chronic disease management outcomes in patients treated by NPs or physicians (hypertension and diabetes)	Significant patient improvement in blood pressure control and diabetes control. Higher patient satisfaction. Higher one-year cost for personnel.
Lenz *et al.* (2002)	Diabetes care processes and outcomes in patients treated by NPs or physicians	NPs more likely to give education about nutrition, weight, exercise and medications. NPs prescribed monitoring tests more frequently than GPs. No differences in patient outcomes in 6-month follow-up.
Mundiger *et al.* (2000)	Health service use and outcomes of patients treated by nurse practitioners or physicians	Health status was equivalent for patients who had an initial appointment with either an NP or a GP 6 months earlier. Health service utilization was equivalent at both 6 and 12 months, and patient satisfaction was also globally equivalent.

5. Future directions

Future directions in the area of advanced practice nursing in the United States might include the following steps:

- Pull back from narrow specialties: advanced practice nurses need to be broadly educated and licensed. Otherwise, they might not recognize co-morbidities that occurred with their specialty.

- Create and implement an APRN Consensus Model: with the proliferation of specialties, there is not a uniform model of regulation. It is then important to harmonize as much as possible the advanced practices.

- Consider federal actions that can reduce barriers and provide incentives, such as linking a state's permission to test new payment models for primary and chronic care to the establishment of an independent scope of practice for APRNs.

ANNEX B: NATIONAL EXPERTS INVOLVED IN THIS STUDY

Country	Research partners	Affiliation
Australia	Ms Rosemary Bryant Ms Samantha Edwards	Department of Health and Ageing
Belgium	Mr Miguel Lardennois Mr Olivier Caillet	Federal Public Service Health, Food Chain Safety and Environment (DG 1 – Health Care Facilities Organisation, Cell Nursing)
Canada	Ms Sandra MacDonald-Rencz Ms Alba Di Censo	Office of Nursing Policy Health Canada McMaster University, and Canadian Institutes of Health Research and Canadian Health Services Research Foundation
Cyprus	Ms Anastasia Argyrou Ms Chryso Gregoriadou Ms Christina Ioannidou	Ministry of Health
Czech Republic	Ms Nina Mullerova Ms Katerina Pribylova Ms Veronika Di Cara	Ministry of Health Ministry of Health Czech Nurses'Association
England	Mr David Foster Ms Chris Caldwell Ms Maureen Morgan	Department of Health
Finland	Ms Marjukka Vallimies-Patomaki	Ministry of Social Affairs and Health
France	Ms Marie-Andrée Lautru	Ministère de la Santé et des Sports (Direction de l'Hospitalisation et de l'Organisation des Soins)
Ireland	Ms Sheila O'Malley Ms Siobhan O'Halloran	Department of Health and Children Office of the Nursing Services Director, Dr Steevens Hospital
Japan	Ms Noriko Ishikawa Ms Youko Shimada Ms Kiyoko Okuda Ms Shio Sugita	Ministry of Health, Labour and Welfare, Health Policy Bureau
Poland	Mr Tomasz Niewiadomski	Secretary of Polish Main Council of Nurses and Midwives
United States	Ms Susan Reinhard	AARP (American Association of Retired People), Center to Champion Nursing in America

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