

# Introducing advanced practice nurses / nurse practitioners in health care systems: a framework for reflection and analysis

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## Summary

An increasing number of countries are exploring the option of introducing Advanced Practice Nurses (APN), such as Nurse Practitioners (NP), as part of the health care workforce. This is particularly relevant in light of the increase of the elderly and chronically ill. It is crucial that this introduction is preceded by an in depth understanding of the concept of advanced practice nursing as well as an analysis of the context.

*Aims:* Firstly, a conceptual clarification of Advanced Practice Nurses and Nurse Practitioners is provided. Secondly, a framework is introduced that assists in the analysis of the introduction and development of Advanced Practice Nurse roles in a particular health care system. Thirdly, outcomes research on Advanced Practice Nursing is presented.

*Methods:* Argumentation developed using data based papers and policy reports on Advanced Practice Nursing.

*Results:* The proposed framework consists of five drivers: (1) the health care needs of the popu-

lation, (2) education, (3) workforce, (4) practice patterns and (5) legal and health policy framework. These drivers act synergistically and are dynamic in time and space. Outcomes research shows that nurse practitioners show clinical outcomes similar to or better than those of physicians. Further examples demonstrate favourable outcomes in view of the six Ds of outcome research; death, disease, disability, discomfort, dissatisfaction and dollars, for models of care in which Advanced Practice Nurses play a prominent role.

*Conclusion:* Advanced Practice Nurses such as Nurse Practitioners show potential to contribute favourably to guaranteeing optimal health care. Advanced Practice Nurses will wield the greatest influence on health care by focusing on the most pressing health problems in society, especially the care of the chronically ill.

*Key words:* advanced nursing practice; nurse practitioners; conceptual framework; outcomes

## Introduction

Over the past decades a number of countries have been confronted with workforce issues in health care such as, for instance, existing or emerging shortages of primary care physicians. Several solutions have been suggested including an increased use of the nursing workforce to tackle these shortages. The role of the Advanced Practice Nurse (APN), particularly the Nurse Practitioner (NP) role, has received increasing attention in this regard. [1-3]

Discussions on a possible introduction of the NP role into a health care setting are usually associated with a lively, not always constructive, dialogue among health care professions and policy makers in which protection of professional

boundaries builds the main argumentation. A thorough discourse, however, would benefit from a good understanding of what APN roles (including NPs) entail and from knowledge of the scientific evidence of outcomes research regarding Advanced Practice Roles. Discussions of these role developments should be conceptually grounded in system thinking based on a thorough analysis of the specific health care system context for which the introduction of APN roles is considered. [4]

This paper aims to clarify the role of the APN with a special focus on the NP and to introduce a framework to guide clinicians, policy makers and educators when considering the introduction of

advanced practice roles. After offering a theoretical model, some examples of outcomes research examining NP and APN-led models of care are provided. Taken together this information allows

an evidence-based strategy for evaluating the feasibility and advisability of introducing advanced practice nursing roles into a specific health care system.

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## Advanced Practice Nurses (APN) – Nurse Practitioners (NP)

Highly motivated European nurses have traditionally been required to choose between career advancement and continued direct care of patients. Recognized achievement in nursing has been associated with a move away from the bedside and into management, administrative or educational positions. The lack of a clinical career ladder in nursing as well as the focus of (post)graduate educational programmes on non-clinical content has provided a disincentive to keeping the best nurses involved in clinical care, despite the increasing complexity of the clinical care provided in nearly every health care setting. Nurses need to have more than management, pedagogic or administrative competencies to be effective actors in a changing health care system that is confronted with numerous challenges such as the development of evidence-based care models in an era of cost containment. The development of advanced practice nursing education, initially in the Anglo-Saxon world and increasingly also in other countries, [4] offers an educational path for preparing nurses to excel in their core business: the clinical care of patients and their families. In addition, in Switzerland educational programmes focusing on ANP (the first launched in 2000 at the University of Basel) has led to the introduction of Advanced Practice Nurses in different clinical care settings.

A great deal of confusion exists regarding the terminology. The terms “Advanced nursing practice” or “advanced practice nursing” are used interchangeably to refer to the overall field in which Advanced Practice Nurses operate. [5, 6] The International Council of Nurses defines an Advanced Practice Nurse (APN) as ‘a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and/or country in which she/he is credentialed to practice. A master level degree is recommended for entry level’ [4]. APNs are thus registered nurses who through a university education to Master or doctoral level have acquired this expertise with the goal of contributing to the achievement of improved outcomes for a particular patient population [6]. Expanded clinical practice refers to nurses taking on responsibilities traditionally attributed to physicians, such as clinical assessment, diagnosis and treatment. Expanded practice also

refers to new interdisciplinary models in which nurses take the lead in initiatives aimed at improving patient care, such as the development of transitional care models or nurse-led clinics. [4, 6] Examples are the development and implementation of a model for management of delirious post-acute care patients, [7] a strategy with proven effectiveness in reducing the incidence and severity of delirium as well as shorter length of stay and even decreased mortality. [8] Another example is the development of a nurse led wound care clinic [9, 10] or nurse led heart failure clinics. [11, 12]

Different APN roles exist, for example, the Clinical Nurse Specialist, the Certified Nurse Midwife, the Nurse Anaesthetist, the Nurse Practitioner (NP) or a blending of one or more of these roles. All roles share important characteristics: the APN has been educated at graduate level, is clinically focused in the work, and is specialized in a specific clinical area (geriatrics, family health care, women’s health, transplantation, wound care) that requires specific certification and subsequent recertification through continued education [6].

A specific group of APNs are the NPs, a role that was developed (among other factors) as a response to primary care physician shortages in rural areas in the US in the 1960s. [4, 6] NPs can obtain a clinical history and perform physical exams, diagnose disease, order, perform and interpret laboratory, radiographic and other diagnostic tests, and they can prescribe and dispense medications. In some health care systems, nurse practitioners can practice independently and have full prescription rights. [4, 6, 13] Over the years the role of NP has spread to several continents and many clinical settings. The NP role has been introduced in, for instance, Australia, [14, 15] New Zealand, [15] UK, [15, 16] and the Netherlands. [17, 18] NPs are also increasingly working in acute care settings. [19, 20] Importantly, the specific roles that APNs fulfil in different health care systems vary depending on the characteristics of the respective health care system. [4] Thus APN roles should be shaped by the context and/or country in which she/he is accredited to practice. This implies that it does not make sense to launch APN roles in a specific country without a thorough analysis of a number of elements that characterise the specific setting.

## Reflecting on advanced practice roles: Five drivers to be considered

The development and the introduction of APN roles in a specific health care setting represents a paradigm shift for nurses, physicians and other health care workers. On the one hand the traditional and strongly defended notion of “equality” among clinical nurses is challenged when nursing education varies from a basic education of three years to university educational preparation at Master (minimum 5 years) and Doctoral level (minimum 8 years). This differentiation in educational preparation and therefore competency levels in clinical practice calls for a system that allows differentiation in clinical nursing positions. This is realised in so-called clinical career ladders which define the roles, responsibilities and required competencies in clinical nursing care for each level including that of APN. [21]

On the other hand, the widened scope of practice of APNs might create a new dynamic in interdisciplinary collaboration especially among physicians and nurses. The expanded competencies of APN, which prepare them for taking on more responsibilities in clinical patient care, may be seen as an added value by some physicians but as a threat by others. The introduction of APN roles necessitates the redefinition of nurse-physician collaboration in clinical care in which determining the best possible skill mix to achieve optimal outcomes should be the guiding principle. [22]

In order to guide reflection on and analysis of the introduction and development of APN roles including that of the NP, we propose a framework consisting of five drivers: (1) the health care needs of the population; (2) practice patterns and new models of care; (3) education; (4) workforce issues and (5) the legal and policy context (see fig. 1). Although they act synergistically and are dynamic in time and space, each of these drivers will be discussed separately.

### The health care needs of the population

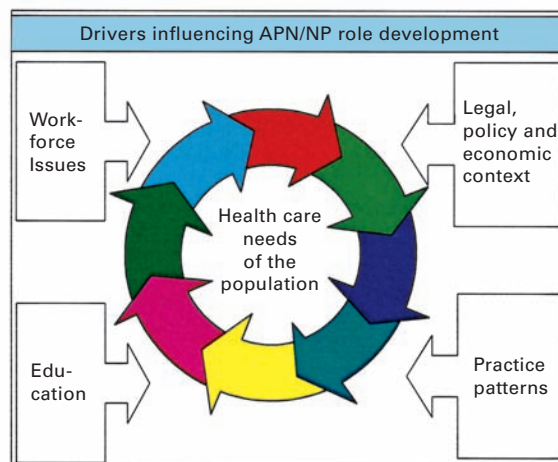
The health care needs of the population should be the most important driver in health care innovations including the development of

APN roles. Questions such as “Who will be the patients of the future?”, “What are their needs?”, “What kind of services are needed to address these patients needs?”, “Is the health care system prepared to provide these services?”, “Do the health care workers have the adequate competencies to provide these services to their patients?” can be helpful when assessing whether the needs of the population are addressed in a specific setting in general and whether nursing is prepared to address these needs in particular.

More specifically, an analysis of epidemiological and demographic dynamics shows that it is *not* the care of infectious diseases or other episodic acute diseases but rather the care of chronically ill patients that represents the main challenge for health care systems in the future [23]. Whilst in 1990 less than 50% of the global burden of disease was due to chronic conditions, this burden will be nearly 80% in developed countries by 2020 [23]. The current health care system, where development was driven primarily as a response to acute illness or trauma, is not well fitted to address the needs of the chronically ill. For example, despite the increasing numbers of chronically ill patients in every medical practice, the traditional framework of providing care exclusively through relatively brief one to one encounters between patient and physician has been slow to respond to data indicating that different approaches result in improved patient health outcomes. Extensive data demonstrates that models of care designed for adequate chronic illness management should consist of the following elements: self-management support, clinical information systems, delivery system redesign, decision support, health care organization and community resources. [23–27]

Nurses have been described as leaders in transforming an acute care driven health care system into a system of care that is designed to fit the needs of the exponentially growing group of chronically ill. [28] Indeed, patients living with chronic conditions cannot be cured. Once patients are diagnosed and state of the art medical treatment is established, the course of the illness and the clinical outcome will be significantly determined by how well the patient is able to manage his/her condition in daily life. Patient self management refers to actions taken by the patient in daily life to manage his/her illness. [29, 30] Patient self management is a key concept in the successful treatment of the chronically ill. Support for patient self management is largely absent in acute care driven systems as time, resources and incentives are lacking. APNs can support patients and families across the full continuum of health care settings in order to integrate the best strategies for self-management in their daily lives, whilst at the same time contributing importantly to continuity of care. Self management has been

**Figure 1**  
Framework to guide the analysis on advanced practice roles.



found to be a building block of chronic illness management that is consistently associated with better outcomes [29]. Technologies such as telephone, email, videophone and internet applications are increasingly used to guarantee continuity of care in addition to person to person meetings. Thus APNs are well positioned in view of their sophisticated clinical skills, scientific, clinical and system change knowledge to contribute to the challenge of developing adequate care models and care provision for the chronically ill. [28]

### Practice patterns & new models of care

Stimulated by a number of dynamics such as the changing health care needs of the population, [23] such as observed shortcomings in care [31, 32] or by incentives at health policy level such as managed care, [31–33] new models of care or practice patterns are emerging or have been developed and implemented. Practice patterns and new models of care are the second driver to be considered when contemplating the introduction and development of APN roles in a particular health care system.

Many of these new models of care imply a change in practice patterns and emphasize the need for a strong interdisciplinary collaboration and/or the building of interdisciplinary practice teams. These interdisciplinary practice teams should be characterized by an optimal skill mix and division of responsibilities with the goal of achieving optimal workflow and good outcomes. Examples of such new models of care are triage, [34, 35] walk-in clinics, [36, 37] primary care centres, [38–39] call centres, [40] nurse led clinics, [41–43] transitional care models [44–46] and special patient services offered by the pharmaceutical industry. [47] APNs have been part of or have taken the lead in developing and implementing these new models of care. They are well prepared to do so given their scientific, clinical and system change competencies.

To illustrate the expanded role of nurses in such new models of care, the transitional care model for heart failure care patients developed by Naylor et al. [44] can be used as an illustration. In this model APNs collaborated closely with cardiology and primary care teams to support heart failure patients and their families in the transition from the hospital to their homes. Nurses took the responsibility for discharge planning, implementation of a protocol for discharge planning and home follow-up. They performed comprehensive and initial and ongoing assessment of the discharge planning needs of both patient and caregiver. They developed a discharge plan in collaboration with patient, caregiver, doctor, nurse and others and provided direct clinical care and patient education. They also performed complete physical and environmental assessments to support self-management. They made home visits based on their clinical judgement and coordinated home services. [44, 45] The portfolio of the re-

sponsibilities of nurses in this transitional care model describes their expanded practice and moreover indicates the need for advanced educational preparation that provides these nurses with the competencies to practice at this advanced level. This care model showed reduced readmissions, lengthened the time between discharge and readmission and decreased the costs of providing health care. [44]

### Education

The availability of educational programmes for advanced nursing practice is a third driver to be considered in the analysis for the introduction/development of APN in a particular health care setting. Indeed, APN roles can only be introduced and developed in a particular country if there are educational programmes available that provide APN as an end point.

Education has been a major influencing factor in the introduction of the APN roles. In the USA the first curriculum for Clinical Nurse Specialist (a special kind of APN) was launched in 1954 and the first curriculum for Nurse Practitioners was created in 1965. [46, 47] In Europe the launching of clinical nursing programmes at graduate level has influenced the introduction of the APN role in clinical settings as was the case at the University of Leuven in Belgium (1986) and the University of Basel in Switzerland (2000) [4, 48–51].

Advanced nursing practice education at graduate level is currently offered in Europe in the UK, Ireland, the Netherlands, Belgium, Finland, Sweden and Switzerland. Other countries such as Germany are currently considering launching graduate nursing educational programmes focused on ANP [52] as the need for clinical nursing expertise at an advanced level is recognized not only by nurses but also by physicians.

The development of curricula for advanced nursing practice should be based on international policy guidelines that describe the required competencies of health care workers in the twenty first century. These competencies strongly reflect the much needed paradigm shift towards chronic illness management. More specifically, these reports indicate that all health professionals should have five basic competencies: (1) Patient centred care, (2) Partnering; (3) Quality improvement; (4) Information and communication technology; (5) Public health perspective [53]. In addition to these basic core competencies, specific competencies for APNs have been described. These include specialisation and direct practice, expert guidance and coaching, consultation, research skills, clinical and professional leadership, collaboration and ethical and decision making skills. [6, 54] For NPs, specific competencies in diagnosis and treatment also constitute a strong focus of the curricula. [20, 54] Although health care workers ideally share the same core competencies, physicians and APNs each have a specific focus. The focus of the physician is diagnosis and treatment, that of the

APN varies from health care system to health care system. It can range from support of patient self management to provision of continuity of care, to diagnosis and treatment or a combination of these foci. Thus the potential overlap between MDs and APNs might also differ from health care system to health care system.

### Workforce issues

Health care workforce issues are the fourth driver that needs to be considered in the development and introduction of APN roles in a specific health care system. In particular primary care physician shortages and substitution of nurses for physicians emerge as important and consistent factors influencing the introduction of APNs or NPs in a specific health care setting. [1, 22] Primary care physician shortages have been an important driver for the development of APN roles in the US, the Netherlands and the UK [18, 22] and, for example, currently fuel the discussion on APNs and NPs in France and Switzerland. [55-57]

Although physician workforce issues are a relevant driver to be considered, nurse workforce issues are an equally important factor to take into consideration in planning the health care workforce. Indeed, a recent OECD Health Working Papers [2] indicates that the worldwide shortage of nurses is expected to worsen as a result of a broader set of economic, demographic and sociological factors. These factors include a decreasing number of students entering nursing education, low status of nursing, poor work conditions, relative low wages, aging of the nurse workforce and migration streams. A final factor is the increasing demand for nursing primarily influenced by an aging population and an increasing number of patients living with multiple co-morbid conditions. [2] Although the number of nurses per 1000 inhabitants is larger in the majority of countries than the number of physicians per 1000 inhabitants, in light of the emerging and expected nurse shortages it would be short-sighted to conclude that therefore the nurse workforce can substitute for physician shortages. The real challenge lies in planning a health care workforce that fits the needs of the population. This implies a health care workforce that has the appropriate competencies especially in the area of chronic illness care. Moreover, the right skill mix that contributes to both adequate clinical and economical outcomes needs to be defined. [22] Planning of the health care workforce should also be tightly intertwined with the development of new models of care that provide the organisational framework for state of the art chronic illness management. [23]

### Legal and policy context

The legal and policy context of a country has to be considered as the fifth driver in the analysis of the introduction and development of APN roles in clinical practice. This driver reflects the overar-

ching framework by which health care is organized and the roles and responsibilities of the actors in a particular health care system. Issues such as educational preparation, the protection of professional titles, regulation of health care worker competencies including prescriptive authority and remuneration have to be defined and analyzed. There exists major variability among countries in this regard. In some countries legislation still defines nurses as assistive personnel of physicians whereas in other countries they are defined as health care professionals who are allowed to practice independently. In some countries such as the US, the UK, Australia, New Zealand and Sweden nurses have prescriptive authority. [4, 58-60]

The UK and the Netherlands provide an example of how the broader policy and legal context can be the prime driver in the introduction and development of APN roles and/or NPs. The government of both of these countries decided to invest in APN and NP education in the 1990s partly influenced by an emerging physician shortage. In addition clinical positions for APN/NPs have been created and financed. The broader legal framework to regulate the professional practice and responsibilities of these APNs, including prescriptive authority, is still ongoing. The protection of the APN/NP title is also work in progress. [18, 22]

In other countries such as Belgium and Switzerland where the prime driver in the introduction of APNs were educational programmes at graduate level as well as, to a lesser extent, the development of new care models, the lack of an adapted legal and policy framework that regulates the education, competencies, responsibilities and remuneration of APNs can be observed.

The five drivers described above, all of which influence the introduction and development of APN roles in a particular health care system, work in a continuous dynamic interplay yet may differ in importance among health care settings. A description and comparison of relevant driving forces in view of APN development in the US and the UK illustrate this [22]. The main drivers observed in the UK and US for the introduction and extended use of APNs and/or NPs were "staff shortages", "substitution", "value for money", "new services", "nurse profession led" and "policy led" initiatives. Yet, "nurse profession led" initiative, "substitution of nurses for physicians", and "value for money" were more prominent drivers in the US compared to the UK. In the UK "staff shortages", "new services" and "policy led" initiatives were stronger drivers compared to the US. [22]

### Outcomes research in view of Advanced Nursing Practice roles

A final element to be considered in the discussion of APN roles is evidence from outcome research. The following section will provide some examples of studies but does not claim to be a

comprehensive review of outcomes research of ANP for which we refer to the systematic reviews and meta-analyses published. Most research is from Anglo-Saxon countries and focuses on the substitution of nurses for physicians in primary care on the one hand and describes the efficacy of models of care in which APNs play a prominent role on the other hand.

The specific outcomes assessed in studies focusing on substitution of nurses for physicians are patient health outcomes and resources utilization. This research includes studies with methodological weaknesses that prevent firm conclusions. The RCTs and meta-analyses suggest that *appropriately* trained nurses can produce as high quality care as primary care doctors and achieve as good health outcomes for patients. [3, 22]

Whereas the health outcomes were the same for nurses and physicians, patient satisfaction was higher with nurse-led care. [61] Nurses tended to provide longer consultations, give more information to patients and recall patients more frequently. [62] However, the impact on physician workload and direct cost of care was variable. [3, 22] A recent publication assessed patient views on the care provided by MDs or nurse practitioners in primary care. Patients preferred MDs for medical care and preferred nurses or had neutral views in aspects of care that were associated with educational or routine aspects of care. [63] Further research is needed to understand which aspects of care are responsible for the better outcome of NPs compared to MDs regarding patient satisfaction.

In addition to evidence related to substitution of nurses for physicians, there is also empirical evidence available concerning the efficacy of care models in which APNs play a prominent role. In these studies the focus is primarily on the evaluation of efficacy of such models compared to usual care. No meta-analyses are available to summarise the evidence over all clinical fields due to too much heterogeneity. The evidence base consists primarily of clinical domain specific meta-analyses and/or RCTs. The outcomes assessed in these studies span the six Ds of outcome research; death, disease, disability, discomfort, dissatisfaction, dollars. [64]

A number of RCTs have demonstrated the superiority of advanced nursing practice over usual care regarding *death and disease (clinical outcomes)*. These studies focused, for instance, on low birth weight babies, [45, 65] secondary prevention of coronary heart disease, [66, 67] treatment and control of hypertension and hyperlipidaemia in diabetes [68] and home care by outreach nursing for moderate COPD. [68] Examples of studies showing superior findings of outcomes related to *disability and discomfort (patient oriented outcomes)* for ANP compared to usual care were published in the area of home care by outreach nursing for COPD, [69] secondary prevention of coronary heart disease [70] and management of urinary incontinence. [71] A Cochrane review on nurse-led in-patients units, another ANP model, concluded

that there is evidence that patients discharged from these units are better prepared for discharge. It remained unclear if this is the effect of special care or simply a product of an increased length of inpatient stay. [72] These results call for additional research.

*Dissatisfaction* is a third category of outcomes studied focusing more on *consumer related outcomes*. An example of a study showing superior outcomes for ANP practice compared to usual care in this domain of outcomes was, for instance, a study of management of lung cancer patients by a Clinical Nurse Specialist. [73] Finally, there have also been RCTs published that evaluate *economic outcomes*, i.e., *costs*. Superiority of ANP practice over usual care for this set of outcomes was reported, for instance, in a nurse specialist home care model for women with high-risk pregnancies [65] and the evaluation of multidisciplinary versus clinical Nurse Specialist led services in rheumatoid arthritis [74] showing lower costs for the ANP model. These cited studies are examples of RCTs or meta-analyses demonstrating that the advanced nursing practice model can produce superior results for a number of outcome domains. Admittedly the choice of these examples is biased towards positive examples, yet as mentioned no overarching meta-analysis on the efficacy of advanced nursing practice has been performed so far due to too much heterogeneity.

## Conclusion

All stakeholders in health care are challenged to contribute to the development of a health care workforce with the right skill mix and competencies to tackle the health care needs of the population. The introduction and development of Advanced Practice Roles in a specific health care system is an option in this regard. This paper adds to the current discussion on APNs by adding a conceptual framework to analyze this introduction through five drivers; (1) the health care needs of the population, (2) education, (3) workforce, (4) practice patterns and (5) legal and health policy framework. Nurses will yield their greatest influence on health care by focusing on the most pressing health problems of a society, such as care for the chronically ill. Examples from outcomes research in ANP-led care models show favourable outcomes. Thus, health systems facing challenges such as increasing prevalence of chronic illness and an aging population may wish to consider the introduction of ANP and NP roles in order to improve health outcomes in a cost-effective manner.

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