

POLICY SUMMARY 2

Assessing future health workforce needs

Gilles Dussault, James Buchan,
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Key messages

- The choice of a strategy to assess the future health workforce (HW) is value-based and depends on what health outcomes and service objectives policy-makers have set.
- Various models, approaches and toolkits have been proposed and tried over the years by international agencies, as well as by individual countries.
- Workforce situation analysis for determining future staff requirements typically builds upon variables such as expected population growth, technological and social change, skills mix, individual performance and health policy.
- There is little benefit in educating adequate numbers of doctors or nurses, and then seeing them migrate to other countries because the labour market cannot integrate them, or because working conditions are not attractive enough.
- Assessing future HW needs is not only about projecting the numbers. Policy-makers need also to address the issues of recruiting, educating, distributing, retaining, motivating and managing the HW, which implies improving the knowledge about the expectations and behaviours of health workers.
- Addressing needs implies more than producing more workers; scaling up can be achieved by improving competences, changing skills mix, and by augmenting productivity.
- It is important to see HW planning as a process that engages the main stakeholders in assessing needs for change and in devising strategies to achieve those changes.
- The better the information base and the technical capacity to use it, the better the diagnosis and the selection of interventions will be.
- Monitoring is essential to adjust interventions to a changing environment.
- Sufficient and predictable funding must be available to invest in workforce development. The benefits will soon be apparent in terms of better access to services, more efficient utilization of resources and higher satisfaction of citizens.

Executive summary

Policy issue and aim of the policy summary

Many countries face difficulties in adequately deploying the health workforce (HW) and the mobility of health personnel between countries in Europe makes planning at national level difficult, in part, because migratory flows are poorly documented.

The aim of this summary is to inform policy- and decision-makers of the state of knowledge about how best to assess and respond to future HW needs. It first discusses the nature of the challenge in assessing the future HW. It then introduces available tools and strategies; discusses their strengths and weaknesses; presents lessons learned from relevant country experiences, and summarizes the key messages from the review of the state of the art.

The challenges of future HW needs/requirements assessment

To be effective, HW needs assessment has to be technically sound, but above all it has to respect some important basic premises. First, human and other resource needs should be considered as subordinate to the service and health needs and objectives, from which they are derived. Second, future needs depend on what is expected from a “performing workforce”, in terms of coverage of services and populations, of productivity and of quality of output. Thirdly, a sound understanding of the current and future dynamics of entry and exit of the health labour market is prerequisite to accurate forecasting of needs.

This summary identifies several main areas of challenge: challenges in relation to the needs and demand of services and of health workers; challenges in relation to supply; methodological challenges, and policy/political challenges. Identifying and assessing these challenges are preconditions for sensitizing policy-makers and planners to the need to create the conditions that will make the critical task of HW assessment worth doing and effective.

Approaches, strategies and tools

Various models, approaches and toolkits have been proposed and tried over the years by international agencies, as well as by individual countries. Among them are the health worker to population ratio, the utilization and demand approach, the service-target approach and the health and service needs approach. Any workforce situation analysis for determining future staff requirements typically builds upon variables such as expected population growth, technological and social change, skills mix, individual performance and health policy.

Country experiences

The vast majority of countries in the world do not have explicit human resources for health strategy. Typically, if there is any policy focus it is on establishing training numbers and related costs, rather than developing a comprehensive strategy covering compensation, working conditions, recruitment and retention issues. However, there are country experiences that provide a more comprehensive picture: Belgium, England, Finland, Germany, Ireland, Lithuania, Slovenia and Spain as well as Australia and Canada.

Lessons

Matching and forecasting the needs, demand and supply of health workers are complex in any context. No country in the world does it in a manner that can be referred to as “best practice”. There is a growing recognition that this is needed in order to achieve the objective of making health services more accessible, as well as more effective and efficient. The report gives ten key lessons for policy-makers:

1. There is added value in assessing future HW needs.
2. In engaging in needs assessment, it is important that policy-makers declare the values, principles and policies that guide them.
3. Future needs are not expressed only in numbers; dimensions of the work environment, such as the division (skills mix) and organization of labour, competences, working conditions, productivity and quality targets are critical variables.
4. There is a need for a more integrated approach to assessment, for example, to look at the HW as a whole.
5. The experience of countries which invested in the HW needs assessment shows neatly the importance of an information base that provides valid, reliable and up-to-date data to monitor the workforce and the labour health market changes.
6. Even with the best data and projections in hand, governments cannot dictate or decree change. It still has to be negotiated, hence the importance of engaging the various stakeholders as early as possible in the process.
7. Forecasting future needs is more difficult when this function is decentralized.
8. There is no agreement on planning horizon lengths, but it is obvious that the longer the time frame, the riskier the forecasts.

9. Implementing strategies in a flexible manner, based on careful monitoring, is key to responding to changing needs. A workforce plan should not be regarded as a “one-off” creation that is not open to adaption and change; rather, it must be tested and revised as and when necessary.
10. Oversupply or undersupply of the HW can be observed at whole-country level, but these conditions can also coexist within the country, with some regions experimenting shortages and others showing excesses. This creates significant political and economic policy challenges as well as impacting negatively on health care provision.

1 Introduction

Background

The *Belgian EU Presidency* (July–December 2010) has identified “assessing health workforce (HW) needs” as an important issue to address in the context of efforts to strengthen health systems. This choice is in line with EU policy and with the discussions triggered by the *Green Paper on the European Workforce for Health* launched in December 2008. This choice is also opportune as it corresponds to demands for guidance from countries engaged in meeting future challenges in the health sector. Many countries face difficulties in adequately deploying the HW: between levels and types of services, and between geographical and socioeconomic zones. The mobility of health personnel and also of users of services between countries in Europe makes planning at national level difficult, in part, because migratory flows are poorly documented.

Why assess HW current and future needs?

Four major arguments can be made in favour of assessing how many health workers individual countries will need in 5, 10, or 15 years’ time, of what type, and with what competences and responsibilities.

The first argument focuses on the changing needs for health services as the demographic (age and sex structure), epidemiologic, cultural and social profile of populations changes. Ageing European populations present patterns of needs that require a shift towards services to manage chronic conditions, to offer more social care and to respond to end of life needs. The emergence of new infectious diseases and the re-emergence of old ones, such as tuberculosis, also create needs that add to existing ones. This requires adjustments in the composition of the HW, and in the set of technical and cultural skills that workers will need to master, while maintaining the capacity to deliver the services currently offered.

Second, the demand for services will also vary under the pressure of factors such as changing users’ expectations, migration of populations, technological innovations (pharmaceuticals, diagnosis and treatment equipment and techniques, telemedicine), and of organizational innovations aiming to improve the performance of health care systems (shift to primary care, teamwork, integration of services, new contractual arrangements and conditions of employment).

The third argument is that the HW itself is changing. It experiences sociodemographic changes (e.g. ageing), and the feminization of certain occupations such as medicine, dentistry and pharmacy. Also, younger workers’ expectations in terms of quality of life are different from those of previous

generations. These changes have an impact on labour market participation and on productivity. In addition, recruitment in the health sector faces severe competition from other sectors, particularly in lower-value domains such as nursing and social care.

Finally, the time lag between decisions to introduce change and actual results can be long. The scaling up of production of new workers may necessitate the opening of new schools; the recruitment of additional trainers; the redefinition of existing curricula and the creation of new ones, or the introduction of new pedagogical strategies. All of these take years to achieve.

Policy-makers are increasingly aware of the challenges of adjusting the supply of health workers, if only because it represents about 10% of the total workforce: in many countries they are responsible for preventing imbalances such as shortages or surpluses, or geographical or organizational maldistribution, which not only entail economic costs, but also have an impact on the performance of the whole health services system. To expect that these adjustments will happen spontaneously or that the invisible hand of the market will take care of them may prove naive.

Needs assessment is only the beginning of the process of developing the human resources foundation of a health services system; its results then serve to discuss and establish priorities, objectives and strategies congruent with the broader services and health policies.

Purpose and structure of the policy summary

The aim of this summary is to inform policy- and decision-makers about the state of knowledge on how best to assess and respond to future HW needs. The advice provided is based on the evidence available and on the experience of countries that have developed strategies to estimate their future needs: requirements in terms of how many health workers they will need, with what competences, where they will work, in what type of organizational arrangements, and of their working conditions.

The summary first discusses the nature of the challenge of assessing future HW. It then introduces available tools and strategies and discusses their strengths and weaknesses, and presents lessons learned from relevant country experiences and summarizes the key messages from the review of the state of the art.

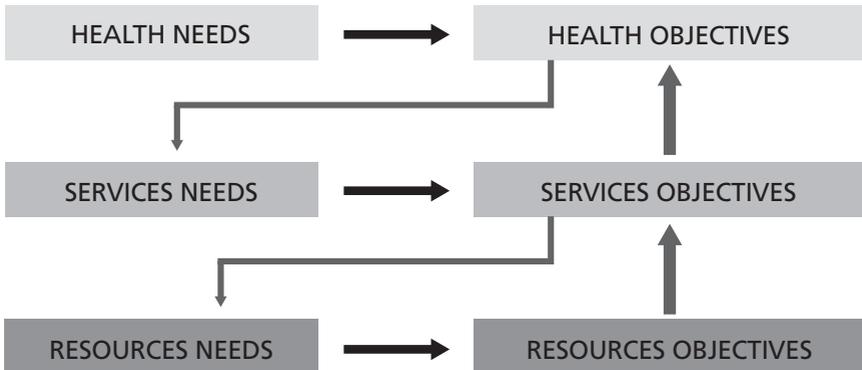
2 The challenges of future HW needs/requirements assessment

Important premises

In order to be effective, HW needs assessment has to be technically sound, but above all it has to respect some important basic premises:

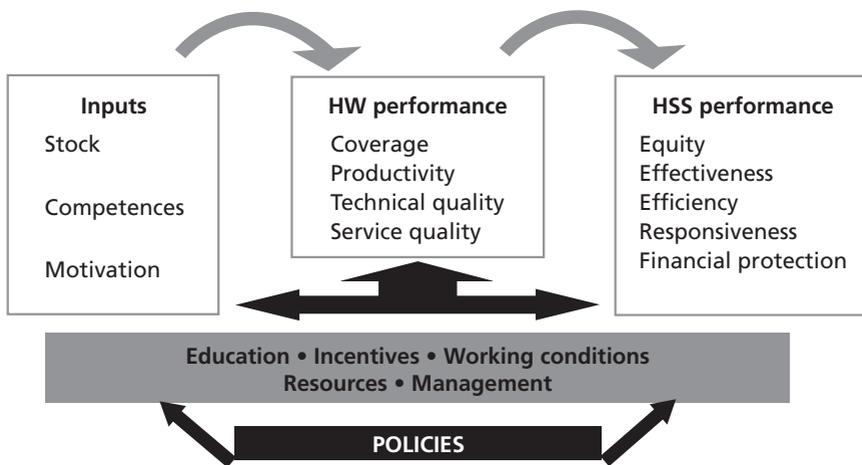
- Human and other resources needs should be considered as subordinate to service and health needs and objectives, from which they are derived (Fig. 1): the latter can be formulated in a national health policy, and based on a set of performance goals, such as those of equity of access, effectiveness, efficiency, responsiveness, financial protection, as proposed by the World Health Organization (1) (see Fig. 2).

Fig. 1. The relationship between needs and objectives



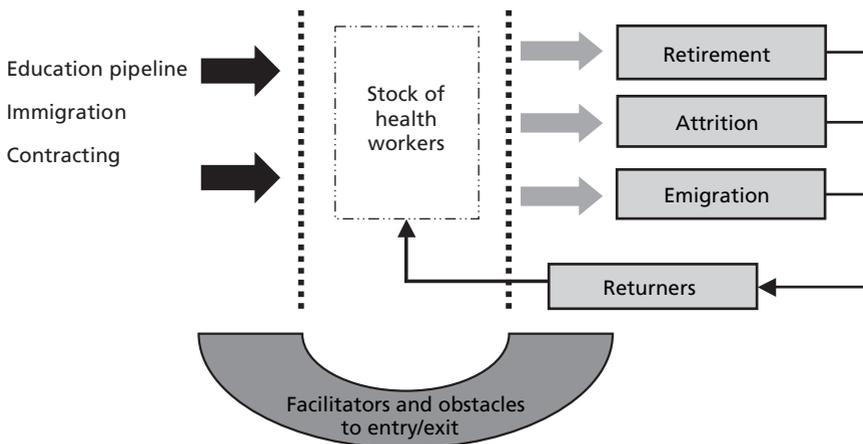
- Another premise is that future needs depend on what is expected from a “performing workforce”, in terms of coverage of services and populations, of productivity and of quality of output (Fig. 2); without such a definition, decisions in relation to the future HW will be aleatory or based on criteria other than service needs and objectives.

Fig. 2. HW and the performance of the Health Services System (HSS)



- Third, a sound understanding of the current and future dynamics of entry and exit of the health labour market is prerequisite to accurate forecasting of needs and to the design of appropriate responses (Fig. 3).

Fig. 3. A simple model of the dynamics of the stock of health workers¹



¹ Includes all workers, whether active (at work or available for work) or not (trained, but unwilling to work in the health sector). Attrition includes non-participants and those who leave the sector, for whatever reason, before the normal end of professional life.

Challenges in relation to needs and demand of services and of health workers

Estimating future needs and demand raises a number of critical preliminary questions, such as:

- What will be the demographical, epidemiological and sociocultural profile of the population in 5, 10 or 15 years?
- What will be the main health needs? More chronic conditions, more mental problems, new diseases related to migratory flows, to climate change, to environmental risks?
- What form will demand for services take? What will be the preferences of better informed and educated citizens and users, of policy-makers, and of those who pay? How will these services be funded?
- How will technology and organizational changes influence demand? For instance, the priority given to primary care, as is policy in many EU countries, creates a demand for more proximity services, including prevention, public health and promotion. The expansion of ambulatory care shapes the demand for services, including hospital care delivered in a different manner. Will access to specialized services be made easier by information and communication technology? Will it facilitate cross-border utilization? Will evidence-based practice become the norm, thanks to better access to information?
- Which type of workers (clinicians, but also educators, researchers, managers) will be needed/demanded? How many? With what competences and what type and level of education? At what costs?
- Who will decide on what “needs” are, and at what level?

Challenges in relation to supply also raise a set of difficult questions

- What is the current supply? Its demographic (age–sex, trends) and professional profile (skills mix, education profile)? How is it distributed, by type of organization, by level and type of services (including nonclinical such as management, education, research, other health related activities), by geographical region, among the private and public sectors? This may seem to be an easy question, but in fact few countries have developed information systems that provide this type of data with accuracy.
- What will supply be in 5, 10 and 15 years if the current production levels remain constant? What is the potential for scaling up the production if needed? Is there currently overproduction in some groups, and if so,

how can it be reduced? What is the mechanism by which employers can influence producers and trainers to adjust to their needs?

- Is the country losing workers through emigration, or through forms of attrition other than the “normal and expected ones”, such as early retirement and low numbers of losses due to ill-health, accidents or death or low satisfaction?² This would be the case when workers choose to leave the health sector, in pursuit of better working conditions.
- What are the key labour market indicators (e.g. participation rates; proportion working part-time/full-time, unemployed, occupying more than one job) and how are they changing?
- Which services will be offered, in what type of setting, and by whom? What will be the impact on training requirements?
- How will the technology impact on the capacity of production of services?
- What will be the preferences and behaviours of providers, in terms of type and intensity of activity (number of hours worked), of specialties, of fields of practice and levels of care?
- How will services be organized (integration of care, teamwork)? How will productivity change?
- What are the critical gaps between actual demand and supply, between future demand and supply (how are gaps measured, calibrated)?

All these questions raise issues that go beyond the forecasting of mere numbers. Examples of related issues include the expansion of the scope of practice in occupations such as nursing; or task-shifting, which refers to the delegation of tasks traditionally performed exclusively by one group to other groups; or the development of new ways of working, in teams or at a distance through telemedicine, for instance. These have to be considered when thinking of what HW the country will need in the future.

Methodological challenges

There are also some complex and challenging methodological and technical problems that needs assessment must overcome. The current state of most country databases is generally inadequate to allow a valid and reliable analysis of the baseline situation. HW data are not always comprehensive (often the

² The Nurses Early eXit sTudy (NEXT), funded by the European Commission, is studying these trends in nursing in 10 EU countries; see <http://www.next.uni-wuppertal.de/EN/index.php?next-study>.

private sector remains a black box, as does the informal sector, particularly in social care and in “complementary medicine”). There are information gaps on HW dimensions such as type and level of activity, multiple employment, migratory flows, location of practice.³ Definitions of occupational categories vary in time, making longitudinal comparisons impossible (for example “foreign” worker may mean “born in another country”, “having the citizenship of another country”, “trained in another country”, and so on). Another example is the multiple definitions of a “nurse”. Finally, many databases do not provide data in real time, compelling planners to work on the basis of a picture of a situation that has already changed.

The adoption of a comprehensive, rather than a profession-by-profession, needs-assessment approach is another major challenge. This would be needed in a context where the various occupational categories are closely linked. It supposes an agreement on what the division and organization of labour will look like in the future, and on how the various categories of workers will interact.

Another challenging methodological issue is the relative unpredictability of users and providers’ behaviours: what will the mobility/migrations patterns look like? Will economic circumstances incite or deter health workers from leaving their country? Will medical tourism and cross-border utilization develop? Will providers want to retire earlier or be compelled to retire later? Another variable which is difficult to assess is the evolution of information technology and its impact on the health sector. No sure answer can be provided; working with scenarios is therefore useful.

Health systems reform can also contribute to the methodological challenges. For example, changes in health system structures (e.g. decentralization, organizational integration) and funding (both in terms of level of financial resources available and mechanisms of distribution) can take place rapidly, particularly in a constrained economic environment.

Finally, uncertainty regarding the evolution of the broader economic and social environment and of its impact on the labour market represents another variable that is not easily controlled.

³ Such as where the geographical distribution of workers is based on their home address rather than place of practice, as is often the case in professional registers.

Policy/political challenges

The usefulness and effectiveness of HW needs assessment depends on the capacity and willingness of policy- and decision-makers in the following:

- Defining the vision of future health services and getting the support and commitment of the stakeholders in the process of implementing that vision. Adjusting education processes to new health services needs; to pressure to harmonize training within and among countries; to innovative learning strategies (e-learning...); to lifelong learning. This entails engaging education institutions (which are traditionally very protective of their autonomy and focused on academic development) in the process of supporting national health policies and objectives. For full collaboration between the sectors, employers must also recognize and support the need to provide appropriate clinical learning for those currently being trained.
- Getting the collaboration of regulatory and professional organizations, a critical ingredient in processes such as reviewing scopes of practice, taskshifting, continuing professional development, and creating the conditions for better integration of services (e.g. hospital–ambulatory–home care). The professional landscape in health is composed of a constellation of unions, councils, scientific associations and regulatory agencies, which all have their own objectives, interests, and views about how the HW should evolve. Mobilizing them around common objectives is a major political challenge.
- Making working in health an attractive choice, relative to competing sectors in a context of limited resources; and, within health, improving the attractiveness of sectors that may be less popular, though nonetheless essential, such as geriatrics, mental health, occupational health, or primary care.

By identifying these challenges, this summary does not intend to discourage policy- and decision-makers by presenting the range of challenges to the process of designing the future HW. It aims to sensitize them to the need to create the conditions that will make this critical task worth doing and effective. A well understood challenge is easier to address.

3 Approaches, strategies and tools

Although all agree that the ideal for a country is to have a HW with the right number of health workers, with the right skills, in the right place, with the right attitudes and commitment, doing the right work effectively and efficiently, at the right cost, with the right productivity (2,3,4), the strategies to define what is needed to move towards this ideal are not as clear. Various models, approaches

and toolkits⁴ have been proposed and tried over the years by international agencies, as well as by individual countries. A recent World Health Organization paper reviewed and synthesized the literature on the topic (5). It presents and discusses: (a) an overview of models proposed by international agencies, such as the WHO workforce supply and requirements projection model,⁵ the United Nations Development Programme integrated health model, a spreadsheet application developed to estimate the resources required to achieve the health-related Millennium Development Goals (United Nations Millennium Project, 2007), and the *iHRIS Plan* software package developed by the Capacity Project;⁶ (b) examples of middle- and high-income countries' or local government agencies' experiences in planning the future HW. The workforce situation analysis for determining future staff requirements typically builds upon variables such as expected population growth, technological and social change, skills mix, individual performance and health policy.

At least four main approaches have been used in the past to estimate future needs (5,6,7,8):

The health worker to population ratio is the simplest and most commonly used. The desirable ratio can be defined according to criteria set by the government, by the professionals themselves, by some technical agency or by using other countries as a reference (for instance regional averages). It can also simply be negotiated by the main stakeholders.

The utilization and demand approach estimates future requirements on the basis of current levels of service utilization, adjusted to future projections of demographic profiles.

The service–target approach sets targets for the production and delivery of specific services and converts them into staffing and productivity standards (minimum staffing serving a population of x persons or per type of facility). It provides insight on tasks and skills required to deliver specific interventions.

The health and service needs approach estimates future HW requirements on the basis of the projected health and service needs of the population. It defines “service needs”, in function of age and sex-specific morbidity trends and of service norms, and then converts them to staff requirements, using professionally defined productivity norms.

⁴ Situation analysis, projections, forecasting, simulation, scenario methods.

⁵ Which includes the WHO workload indicators of staffing needs (WISN) methodology and other planning tools (see: <http://www.who.int/hrh/tools/planning/en/index.html>).

⁶ The Capacity Project is a USAID initiative launched in 2004 to strengthen human resources for health in low-income countries (<http://www.capacityproject.org>).

Each of these approaches has strengths and weaknesses that need to be taken into account when using them.

The worker/population ratios

These offer a simple and easy to calculate, and to understand, indicator. It is often used to compare countries or regions (see Annex), but it is difficult to interpret, because of problems with the numerator and with the denominator. Workers are considered as a homogeneous category: variations in terms of level (number of hours worked) and type (clinical or other) of activity or in productivity are not reflected in the numerator. When making inter-country comparisons, other problems appear: differences in the definition and scope of practice of the various occupational categories, as well as in job descriptions, roles and responsibilities, training, and settings where they can practice. For instance, the definition of “nurse” can range from a professional, with a university degree, working autonomously, with diagnosis and prescription rights, to a vocational trained health worker, working under the orders of a doctor, or anything in between, making comparisons impossible.

Similarly, the denominator does not consider the population’s demographical, epidemiological, and social profile, or its patterns of utilization of services (including across borders). In a word, this ratio does not reflect the real capacity of production, nor the real needs for services.

The utilization or demand approach

This can be useful in estimating future pressures on services in the context of an ageing population, for instance. It may serve to alert policy-makers to the extra costs that will need to be assumed if the supply of health workers grows at the same rate as demand. The drawback is that information about utilization and demand is not always available, particularly as regards the utilization of private services; and more importantly, the approach assumes that the observed utilization and demand are appropriate and efficient. It is well established, in studies of geographical variations, for example, that some utilization patterns are more appropriate than others. Demand for health services is highly sensitive to professional, economic and sociocultural factors. The asymmetry of information in favour of providers may result in some form of induction (voluntary or not) of demand for services such as diagnostic procedures, hospital stays and drugs. The cost of services to users also influences utilization; the higher the cost, the more it becomes an obstacle to utilization, as illustrated by the lower utilization of non-insured services, such as those of dentists. Factors such as level of education, marital status, beliefs and social representations, place of residence also contribute to shaping demand. Finally, there is a gap between demand, utilization and needs for services, which this approach ignores.

The service–target approach

This approach is also relatively simple and politically appealing as populations easily understand the targets. On the other hand, it suffers from the same weaknesses as the worker/population ratio, in assuming that needs are the same everywhere and that all providers are equivalent. For instance, it assumes that there will be no variations in productivity or in practice style. The criteria to define the targets are not always explicitly stated; they may reflect the views and the interests of the professionals and experts, or simply the capacity of the country to pay. If unrealistic standards are defined, the result will be the creation of expectations that are impossible to fulfil.

The health and service needs approach

This attempts to overcome the limitations of the previous approaches. Health needs, which correspond to gaps between observed and desirable health status, expressed in quantitative indicators (incidence and prevalence rates, standard mortality rates), constitute the basis from which service needs are derived (Fig. 1, p.3). They represent the gap between services available and those necessary to meet health needs. Resources needed, such as HW, are in turn derived from service needs. This rational approach may be the most adequate, but it is also the most difficult to operationalize. First, knowledge of health needs is very imperfect, because the definitions of the concepts of health and of need are social constructs that vary according to age, sex, level of education, economic status, religious beliefs, ethnicity, past experiences of illness and values. Health professionals, policy-makers, funding agencies and consumers may diverge on what those needs are. Providers often disagree among themselves on how to define needs. What is a priority for one group may not be for another. Measurement of needs is also a challenge, particularly when it concerns dimensions such as mental, psychological or social well-being. Knowledge about the capacity of specific services to meet health needs is also imperfect; in fact, most interventions and services have not been evaluated in terms of their efficacy and effectiveness. Health and services needs change, and mechanisms are required to monitor these changes, as far as possible, in real time.

Finally, regional or multi-country needs, such as rare diseases, which could be better managed at a European level in highly-specialized centres, are not assessed at country level, which leaves a gap to be filled at a higher level.

4 Country experiences

What have countries done to assess their future HW needs? The experiences presented here are not representative. First, the vast majority of countries in the world do not have explicit human resources for health strategy. Typically, the intervention in most countries, in relation to the HW, focuses on establishing training numbers and related costs, rather than developing comprehensive strategy covering compensation, working conditions, recruitment and retention issues. Among EU countries, only a few have developed such a strategy; the majority still opt for a reactive approach consisting of responding to problems when they become acute and politically sensitive. The experiences of Belgium, England, Finland, Germany, Ireland, Lithuania, Slovenia and Spain have been selected to include large, medium and small countries, in terms of population, and to include unified and federal states, as well as a country which has had a strong policy of administrative decentralization (Finland). Australia and Canada, two federal states, have been added as examples of countries that have made major efforts in HW development in the last 20 years.

Australia

In Australia, government-supported HW planning occurs at both the national and State/Territory levels. Health Workforce Australia (HWA), a recently established national body, will oversee the provision of financial support for pre-professional clinical training, facilitate locally based mechanisms for the placement of students into suitable training places, and support the development of HW data sets (www.nhwt.gov.au/nhwt.asp). Australia is also establishing a national HW statistical register, which could assist with longer-term planning initiatives, and will provide advice regarding workforce development. At State level, departments of health have a workforce planning/development function for occupational groups other than physicians, with responsibilities to work with education providers to ensure that sufficient staff are being trained, and to work with employers to encourage new ways of working, and effective use of clinical placements (9).

Medical school intake is controlled by the Commonwealth (federal) government through the funding of university places. Since the 1990s, the Commonwealth government has imposed a cap on medical school places, but has also funded the establishment of additional medical schools to increase home-based capacity. Limits are also imposed on the number of specialty training posts. Postgraduate training primarily takes place in hospitals with university links. There has been an expansion in the numbers of medical students in recent years, in part, as the result of the opening of new medical schools.

The number of places available in nursing schools for registered nurse education is determined by the individual universities, in consultation with State governments. No specific allocation is made to universities for nurse education within their block grant from the Commonwealth government, but they are required to deliver a minimum number of nurse places for basic nurse education to ensure an adequate supply to each state and territory. Students undertaking nurse training receive a fees subsidy that has been enhanced in recent years to reflect concerns about nursing recruitment. The federal government has recently announced a new initiative to provide funding to encourage general practices in primary care to employ more practice nurses, and is also examining support for increased use of nurse practitioners.

Belgium⁷

In Belgium, the provision of education of health workers is the responsibility of the communities (French, Flemish and German), whereas registration and recognition of qualifications is the responsibility of the federal state. Federal legislation allows for the establishment of a quota of access to a profession, which requires an assessment of needs at the end of the period of education, when newly qualified health professionals will enter the labour market, hence the need for forecasting the future HW.

In 1996, a national Medical Workforce Planning Committee was established for that purpose.⁸ This Committee advises the Minister of Health and Social Affairs in matters concerned with planning the HW. The committee is composed of representatives from the universities, the health insurance organizations, professional organizations, the federal and community governmental bodies, and the National Institute of Health Insurance (RIZIV-INAMI) – a total of 31 members. The Committee is supported by a secretariat of four persons (head of department who acts as secretary of the committee, two statisticians and one administrator, not all full-time), from the service of planning of health professionals, located within the Federal Public Service Health, Food Chain Safety and Environment.⁹

⁷ Prepared in collaboration with Henk Vandenbroele, Head of Department, Planning Health Professions and Ms Riet De Kempeneer, Attaché International and Strategic Coordination, Federal Public Service Health, Food Chain Safety and Environment, Belgium.

⁸ Commission de planification – offre médicale/Planningscommissie-medisch aanbod.

⁹ Service Publique Fédéral de Santé Publique, Sécurité de la Chaîne Alimentaire et Environnement/Federale Overheidsdienst Volksgezondheid, Veiligheid van de Voedselketen en Leefmilieu.

The models for forecasting were initially designed at the Ministry of Health to test the effect of various scenarios on the future workforce. The results are discussed in the Planning Committee, which is advising the minister. Parameters used in the forecasts are: starting stock of the profession according to age and gender, ageing and survival of health professionals, activity level by age and gender, a global work time reduction estimate, and estimates of migration, entry of new graduates and feminization of the graduate population. On the demand side, the current and forecasted population by age and gender were used. At first, scenarios for physicians were produced, followed by others for dentists, physiotherapists and nurses. As a result of this forecasting, quotas for dentists and physiotherapists were defined and applied.

The approach has since been evaluated, refined and expanded, with a scientific audit of the scenarios and models in 2003; the legislation for a federal database for health professionals (the "cadastre") in 2003; the expansion of the demand side of the model with health consumption data in 2005 and the start of the first multi-annual programme in support of the Planning Committee in 2006.

The first multi-annual programme, called PLAN1.2006, aimed at:

a) "harmonization" of all models into one model accessible to stakeholders; b) the definition of information needs and data sources for the future federal database; and c) filling the gaps in parameter estimates, using surveys of health professionals. The web-based model is now accessible to stakeholders,¹⁰ one is published (10) and others are in production. Four surveys have been completed (11, 12, 13, 14) and results have been discussed with stakeholders. Several new sources of data are accessible; the most important is called the "permanent sample" – a random sample of a prospective cohort of Belgian health consumers.¹¹

A new multi-annual programme is in development, with the aim of repeating the surveys on health professionals, of expanding the demand side of the model to needs based scenarios in addition to health-profession based scenarios; more reliable and valid data by merging data from three sources: the Ministry of Health, the National Institute of Sickness Insurance (INAMI/RIZIV) and the national labour market data warehouse. The combined sources should

¹⁰ Protected access via a web based application. In French "Le modèle de planification des professions de santé" via https://portal.health.fgov.be/portal/page?_pageid=56,16454533&_dad=portal&_schema=PORTAL

In Dutch: "Het Planningsmodel van Gezondheidsberoepen" via https://portal.health.fgov.be/portal/page?_pageid=56,16454533&_dad=portal&_schema=PORTAL

¹¹ More information in French: <http://www.riziv.fgov.be/information/fr/sampling/index.htm> or Dutch: <http://www.riziv.fgov.be/information/nl/sampling/index.htm>

make it possible to define health professionals according to international definitions of “licensed to practise”, “professionally active” and “practising”.¹²

From the beginning of development of this process in Belgium, the aspiration was for an evidence-based policy, even within a context of limited data. The multi-annual programmes now support this by using project management tools and techniques, and by offering a coherent and, over time, predictable and clear project within a sometimes fast changing political context.

Canada

Canada is also a federal country, where some aspects of health policy are determined or coordinated at national level, but where the responsibility for policy and planning is at province/territory level. Each province has a different approach to managing its health services system, as well as its HW. Health care is funded through a publicly financed health insurance system, and delivered through a mix of public and private organizations. In addition to the resources allocated by provinces, the federal government provides funding in a lump sum, based on the province’s population. This is meant as an incentive to bring provinces in line with national rules and standards, such as the principles of universality of coverage, of free access to services, or of the portability of coverage from one province to another.

A national level approach to health human resource planning was set out in 2003, in the Pan Canadian Health Human Resource Strategy (15). The objectives were to ensure that the appropriate workforce was in place to offer high level health care, and incorporated core elements of HW planning, improving recruitment and retention, and promoting interprofessional education. Canada has relatively good data about the HW, both at province level and nationally, which are made available through the Canadian Institute for Health Information (www.cihi.ca). The provinces fund training places, which gives them a de facto control of the growth of the workforce. Medical school and postgraduate training places are regulated and numbers are adjusted to reflect forecast demand. Postgraduate training only takes place in hospitals and health centres with university links. Once qualified, there are no limits imposed on the numbers of doctors who are able to practise in Canada (access to practice is difficult for migrant doctors from countries that do not have a mutual recognition of qualifications agreement).

¹² In 2010, the OECD, Eurostat and WHO will collect data through a “Joint data collection on non-monetary health care statistics electronic questionnaire” with a view to harmonizing their statistics.

Provincial/territorial governments provide funding to post-secondary nursing educational institutions. The number of places available in nursing schools is based on negotiation between the ministries of health and education. Many provinces/territories have government-funded nurse advisory committees, which provide advice to government on education plans for health.

Recognizing that the simple adjustment of worker/population ratios in accordance with demographic projections was insufficient to respond to future needs, important efforts have been devoted to the development of needs-based planning strategies, thus far, with limited success (16,17). Sustained HW planning efforts are deemed difficult given changing governments and political priorities (18).

England

Most care is delivered by the National Health Service (NHS). There is devolved responsibility for NHS policy and planning to England, Northern Ireland, Scotland and Wales, with a single overarching regulatory framework and the same, or similar, pay and career structure for health professionals. In England, HW planning and policy has been high on the policy agenda in recent years and was the subject of a House of Commons Committee Inquiry in 2007 (19). Its report highlighted a lack of alignment between workforce planning and service/finance planning, inadequate planning capacity, and tensions in the NHS between the “top down” pressures to meet national policy priorities, and “bottom up” pressures to meet local service and staffing needs. The response to these inquiries was bound up in the Next Steps Review (NSR), which focused on a shift of resources to primary care and locally commissioned services, and an emphasis on clinical leadership (20,21,22).

The Department of Health, in association with other government departments and agencies (e.g. Department of Education), currently has the capacity to influence most of the key levers influencing HW supply, education, pay and international migration. It is also in a strong position to require standardized and relevant data for planning purposes from NHS employers. Medical workforce needs assessment and planning is led by the Department of Health, with a significant role to be played by the recently established Medical Education England (MEE), and with a role for the newly established Centre for Workforce Intelligence (CWI). These national organizations will work in partnership with the Strategic Health Authorities (SHAs) and the professional bodies (e.g. Royal colleges). There have also been recent developments in demand-side modelling, linked to specified care groups/“pathways”.

While there has, in the recent past, been a stated policy ambition to more effectively “integrate” workforce planning for medical and nonmedical staff

groups in order to improve decisions on skills mix and to support multiprofessional teamwork, this has not fully happened in practice. The Tooke report (23) summarized the “pros” of decentralized medical workforce planning as being that it would be demand led, and locally responsive, while the “cons” were that it would be a “distribution of currently inadequate function”, that it hampered national oversight, and that the track record of decentralized commissioning was not altogether positive – pointing to examples where training budgets had been “raided” for funds for other purposes. The policy response has been to reinforce the long-term division between “medical” and “nonmedical” workforce policy and planning, and full “integration” of HW planning across the professions is not on the agenda.

At regional level, SHAs hold the budgets for commissioning so called “nonmedical” education and training (particularly nurses and allied health professionals), and are expected to build up workforce plans using intelligence from local NHS employers (24).

There is an annual cycle of planning:

- Primary Care Trusts (PCTs) and local councils commission services and “need to be confident” that service providers have workforce strategies in place; local service providers must develop integrated service and workforce plans.
- Based on service provider plans, PCTs produce combined service and workforce plans, which are sent to SHAs.
- SHAs combine PCT plans into a single regional plan, and develop integrated service and workforce plans for the region, which are the basis for defining education and training targets.
- The SHA regional plans are sent, via the CWI for synthesis and analysis “to the relevant national and regional professional advisory boards for scrutiny and advice”.
- The Department of Health commissions medical and dental undergraduates (scrutinized by national professional advisory bodies); quality assures SHA plans; secures and allocates funding for workforce development, education and training “against quality assured SHA plans”; and identifies national risks through a “strengthened, well informed bilateral process” with SHAs.

A recent report (25) observed that planning capacity varied among SHAs and highlighted the failure to effectively link financial and workforce planning at both local and national level, and to pay enough attention to productivity and flexibility issues. It recommended that efforts to develop an integrated approach

to future needs assessment be maintained and increased, in spite of the technical difficulties involved.

The most recent publication on NHS workforce planning emphasizes that it should be “based on the principles of co-production, subsidiarity, clinical leadership and system alignment agreed as the essential underpinnings of organisational change”; this report pre-dates the election of a new government in May 2010 (26).

Finland¹³

A comprehensive analysis of labour demand and supply in all industries, including social and health care, has been conducted every four years since 1991, in order to align education and long-term labour needs. Numerous actors participate in the process: ministries, the National Board of Education, the Association of Finnish Local and Regional Authorities, Statistics Finland, the Finnish Centre for Pensions, and research institutes. The *Labour Force 2025 report* assesses demand for 2005–2020, taking into account economic, employment, demographic and productivity of work trends. A calculation model by the National Board of Education converts labour demand to targets for student intakes, taking into account attrition rates, labour market participation rates, and so on. Needs in social and health services are expected to increase. Intakes are determined in annual negotiations and the Ministry of Education signs three-year performance agreements with polytechnics and universities. The Ministry of Education consults the Ministry of Social Affairs and Health on the competences requirements. The *National Development Plan for Social and Health Care Services 2008–2011* includes several measures for ensuring an adequate supply of human resources in social and health care: (a) a review of working conditions to promote the attractiveness of work in primary health care, particularly among physicians and dentists; (b) reinforced cooperation between health care and education and training organization; (c) national guidelines on the advanced roles on nurses; and (d) a bill on nurse prescribing rights. At present, the Ministry of Social Affairs and Health is involved in a consortium, which orders forecasts for labour demands from the Government Institute for Economic Research under the Ministry of Finance.¹⁴ In anticipation of labour demand and education needs, the roles of regional actors/stakeholders were strengthened through legislative amendments at the beginning of 2010.

¹³ Based on Vallimies-Patomäki M (2009) *Health workforce in Finland*. Case study presented at Policy Dialogue on workforce planning, European Observatory on Health Systems and Policies, Venice, 11–12 May. Available at: <http://bcdmi.co.uk/EMEA/WHO/PolicyDialogue2009/Venice/Programme.htm>

¹⁴ English abstract available at: http://www.vatt.fi/file/vatt_publication_pdf/t154.pdf

National level forecasts of labour demand and education needs in Finland have been reasonably accurate, but geographical imbalances have yet to be tackled. Therefore, there are plans for the responsibilities of health centres and hospital districts in regional anticipation of labour demand to be regulated in the future. There have also been discussions about how to ensure that regional forecasts of educational needs would be in accordance with regional educational supply.

Germany¹⁵

Germany is a federal country which has no national system of HW planning; the country adheres to the principle that access to a profession of one's choice is a right. Medical school intake is determined by the number of places available. Numbers are negotiated between health policy-makers and educators. Historically, this has led to an oversupply of physicians; the government has started to regulate the number of practising physician posts, but not the number of medical students. As demand for medical education exceeds the supply of places, many young people go abroad, mainly to Austria, to study medicine. The insufficiency of posts may lead physicians to look for work in other countries. Little is known about these movements. Germany exports health workers, principally doctors, to neighbouring countries and to England. There is no integrated database of the HW (there is no national register of nurses, for instance). Recently, an increasing concern has been voiced regarding a lack of medical doctors – especially in less populated areas. The increasing number of doctors working in other European countries also raised the question of adequate compensation in Germany.

This said, there are various specific planning initiatives. In a report on the development of long-term care insurance, the Government established that, in the future, a lack of qualified nurses can be expected, especially in the German "Altenpflege" (i.e. nursing for the elderly) and that different actors need to take action on this, including efforts to attract new students and to increase the capacity of educational institutions. The Ministry of Health and the Ministry of Family Affairs, Senior Citizens, Women and Youth (BMFSFJ) have started implementing an information platform and regional support structures on "nursing for elderly care" and launched a campaign to increase the appeal of the "Nursing in elderly care" qualification. The future of nursing education in Germany is much debated. One topic is the introduction of a unique basic

¹⁵ Based on Büscher A (2009) *Long-term care workforce in Germany*. Case study presented at Policy Dialogue on workforce planning, European Observatory on Health Systems and Policies, Venice, 11–12 May. Available at: <http://bcdmi.co.uk/EMEA/WHO/PolicyDialogue2009/Venice/Programme.htm>

nursing education programme for general and paediatric nurses, as well as those for nurses for elderly care. Several demonstration and model projects have been conducted or are under way. For instance, a recent project seeks to determine institutional, organizational and managerial levers to increase the length of time that nurses continue to work in their profession. This includes topics such as occupational safety, ergonomic working, or health-supporting management.

Also, recent legislative reforms provide for demonstration and model projects on the delegation of physicians' tasks and responsibilities to nurses. An original feature of the German case is the efforts to increase the long-term care workforce by means of deprofessionalization, by attracting recipients of social assistance and the unemployed to the sector, on a long-term basis, as well as voluntary workers. Medium- and long-term care effects of these initiatives are not known.

Ireland¹⁶

In 2007 the Irish Ministry of Health (Department of Health and Children (DOHC)) requested assistance in workforce planning from the Irish Expert Group on Future Skills Needs (EGFSN). In response, the Skills and Labour Market Research Unit (SLMRU) of Irish Training and Employment Authority (FÁS), on behalf of the EGFSN, developed a series of quantitative models and produced example simulation projections on the demand and supply of health care workers. The research began in February 2008 and the report of the work was published in June 2009.¹⁷

The main objectives of the research were:

1. to develop a quantitative model which can be used as a tool for the assessment of different policy scenarios relevant in the context of the Government health care workforce planning;
2. to simulate the model and assess, in quantitative terms, the balance between the current and expected future demand and supply of skills under different sets of assumptions about the model parameters as defined by the liaison group.

The research focused on twelve health care occupations: medical consultant, general practitioner, specialist in public health medicine, speech and language

¹⁶ Prepared in collaboration with Jasmina Behan, Skills and Labour Market Research Unit (SLMRU), Training and Employment Authority (FÁS), Ireland.

¹⁷ EGFSN (2009): *A quantitative tool for workforce planning in healthcare: example simulations*, available at www.skillireland.ie

therapist, physiotherapist, nurse and midwife, health care assistant, home help, social care worker, clinical psychologist, medical physicist, and radiation therapist. The quantitative modelling employed was done at macro level. The result of modelling was not a proposition of what the desirable level of service should be. Rather, it was an outcome of the model based on a set of assumptions derived from the available information about the current situation.

The forecasting was undertaken for the period of 2008–2020. The study covered the total workforce per occupation spanning both the public and non-public sector. The inflow of non-Irish health care workers was set to zero in order to isolate the domestic supply and assess the level of self-sufficiency, that is, the extent to which the Irish education and training system can meet the estimated demand. The analysis was conducted at national level and, therefore, it was not possible to account for any potential regional variability in the demand and supply of labour. Each occupation's model was independent of other models and no simultaneous effects could be measured.

At the baseline, the demand for health care workers was projected assuming that the same level of service (defined as head count density per population) is provided for an increasing population. The total recruitment requirement was derived from expansion demand (calculated by holding the current density constant while growing the size of the population as per the Central Statistics Office (CSO) population projections under the M0F2 scenario)¹⁸ and replacement demand estimates (loss due to retirements, emigration, etc.). At the baseline, the population was assumed to increase by 8% in total, or 0.7% on average annually to reach 4.8 million in 2020.

For most occupations, one or more alternative sets of projections were produced by varying the assumptions used at the baseline. All scenarios run can be grouped into three categories:

- Scenarios in which the head count density is increased in line with targets proposed by the previous research and policy documents: the concept of a step change where a target is reached in a single increment is used to illustrate the gap between the current employment level and that implicit in a target; this also allows for the assessment of the balance between demand and supply following the achievement of the target density: comments on the recruitment requirement arising from the annualization of the target increment over the projection period are also provided;

¹⁸ This is the slowest population growth scenario produced by the CSO in April 2008; it assumed a natural increase in population only (births, at lower fertility rate, minus deaths) and zero net migration throughout the period.

- Scenarios in which densities were calculated by focusing on target populations for particular health care services (e.g. persons aged 65+ for General Practitioner (GP) services and home helps, children for children's nurses, number of births per annum for midwives, etc.);
- Scenarios in which densities were calculated by focusing only on one segment of service provision (e.g. physiotherapists working in the public sector only per overall population).

Based on the findings in the study, the following recommendations were put forward:

- Address data gaps in order to conduct quantitative modelling and forecasting of the demand and supply for health care occupations with greater precision.
- Adopt an integrated approach in setting the type and level of service provision, to take into account interoccupational dependency and skills mix, combine quantitative and qualitative methods to assess demographic changes, socioeconomic developments, regulatory environment, budgetary constraints, migratory flows, policy initiatives and technological changes.
- Approach workforce planning as an ongoing process in order to prevent situations of shortages or excess supply, or of excessive attrition.

Lithuania

Medical workforce planning began in 2000 and nursing only in 2006, while planning for dentists, pharmacists and public health professionals is still being developed. The results of long-term projections of physician numbers revealed an urgent need to increase the intake of students, which was approved by the Ministries of Education, Health and Finance and implemented in 2002. Based on projections, the output from universities in 2012 should cover national needs taking into account attrition rates, demographic changes, migration patterns, and so on. In 2005, the Ministry of Health started recommendations for the universities on the distribution of residency training places, which are largely taken into account.

The programme "Strategic planning of the health workforce in Lithuania during 2003–2020" was approved by the Ministry of Health in 2003. It was updated in 2005 with new objectives to better integrate HW planning with the overall health sector reform. The main strategic objectives of the policy are:

- to examine changes in the HW at national, county and district level;
- to enable HW planning by specialty at the level of counties and districts based on population projections, mortality, morbidity trends and health care reform objectives;
- to develop a model for planning supply and demand based on health care reform;
- to develop projections of supply and demand by specialty.

Currently, the model for planning supply and demand is adopted by ministerial decree. The Ministry of Health will fund further projections of the HW in Lithuania taking into account competences and productivity. The EU structural funds will be used to establish an HW register at the Ministry of Health, which will greatly enhance the capacity to correctly assess the current situation and future needs of health workers in Lithuania.

Slovenia¹⁹

Workforce planning in health care is implemented through the policies of the Ministry of Health, the respective professional chambers, and partly by the Ministry of Higher Education. The latter consults with the ministries on the proposed numbers of students admitted to different university programmes of studies. In the case of medical, dental, pharmacy and nursing students, a "*numerus clausus*" is proposed each year by the Government to Parliament for final confirmation. There have been several attempts to make Slovenia "self-sufficient", by scaling-up the capacity for the education of health professionals. A second medical faculty in Maribor was opened in 2003 and four additional nursing schools were created between 2003 and 2008.

The only two models used so far in the forecasting of health professionals supply and demand were: demography of the individual profession's population and the simple equilibrium model taking into account the present number of health professionals. The underlying assumptions for the projections in the 1990s and in the beginning of 2000s were that it was necessary only to replace those health professionals who were leaving health care through retirement, incapacity or simply changing to a different profession.

¹⁹ Prepared from notes provided by Tit Albrecht, Director, School of Public Health of Slovenia.

Spain²⁰

In Spain, the responsibility for health services is decentralized to Autonomous Communities. In the 2000s, the country went from a surplus to a shortage of physicians, with some specialties more affected than others. In 2006, a team was commissioned by the Ministry of Health to conduct a study on current and future need for physicians, by specialty, to serve as a basis for planning, which was recognized as being needed. A simulation model for planning the stock of medical specialists (2008–2025), based on Systems Dynamics software, follows the physician's professional life-cycle from entry to a medical school until retirement. A number of variables were used to assess needs per specialty: existing *numerus clausus*, number of training positions in each specialty, retirement age, attrition and mortality rates (by age-sex), emigration and immigration rates; population demographic profile, growth forecasts, and normative standard of need (medical specialists per population) for each specialty "need" estimated on the basis of market data; unfulfilled positions in public centres, job market indicators available from medical associations and labour market brokers. The evolution of future needs was estimated by the Ministry of Health using a Delphi technique with independent experts and with staff of the Autonomous Communities. The expert panel classified the 43 medical specialties in four groups according to the forecast growth of the standard of need. These experts were asked to base their forecasts on epidemiological and technological data.

The model is useful in planning and in regulating the supply of health professionals appropriately. Health planners can use the model to answer counterfactual questions (what if?). It allows a sensitivity analysis of the most uncertain parameters; for instance, population growth was set at three alternative levels (low, medium, high). The Ministry of Health plans to apply the model to nurses, but nothing similar is envisaged for other workers. Compared to physician planning, nursing planning is technically simpler, but politically more delicate, because nursing professional profiles are not well defined, and they change with time. The utilization of a formal model brought discipline to the debate, forcing actors to use facts instead of opinions, and to make their assumptions explicit. The model exposes the gaps in information and the need for more reliable and complete data. It is now recognized that a registry of health professionals is needed in Spain.

²⁰ Based on Gonzalez B (2010) *Health workforce planning in Spain*. Case study presented at Policy Dialogue on workforce planning, European Observatory on Health Systems and Policies, Venice, 11–12 May. Available at: <http://bcdmi.co.uk/EMEA/WHO/PolicyDialogue2009/Venice/Programme.htm>

There are also efforts at multi-country level, to develop methodologies that would help countries in their efforts to estimate their HW needs. An example of efforts at refining typical workforce planning models with factors that take into account how features of work environment and qualification of the nursing workforce impact on nurse retention, productivity and patient outcomes is provided in Box 1.

Box 1. The RN4CAST, Nurse Forecasting for Europe Project

Current human resources planning models in nursing often focus on numbers, but ignore effects on quality in patient care. Funded by the Seventh Framework Programme of the European Commission, the RN4CAST project aims at introducing innovative forecasting methods by addressing not only numbers, but quality of nursing staff and its effects on patient care.

The study comprises a consortium of research teams from Belgium, Finland, Germany, Greece, Ireland, Poland, Spain, Sweden, Switzerland, the Netherlands and the United Kingdom with Norway as a later addition. Up to 500 hospitals, 50 000 nurses, 12 000 patients and hospital discharge data from hundreds of thousands of patients will be covered. The study focuses on medical and surgical care within general acute hospitals. Data was collected anonymously from nurses and patients in addition to hospital discharge records, to investigate how elements including nurse qualifications, demographics, workload, well-being and practice environment can effect productivity, patient safety and patient outcomes (see <http://www.RN4CAST.eu>).

5 Lessons

The issue of matching and forecasting needs, demand and supply of health workers is complex in any context. No country in the world does it in a manner that can be referred to as “best practice”. Some countries make serious efforts at HW needs assessment, but the great majority has yet to engage in such a process, even in the EU. The growing recognition that this is needed in order to achieve the objective of making health services more accessible, as well as more effective and efficient, has brought the issue higher on the policy agenda. What can countries learn from available experiences? What general lessons are there for policy-makers? Here are ten points to be considered:

1. There is added value in assessing future HW needs. It can help prevent or mitigate risks of imbalances (shortages, surpluses, distribution) that limit the performance of health services, by showing the consequences of maintaining, reducing or increasing the current stock of health workers. It also focuses the debates and negotiations about the funding and

organization of health services on data and facts, rather than only on opinions and interests.

2. In engaging in needs assessment, it is important that policy-makers declare the values, principles and policies that guide them. The choice of strategies and even of tools to assess needs will be a function of these choices.²¹ For instance, the objective of meeting future needs, and not only future demand, calls for quite different policy and methodological approaches.
3. Future needs are expressed not only in numbers; dimensions of the work environment, such as the division (skills mix) and organization of labour, competences, working conditions, productivity and quality targets are critical variables. Quantitative models and tools are needed, but they are no substitute for making judgements about what is ultimately needed and affordable.
4. There needs to be a more integrated approach to assessment (e.g. to look at the HW as a whole). This is justified by the nature of interactions and complementarities between the various professional groups in health and the recognized need for teamwork. While there are no good practice examples, it should not preclude all efforts to advance in that direction. This includes covering the plurality of professions and institutions in the health system and identifying all economic, political and social variables that play a part in determining future HW requirements.
5. The experience of countries such as Belgium, England, Finland, Ireland, Spain and others, which invested in HW needs assessment shows neatly the importance of an information base that provides valid, reliable and up-to-date data to monitor the workforce and the labour health market. Without sound data, the estimation of education needs becomes a guessing exercise.²² Since decisions about the future HW involve actors from various sectors (education, health, finance, planning, professional bodies, employers), there are inevitably conflicts. Access to solid data helps to inject rationality in discussions and negotiations.

²¹ "...only where the social and political choices about the access to and delivery of care are explicit can scientific methods be used systematically to derive the requirements for health care providers in a particular population" (27).

²² See World Health Organization (2010) Report of the first meeting of the Health Workforce Information Reference Group, WHO, Global Health Workforce Alliance, Health Metrics Network, Geneva, WHO, for more detail on data and benchmarks for a well functioning HW information system (available at: <http://www.who.int/hrh/resources/hirg/en/index.html>).

6. Even with the best data and projections at hand, governments cannot dictate or decree change (for instance, to review the scope of practices). It still has to be somehow negotiated, hence the importance of engaging the various stakeholders as early as possible in the process. Stakeholder involvement to build on existing workforce planning expertise and to nurture the process of HW planning is probably the most vital part in the process, as there is a need for a common agenda and language and a priori consensus about methods and conceptualization for workforce planning. This can be facilitated by policy dialogues starting as early as possible in the process, as illustrated by the country experiences presented above.
7. Forecasting future needs is more difficult when this function is decentralized, for example, there are tensions in the NHS in England between the “top down” pressures to meet national policy priorities, and “bottom up” pressures to meet local service and staffing priorities (28). There is a need for some coordination mechanism at central level, to ensure that all responsible agencies use the same language. Also, the mobility of users and providers may be rapid and adjustments may be required that only an organization with a national perspective can propose. On the other hand, national assessments might be on target at the country level, but fail to take into account differences in needs at regional and local level.
8. There is no agreement on planning horizon lengths, but it is obvious that the longer the time frame, the riskier the forecasts. The option of using the professional life-cycle of a cohort of new graduates as the time horizon, which is a logical choice, implies the risks associated with speculating about future changes over a period of 30–40 years. Using the length of the education process of the most qualified personnel (approximately 10 years) may be a reasonable alternative. In any case, this justifies the option of associating forecasts with scenarios covering different possibilities of evolution of the HW, and of the context in which it operates.
9. Implementing strategies in a flexible manner, based on careful monitoring, is key to responding to changing needs. A workforce plan should not be regarded as a “one-off” creation that is not open to adaption and change; rather it must be tested and revised as and when necessary. Dynamic and direct feedback channels from health care organizations to educational institutions could help to better adjust demand for health workers and their supply.
10. Oversupply or undersupply of health workers can be observed at the whole country level, but they can also coexist within the country, with some regions experiencing shortages while others showing excess. This creates significant political and economic policy challenges as well as

impacting negatively on health care provision. Not doing anything or reacting only when problems become sensitive has high costs, in economic and political terms, but above all in health terms as the population cannot benefit from accessible, effective and efficient health services because of HW imbalances. Countries would benefit from the exchange of good practices through the Open Method of Coordination (OMC) as regards the geographical distribution and remuneration of health care professionals, as well as from approaches to optimizing the allocation of the HW through the health services system.

Policy questions for the EC

Now that the EC has engaged in a consultation on its *Green Paper on the European Workforce for Health* (http://ec.europa.eu/health/ph_systems/workforce_en.htm) in general, and on the topic of assessment of future HW needs more specifically, it may need to consider some policy questions and options generated by its commitment to support countries in addressing HW issues. Examples are:

- Should there be EU standardized definitions of health occupational categories and of health labour market indicators, as well as reporting formats and procedures?
- Should the EU propose (encourage/require) the utilization of standardized data collection tools and reporting formats?
- What is the role of the EU in that respect, relative to that of technical agencies such as WHO? Would it be opportune to create a EU Observatory on HW with a mission (a) to support countries in developing their HW database, in analysing data, in developing HW policies, (b) to consolidate country information and produce regional analysis; (c) to analyse and compare HW qualifications and training standards of EU Member States, (d) to monitor, analyse and disseminate country experiences?
- Should the EU encourage the development of an EU-wide network of HW planners and policy-makers to share knowledge and experience?
- Should the EU encourage and technically support inter-country HW development, for instance between countries which already experience important cross-border movements?

Key messages: summary

- The choice of a strategy to assess future HW is value-based and depends on what health outcomes and service objectives policy-makers have set.
- Assessing future HW needs is not only about projecting the numbers. Policy-makers need also to address the issues of recruiting, educating, distributing, retaining, motivating and managing the HW, which implies improving the knowledge of expectations and behaviours of health workers. There is little benefit in educating adequate numbers of doctors or nurses, only to see them then migrate to other countries because the labour market cannot integrate them, or because working conditions are not attractive enough.
- Addressing needs implies more than producing more workers; scaling-up can be achieved by improving competences, changing skills mix, and by augmenting productivity.
- It is important to see HW planning as a process that engages the main stakeholders in assessing needs for change and in devising strategies to achieve it.
- The better the information base and the technical capacity to use it, the better the diagnosis and the selection of interventions will be.
- Monitoring is essential in order to adjust interventions to a changing environment.
- And last but not least, sufficient and predictable funding must be available to invest in workforce development. The benefits will soon be apparent in terms of better access to services, more efficient utilization of resources and higher satisfaction of citizens.

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Annex: Overview of data sources for HW planning in Europe

There are three main databases of HW data relevant to EU based policy-makers and planners: the OECD health data, the European Health for All database (HFA-DB) of the WHO Regional Office for Europe and the Eurostat database. All three databases are available online. The OECD health data and the Health for All database can be installed and used offline. The Eurostat database and Health for All database are free of charge.

The three databases provide overlapping and complementary information, but each is compiled in a different way, and in some cases from different sources. The key differences are summarized in Table 1 below.

Table 1: HW data: coverage, data availability and data types: OECD health data, European Health for All database and Eurostat

	OECD health data	European Health for All database	Eurostat
Countries	30	53	33
Period	From 1960	From 1970	From 1970
Sources	Mixed	Ministries of Health	National statistical institutes
Type of data	Numbers, density	Numbers, density, FTE, %	Numbers, density, %
Variables	Medical graduates Registered physicians Practising physicians: by sex, GP/specialist Foreign-trained physicians Nursing graduates Midwives Practising nurses Professional nurses Associate nurses Acute care nurses staff ratio Practising dentists Practising pharmacists	Number of physicians, (PP) Physicians, (FTE) per 100 000 pop., GPs, medical Surgical, obstetric & gynaecological, paediatric specialties % of physicians working in hospitals Physicians, nurses, midwives, dentists, pharmacists graduated PP and per 100 000 pop. per year Nurses (PP and FTE) per 100 000 pop. % of nurses working in hospitals Midwives (PP and FTE) per 100 000 Dentists and pharmacists (PP and FTE) per 100 000 and (FTE) per 100 000	Health personnel, absolute numbers and per 100 000 pop. Nursing and caring professionals, absolute numbers and per 100 000 pop. Health personnel by region, absolute numbers and per 100 000 pop. Physicians by speciality, absolute numbers and per 100 000 pop. Physicians by age and sex, absolute numbers

Notes: PP: Physical persons; FTE: Full-time equivalent.

Of the 30 countries included in the OECD-database, 18 are EU countries. Eurostat covers all EU countries, plus the candidate countries, the former Yugoslav Republic of Macedonia, Croatia and Turkey, and three other European countries: Iceland, Norway and Switzerland. The European Health for All database covers the 53 Member States of the WHO European Region.

None of these databases produces its "own" data; all rely on country sources, which can vary in terms of definitions used, process of collection, periodicity and other dimensions. Eurostat works mainly with national statistical institutes (NSI), WHO Regional Office for Europe mainly with Ministries of Health and professional organizations, and OECD with statistical institutes and ministries. An example of variations is the utilization of different definitions and concepts: Eurostat differentiates "practising", "professionally active" and "licensed" health care professionals. The OECD also uses the definition of "practising", but indicates that for some countries, nonpractising professionals are also included (e.g. nurses in some countries such as France, Greece, Iceland and the Netherlands), and for other countries retired professionals are included (e.g. Poland). In some countries, data about the number of nurses also includes midwives. All three databases provide data about health worker density per 100 000 inhabitants. The difference in definitions and periodicity makes comparability weaker. For nurses' density, for example, only two out of 27 EU countries have data in all three databases. Eurostat reports data from most countries (15 out of 27 countries). Although the differences between the databases are often small, in some cases they are significant (varying from less than 1% difference to more than 70%), highlighting that a different HW "picture" may emerge, depending on which database (or mix of databases) are used.

The **Health Evidence Network** (HEN) of the WHO Regional Office for Europe is a trustworthy source of evidence for policy-makers in the 53 Member States in the WHO European Region. HEN provides timely answers to questions on policy issues in public health, health care and health systems through evidence-based reports or policy briefs, summaries or notes, and easy access to evidence and information from a number of web sites, databases and documents on its web site (<http://www.euro.who.int/en/what-we-do/data-and-evidence/health-evidence-network-hen>).

The **European Observatory on Health Systems and Policies** is a partnership that supports and promotes evidence-based health policy-making through comprehensive and rigorous analysis of health systems in the European Region. It brings together a wide range of policy-makers, academics and practitioners to analyse trends in health reform, drawing on experience from across Europe to illuminate policy issues. The Observatory's products are available on its web site (<http://www.healthobservatory.eu>).